

Organ and Tissue Donation and Transplantation

Activity Report 2021/22





Preface

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

All figures quoted in this report are as reported to NHS Blood and Transplant by 23 May 2022 for the UK Transplant Registry, maintained on behalf of the transplant community and National Health Service (NHS), or for the NHS Organ Donor Register, maintained on behalf of the UK Health Departments.

The information provided in the tables and figures given in Chapters 2-10 does not always distinguish between adult and paediatric transplantation. For the most part, the data also do not distinguish between patients entitled to NHS treatment (Group 1 patients) and those who are not (Group 2 patients).

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-2020 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 ethnic minority groups is published alongside this Activity Report – *Annual report on ethnicity differences in Organ Donation and Transplantation*. It provides additional information on trends in organ donation and transplantation by ethnicity.

The COVID-19 pandemic has led to unprecedented challenges for UK transplantation. Concerns about the ability to care for transplant recipients, lack of access to resource because it is being used for patients in the pandemic, and the risk versus benefit for immunosuppressed transplant recipients, have resulted in a major reduction in the number of organ transplants undertaken.

Waiting list figures at the 31 March 2020, 2021 and 2022 do not accurately reflect the need for an organ transplant due to the COVID-19 pandemic. Different practices have been established across the UK and across organ groups with regards to waiting list management.

Acknowledgement

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





Foreword

Transplantation would not be possible without the generosity of those who choose to give life to others through organ donation, whether living or deceased. Thanks to the 1,397 donors who gave their organs after death last year and the 909 living donors, 4,324 transplant operations took place saving the lives of so many patients in need of an organ transplant. This equates to an increase of 18% in organ donors and 27% more transplants than last year. Almost 30 million people in the UK have now registered their donation decision on the NHS Organ Donor Register, with almost 28 million of those choosing to opt-in to organ donation. Last year (2021/22) there was also an increase of 27% in the total number of corneas retrieved to NHSBT Eye Banks and a 33% uplift in the total number of corneal transplants. Corneas were retrieved from 1,787 cornea-only donors and from 483 solid organ donors who agreed to also donate their corneas.

There is no hiding the fact that the NHS has been through the toughest of times recently due to the Covid-19 global pandemic. During the pandemic, the characteristics of the donors changed to enable more organs to be donated by fewer, younger donors. However, this was reversed last year, and the donor pool has widened once more to include older donors. The consent/authorisation rate fell slightly last year from 69% of families supporting donation at the point of asking, to 66% of families last year. Despite this fall in consent/authorisation, deceased organ donation and transplant activity is now almost back to pre-covid levels of activity (1,600 deceased donors and 4,990 transplants in 2018/19). Living donation also resumed last year, with 909 people giving a kidney or part of their liver. Living donors accounted for almost 40% of the total number of organ donors last year. Even with these improvements the waiting list increased again last year as non-urgent patients have now been reactivated following a suspension during the pandemic and more patients have been added to the transplant lists. Sadly, last year 429 patients died while waiting for a transplant (compared to 525 in 2020/21) and a further 644 were removed from the transplant list due to deteriorating health and ineligibility for transplant.

A number of opportunities are emerging to drive forward further and future improvements. The law changed in England in 2020, Scotland in 2021 and deemed legislation gained Royal Assent in Northern Ireland in 2022. In June last year a new strategy for organ donation and transplantation was launched, Organ Donation and Transplantation: Meeting the Need, which sets the ambition for 2030, building upon past successes while planning service improvements for the future. The aim is to balance the evolution of current best practice with a revolution in new technologies and research to deliver real improvements for people in desperate need of a transplant.

Diversity and inclusion are a key priority going forward. Surveys show that families from Black, Asian and minority ethnic backgrounds are less likely to discuss organ donation and are much more likely to decline the option of organ donation when offered the opportunity to donate. Proportionately, more people from ethnic minorities need transplants than the rest of the UK population. In 2020/21, 8% of donors were from Black, Asian and minority ethnic communities. By contrast, these ethnicities are estimated to represent 14% of the UK population. Much is being done to address this issue, but there is more to do working in partnership with charities, stakeholders, community groups and clinical teams to close the gap between those from ethnic minority communities willing to donate and those in need of a transplant.



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.

A blue ink signature of Anthony Clarkson, written in a cursive style.

Anthony Clarkson
Director - Organ and Tissue
Donation and Transplantation

A black ink signature of Prof Derek Manas, written in a cursive style.

Prof Derek Manas
Medical Director - Organ and
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A black ink signature of Dr Dale Gardiner, written in a cursive style.

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Summary of Donor and Transplant Activity

In the financial year to 31 March 2022, compared with the previous year

- there was an 18% increase in the number of deceased donors to 1,397
- the number of donors after brain death increased by 2% to 785, while the number of donors after circulatory death increased by 48% to 612 (after usual criteria for DCD donation were reinstated following the first wave of the pandemic)
- the number of living donors increased by 102% to 909, 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 increased by 27% to 4,324 (as services started to increase to normal levels)

The total number of patients registered for a transplant has increased (by 47%), so that:

- there were 6,269 patients waiting for a transplant at the end of March 2022, with a further 3,990 temporarily suspended from transplant lists
- 429 patients died while on the active list waiting for their transplant compared with 525 in the previous year, a decrease of 18%. A further 644 were removed from the transplant list. The removals were mostly as a result of deteriorating health and ineligibility for transplant and many of these patients would have died shortly afterwards.

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

- an increase of 33% in the total number of kidney transplants
- an increase of 54% in the total number of transplants involving a pancreas
- an increase of 11% in the total number of liver transplants
- an increase of 11% in the total number of heart transplants
- an increase of 20% in the total number of lung or heart-lung transplants
- an increase of 125% in the total number of intestinal transplants
- An increase of 27% in the total number of corneas retrieved to NHSBT Eye Banks and an increase of 33% in the total number of corneal transplants
- The overall referral rate of potential donors has increased from 84% to 93%, the proportion of approaches where a Specialist Nurse - Organ Donation was present has remained the same at 93%
- a decrease in the overall consent/authorisation rate for organ donation from 69% to 66%
- an increase in the number of opt-in registrations on the ODR, from 26.7 to 27.7 million at the end of March 2022. There were 2.3 million 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 2021 to 31 March 2022

2.1 Summary of activity

Many patients became suspended from the active transplant list as transplant centres reacted to the COVID-19 pandemic in March 2020 and 2021. There were 2,013 more active patients at 31 March 2022 than at the end of the previous financial year. The change in donor and transplant numbers (1 April 2012 to 31 March 2022) and the number of patients registered on the transplant lists at 31 March each year are shown in **Figure 2.1**. There were 468 more deceased donor transplants in 2021-2022 than in the previous year, representing a 16% increase. There was an 18% increase in the number of deceased donors.

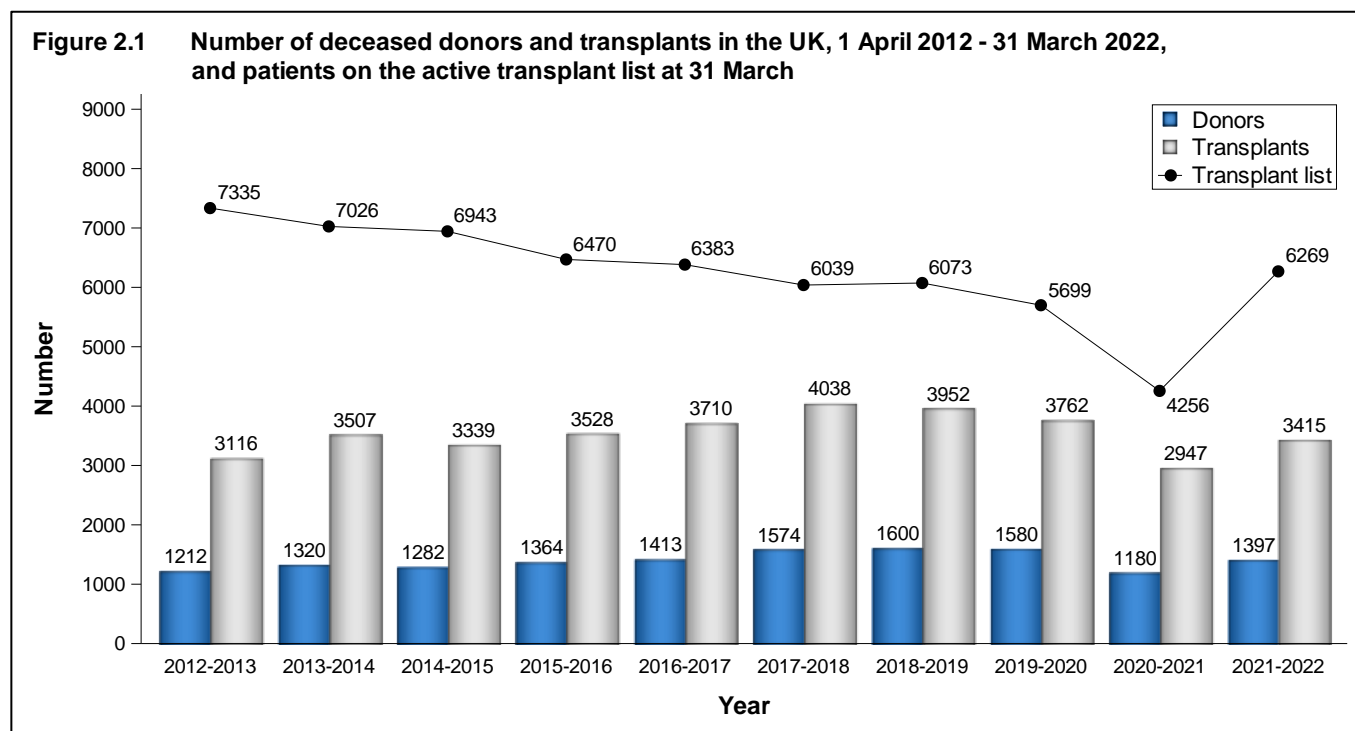


Figure 2.2 shows the number of deceased and living donors for 2012-2022. The numbers of deceased donors after brain death (DBD) and deceased donors after circulatory death (DCD) have both increased over the decade. In 2021-2022, the numbers of DBD and DCD donors increased compared to the previous year, to 785 and 612 respectively. The number of living donors has fallen, from a peak of 1,150 donors in 2013-2014 to 909 in 2021-2022, which nevertheless represents a 102% increase compared with 2020-2021.

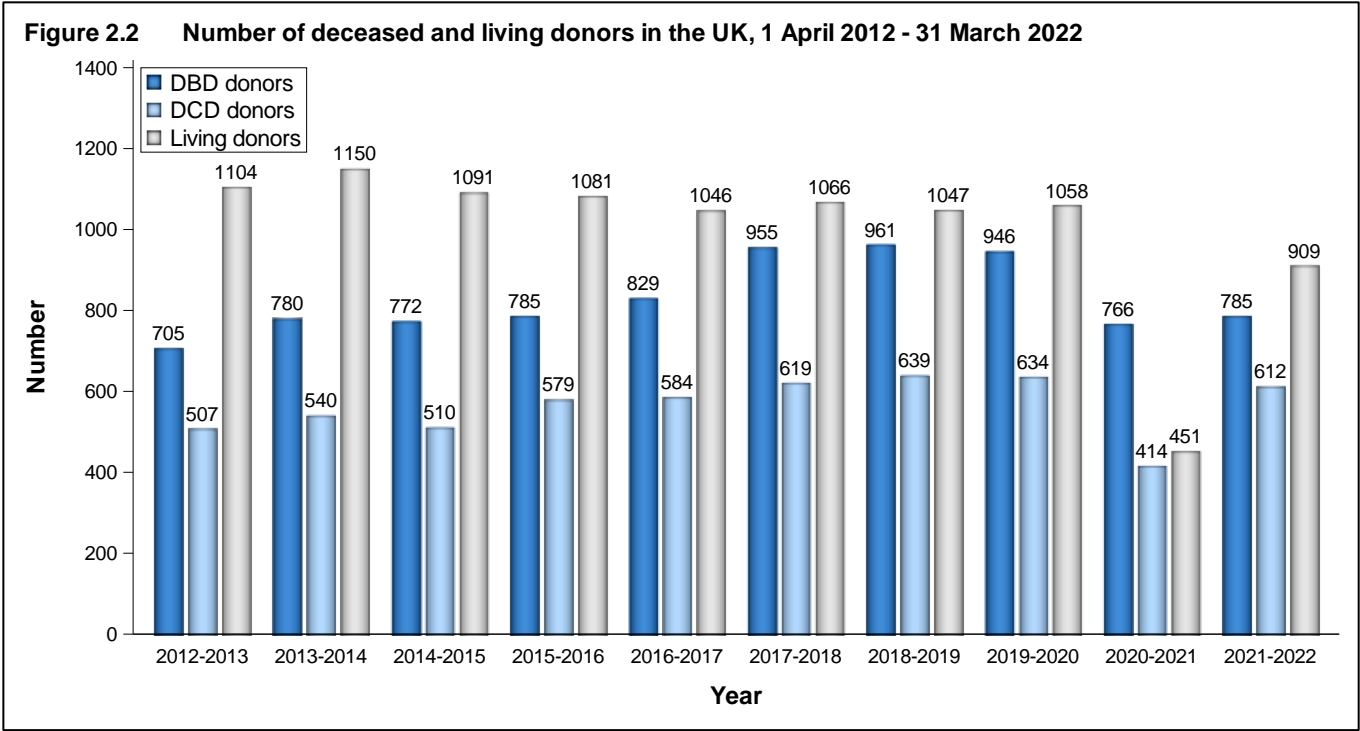
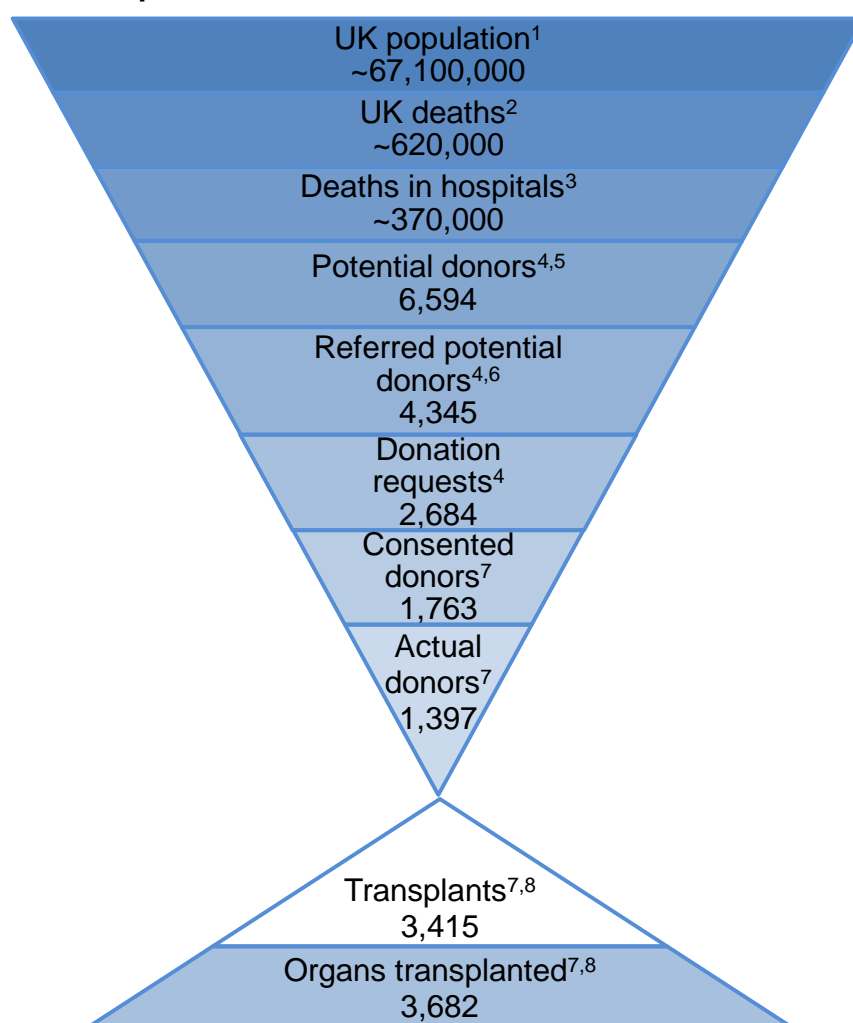


Figure 2.3 shows the potential deceased organ donor population in the UK. Not everyone can be a deceased organ donor and this figure highlights the small proportion of deaths in the UK that represent potential donors. *Please note that the information presented comes from several different sources. The 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 2021 – 31 March 2022**



¹ Mid 2020 estimates: www.ons.gov.uk

² 2021 data: England & Wales www.ons.gov.uk; Scotland www.gro-scotland.gov.uk; Northern Ireland www.nisra.gov.uk

³ 2021 data: England & Wales www.ons.gov.uk; Scotland www.isdscotland.org; Northern Ireland www.nisra.gov.uk

⁴ 2021/2022 data, NHSBT, Potential Donor Audit as at 9 May 2022

⁵ Potential donor - patients for whom death was confirmed following neurological tests or patients who had treatment withdrawn and death was anticipated within a time frame to allow donation to occur

⁶ Referred potential donor – Potential donor who was discussed with a Specialist Nurse – Organ Donation

⁷ 2021/2022 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 2021-2022 and patients on the transplant list at 31 March 2022 for each country in the UK and overall.

Table 2.1 Deceased donors and transplants 1 April 2021 - 31 March 2022, and transplant lists as at 31 March 2022, by Country of residence										
Organ	Country of residence ¹								TOTAL ²	
	England		Wales		Scotland		Northern Ireland			
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
Kidney										
Deceased donors	1089	(19.3)	53	(16.7)	76	(13.9)	51	(26.8)	1331	(19.8)
Transplants	1958	(34.6)	91	(28.7)	146	(26.7)	59	(31.1)	2263	(33.7)
Transplant list	4360	(77.1)	163	(51.4)	413	(75.5)	70	(36.8)	5023	(74.9)
Pancreas										
Deceased donors	278	(4.9)	15	(4.7)	12	(2.2)	10	(5.3)	334	(5.0)
Transplants	122	(2.2)	10	(3.2)	17	(3.1)	4	(2.1)	153	(2.3)
Transplant list	224	(4.0)	11	(3.5)	38	(6.9)	2	(1.1)	278	(4.1)
Heart										
Deceased donors	156	(2.8)	6	(1.9)	10	(1.8)	3	(1.6)	185	(2.8)
Transplants ³	137	(2.4)	5	(1.6)	25	(4.6)	9	(4.7)	179	(2.7)
Transplant list ³	275	(4.9)	11	(3.5)	24	(4.4)	16	(8.4)	328	(4.9)
Lung										
Deceased donors	106	(1.9)	4	(1.3)	7	(1.3)	1	(0.5)	125	(1.9)
Transplants	97	(1.7)	3	(0.9)	4	(0.7)	4	(2.1)	109	(1.6)
Transplant list	218	(3.9)	14	(4.4)	26	(4.8)	8	(4.2)	267	(4.0)
Liver										
Deceased donors	822	(14.5)	45	(14.2)	63	(11.5)	39	(20.5)	1017	(15.2)
Transplants	688	(12.2)	28	(8.8)	69	(12.6)	24	(12.6)	823	(12.3)
Transplant list	531	(9.4)	37	(11.7)	39	(7.1)	28	(14.7)	644	(9.6)
Intestinal										
Deceased donors	23	(0.4)	5	(1.6)	0	(0.0)	0	(0.0)	28	(0.4)
Transplants	21	(0.4)	0	(0.0)	4	(0.7)	2	(1.1)	27	(0.4)
Transplant list	11	(0.2)	0	(0.0)	3	(0.5)	0	(0.0)	14	(0.2)
Total⁴										
Deceased donors	1138	(20.1)	57	(18.0)	81	(14.8)	54	(28.4)	1397	(20.8)
Transplants	2903	(51.3)	129	(40.7)	256	(46.8)	100	(52.6)	3415	(50.9)
Transplant list	5384	(95.2)	226	(71.3)	508	(92.9)	122	(64.2)	6269	(93.5)
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, overseas and in the Republic of Ireland										
³ Excludes heart-lung recipients										
⁴ 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 2022, 6,269 patients were registered for an organ transplant in the UK on the active transplant list. A further 3,990 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 2021 and 2022. Between these dates the total number increased by 2013 (47%). This is mostly due to increases in the kidney and liver transplant lists, where non-urgent patients have been reactivated after being suspended during the height of the pandemic.

Table 2.2 Active transplant lists in the UK at 31 March 2021 and 2022			
	2021²	2022	% Change
Kidney & pancreas patients	3537	5022	+42
Kidney	3365	4744	+41
Kidney & pancreas	143	243	+70
Kidney & pancreas islets	11	8	-
Pancreas	10	9	-
Pancreas islets	8	18	-
Cardiothoracic patients	582	587	+1
Heart	312	320	+3
Heart-lung	10	9	-
Lung(s)	260	258	-1
Liver patients	115	612	+432
Intestinal patients	14	14	0
Other multi-organ patients¹	8	34	-
ALL PATIENTS	4256	6269	+47
Percentages not reported when fewer than 10 in either year			
¹ Includes patients waiting for kidney and liver transplants (6 in 2021, 26 in 2022), kidney and heart transplants (2 in 2022), liver and heart transplants (1 in 2021, 6 in 2022), liver and lung transplants (1 in 2021)			
² Numbers on the waiting list do not accurately reflect the need for an organ transplant due to the pandemic			

During 2021-2022, 429 patients died whilst active/suspended on the transplant list or within one year of removal from the list. For comparison, in 2020-2021, 525 patients died. This information for 2021-2022 is shown by organ and age group in **Table 2.3**.

Table 2.3 Number of patient deaths on transplant lists in the UK, 1 April 2020 and 31 March 2022

	2020-2021 Total	Total	2021-2022 Adult	Paediatric
Kidney & pancreas patients	363	287	286	1
Kidney	337	268	267	1
Kidney & pancreas	24	16	16	0
Kidney & pancreas islets	0	0	0	0
Pancreas	2	1	1	0
Pancreas islets	0	2	2	0
Cardiothoracic patients	79	67	61	6
Heart	28	22	17	5
Heart-lung	2	1	0	1
Lung(s)	49	44	44	0
Liver patients	70	67	65	2
Intestinal patients	3	2	2	0
Other multi-organ patients¹	10	6	5	1
ALL PATIENTS	525	429	419	10

¹ Includes patients waiting for kidney and heart transplants (1 in 2020/21), kidney and liver transplants (1 in 2020/21, 2 adult in 2021/22), liver and heart transplants (1 in 2020/21, 1 paediatric in 2021/22) and liver and lung transplant (7 in 2020/21, 3 adult in 2021/22)

2.3 Transplants

As services started to return to more normal levels there was a 27% increase in the total number of organ transplants (from deceased and living donors) last year: 4,324 transplants were performed in 2021-2022 compared with 3,398 in 2020-2021 (**Table 2.4**). All multi-organ transplants are identified separately as are transplants from living donors.

The total number of kidney transplants increased in 2021-2022; kidney only transplants from donors after circulatory death increased by 41%, while the number of living donor kidney transplants increased by 106%. The number of heart transplants increased by 11%, the number of lung and heart-lung transplants increased by 20%, the number of liver transplants increased by 11%, and the number of pancreas transplants (including pancreas only, intestinal, kidney/pancreas and pancreas islets) increased by 54%.

Table 2.4 Transplants performed in the UK, 1 April 2021 - 31 March 2022

Transplant	2020-2021	2021-2022	% Change
DBD kidney	1171	1191	+2
DCD kidney	665	936	+41
Living donor kidney	429	884	+106
DBD kidney and pancreas	62	85	+37
DCD kidney and pancreas	21	35	+67
Kidney and pancreas islets	5	7	-
DBD pancreas	3	9	-
DCD pancreas	0	2	-
Pancreas Islets	10	15	+50
DBD heart	137	131	-4
DCD heart	22	44	+100
Heart-lung	2	3	-
DBD single lung	4	12	-
DCD single lung	3	2	-
DBD bilateral lung	65	69	+6
DCD bilateral lung	16	22	+38
DBD liver	518	529	+2
DCD liver	120	194	+62
DBD liver lobe	100	90	-10
DCD liver lobe	1	0	-
Living donor liver lobe	22	25	+14
Bowel only ¹	2	9	-
Liver, bowel & pancreas	0	1	-
Multivisceral	5	10	-
Modified multivisceral	5	7	-
Kidney & liver	7	7	-
Heart & kidney	0	2	-
Heart & liver	2	2	-
Lung & liver	1	1	-
TOTAL ORGAN TRANSPLANTS	3398	4324	+27
Total kidney transplants²	2360	3149	+33
Total pancreas transplants²	111	171	+54
Total cardiothoracic transplants	252	288	+14
Total liver transplants²	776	859	+11
Total intestinal transplants	12	27	+125

Percentage not reported when fewer than 10 in either year

¹ Including a kidney (2 in 2021-2022)

² Includes intestinal transplants

The total approximate number of patients with a functioning transplant on 31 March 2022 is 58,900 (**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 2022	
	Functioning transplants¹
Kidney	43100
Pancreas	2200
Cardiothoracic	4100
Liver	11400
Intestinal	170
ALL PATIENTS	58900
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 an 18% increase in deceased donors (to 1,397) and a 102% increase in living organ donors (to 909) compared with last year
- There has been a increase in donors after brain death of 2% to 785 and an increase of 48% in donors after circulatory death to 612, compared with last year
- Donors after brain death provide, on average, one more organ for transplantation than donors after circulatory death
- As a result of the COVID-19 pandemic, donor characteristics changed in 2020-2021 following a decade long trend towards older and more obese donors, this trend has reversed in 2021-2022

3.1 Summary of activity

There was an 18% increase in the number of deceased organ donors in 2021-2022 (1,397). There was an increase in donors after brain death (DBD) of 2% and an increase of 48% in donors after circulatory death (DCD) after usual criteria for DCD donation were reinstated after the height of the pandemic.

The 1,397 deceased organ donors gave 4,438 organs compared with 1,180 donors and 3,650 organs in 2020-2021. This represents a 22% increase in organs donated. **Table 3.1** shows deceased organ donors according to the organs they donated.

Nearly all deceased donors (95%) gave a kidney and of these, the majority (75%) also donated at least one other organ. Only 14% of donors after brain death were single organ donors, with similar proportions being liver only and kidney only donors. By contrast, 47% of donors after circulatory death were single organ donors, the majority (96%) of these donating just their kidneys.

Although the vast majority of living organ donors donated a kidney, 25 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 2021 - 31 March 2022, by organ types donated				
	DBD	DCD	Living donor	TOTAL
Kidney only	64	275	884	1223
Kidney & thoracic	9	14	-	23
Kidney & liver	345	194	-	539
Kidney & pancreas	3	10	-	13
Kidney, thoracic & liver	70	23	-	93
Kidney, thoracic & pancreas	1	2	-	3
Kidney, liver & pancreas	122	50	-	172
Kidney, liver and bowel	2	-	-	2
Kidney, liver, pancreas & bowel	8	-	-	8
Kidney, thoracic, liver & pancreas	91	30	-	121
Kidney, thoracic, liver & bowel	3	-	-	3
Kidney, thoracic, liver, pancreas & bowel	15	-	-	15
Thoracic only	1	1	-	2
Thoracic & liver	3	1	-	4
Thoracic, liver & pancreas	-	1	-	1
Liver only	47	11	25	83
Liver & pancreas	1	-	-	1
TOTAL	785	612	909	2306
Bowel may include abdominal wall/colon/stomach/spleen				

3.2 Organ donors

Organ donor rates per million population (pmp) for 2021-2022 are given by country and NHS region according to where the donor lived in **Table 3.2**, while the numbers 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 2021 - 31 March 2022, by country/ NHS region of donor residence								
Country/ NHS region of residence	DBD		DCD		TOTAL		Living	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East and Yorkshire	111	(12.8)	71	(8.2)	182	(21.1)	66	(7.6)
North West	64	(9.0)	65	(9.2)	129	(18.2)	57	(8.0)
Midlands	103	(9.7)	103	(9.7)	206	(19.3)	78	(7.3)
East of England	68	(10.4)	74	(11.3)	142	(21.6)	39	(5.9)
London	91	(10.1)	42	(4.7)	133	(14.8)	68	(7.6)
South East	118	(13.2)	96	(10.8)	214	(24.0)	78	(8.7)
South West	73	(12.9)	59	(10.4)	132	(23.3)	44	(7.8)
England	628	(11.1)	510	(9.0)	1138	(20.1)	430	(7.6)
Isle of Man	1	(12.5)	0	(0.0)	1	(12.5)	0	(0.0)
Channel Islands	4	(23.5)	2	(11.8)	6	(35.3)	0	(0.0)
Wales	41	(12.9)	16	(5.0)	57	(18.0)	29	(9.1)
Scotland	46	(8.4)	35	(6.4)	81	(14.8)	49	(9.0)
Northern Ireland	37	(19.5)	17	(8.9)	54	(28.4)	43	(22.6)
TOTAL¹	785	(11.7)	612	(9.1)	1397	(20.8)	903	(13.5)

¹ Includes 412 donors (28 DBD, 32 DCD and 352 living) with an unknown UK postcode and excludes 6 living donors resident outside the UK

Table 3.2 shows variation in the number of DBD and DCD donors pmp across the UK. There were 11.7 DBD donors pmp for the UK as a whole, but across NHS regions this ranged between 9.0 and 13.2 pmp. Across the four countries of the UK, Northern Ireland had the highest rate of 19.5 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 9.1 pmp, and England had the highest rate of 9.0 pmp across countries of the UK, and across NHS regions it ranged from 4.7 to 11.3 pmp. No adjustment has been made for any differences in demographics of the populations across countries or NHS regions.

Table 3.3 Deceased organ donors in the UK, 1 April 2021 - 31 March 2022, by country/ NHS region of hospital of donor death			
Country of donation/ NHS region	DBD N	DCD N	TOTAL N
North East and Yorkshire	114	77	191
North West	68	61	129
Midlands	106	104	210
East of England	62	72	134
London	141	76	217
South East	99	98	197
South West	69	57	126
England	659	545	1204
Isle of Man	1	0	1
Channel Islands	2	0	2
Wales	38	16	54
Scotland	47	34	81
Northern Ireland	38	17	55
TOTAL	785	612	1397

Table 3.4 Deceased organ donors in the UK, 1 April 2021 - 31 March 2022 by Organ Donation Services Team			
Team	DBD N	DCD N	TOTAL N
Eastern	74	83	157
London	105	52	157
Midlands	93	91	184
North West	80	64	144
Northern	46	31	77
Northern Ireland	38	17	55
Scotland	47	34	81
South Central	65	66	131
South East	74	58	132
South Wales	28	14	42
South West	60	50	110
Yorkshire	75	52	127
TOTAL	785	612	1397

The mean number of organs retrieved per donor in 2021-2022 is given by country in **Table 3.5**. Overall, an average of 3.5 organs were donated per DBD donor and 2.8 per DCD donor. These rates ranged from 3.1 (DBD) and 2.4 (DCD) organs per donor in Northern Ireland, to 3.5 (DBD) in England and Wales and 2.8 (DCD) in England.

Table 3.5 Organs retrieved per donor, in the UK, 1 April 2021 - 31 March 2022, by country of donor residence									
Country	DBD	Adult DCD	TOTAL	DBD	Paediatric DCD	TOTAL	DBD	All DCD	TOTAL
England	3.5	2.8	3.2	5.4	3.4	4.5	3.5	2.8	3.2
Wales	3.5	2.5	3.2	4.0	-	4.0	3.5	2.5	3.2
Scotland	3.4	2.6	3.1	-	5.0	5.0	3.4	2.6	3.1
Northern Ireland	3.1	2.4	2.9	-	-	-	3.1	2.4	2.9
TOTAL	3.4	2.7	3.1	5.4	3.5	4.5	3.5	2.8	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 2021-2022, 37% of deceased donors were aged 60 years or more compared with 34% in 2012-2013 (**Figure 3.1**). The proportion of clinically obese donors (Body Mass Index (BMI) of 30 or higher) has increased from 23% 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 6% to 2% over the same time period. Trends towards older and more obese deceased donors and those with non-trauma related deaths may all 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 community. By contrast, these communities are estimated to represent 14% of the UK population.

Table 3.6		Demographic characteristics of organ donors in the UK					
		DBD		DCD		TOTAL	
		N	%	N	%	N	%
Age	0-17	21	3	19	3	40	3
	18-49	322	41	172	28	494	35
	50-59	172	22	179	29	351	25
	60-69	175	22	171	28	346	25
	70+	95	12	71	12	166	12
	mean (SD)	51	(16)	53	(16)	52	(16)
BMI	0-19	54	7	29	5	83	6
	20-29	522	66	387	63	909	65
	30+	209	27	196	32	405	29
	mean (SD)	27	(6)	28	(6)	28	(6)
Cause of death	Intracranial	694	88	511	83	1205	86
	Trauma	16	2	15	2	31	2
	Other	75	10	86	14	161	12
Ethnicity	White	695	90	558	94	1253	92
	Asian	33	4	10	2	43	3
	Black	17	2	7	1	24	2
	Other	25	3	18	3	43	3
	Unknown	15	0	19	0	34	0
Blood group	O	366	47	282	46	648	46
	A	317	40	253	41	570	41
	B	72	9	59	10	131	9
	AB	29	4	17	3	46	3
	Unknown ¹	1	0	1	0	2	0
Donor sex	Male	394	50	409	67	803	58
	Female	391	50	203	33	594	43
TOTAL		785	100	612	100	1397	100

¹ 2 donors had an indeterminate blood group

Figure 3.1 Age of deceased donors in the UK, 1 April 2012 - 31 March 2022

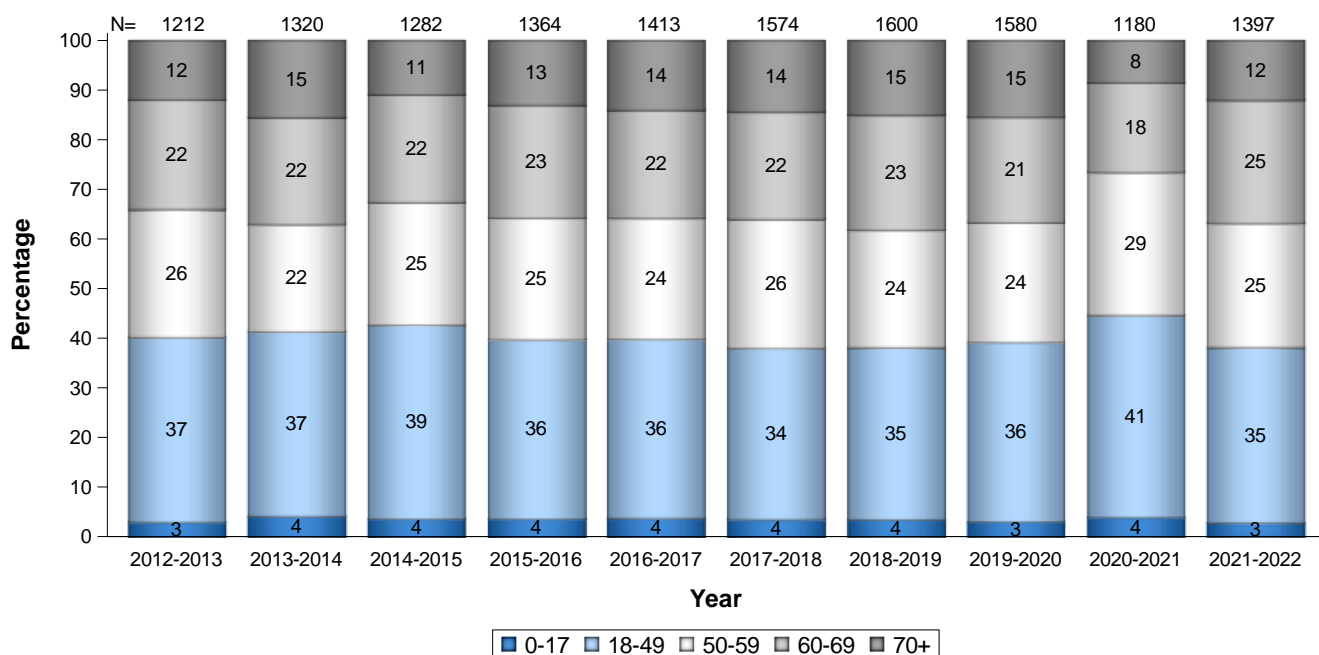
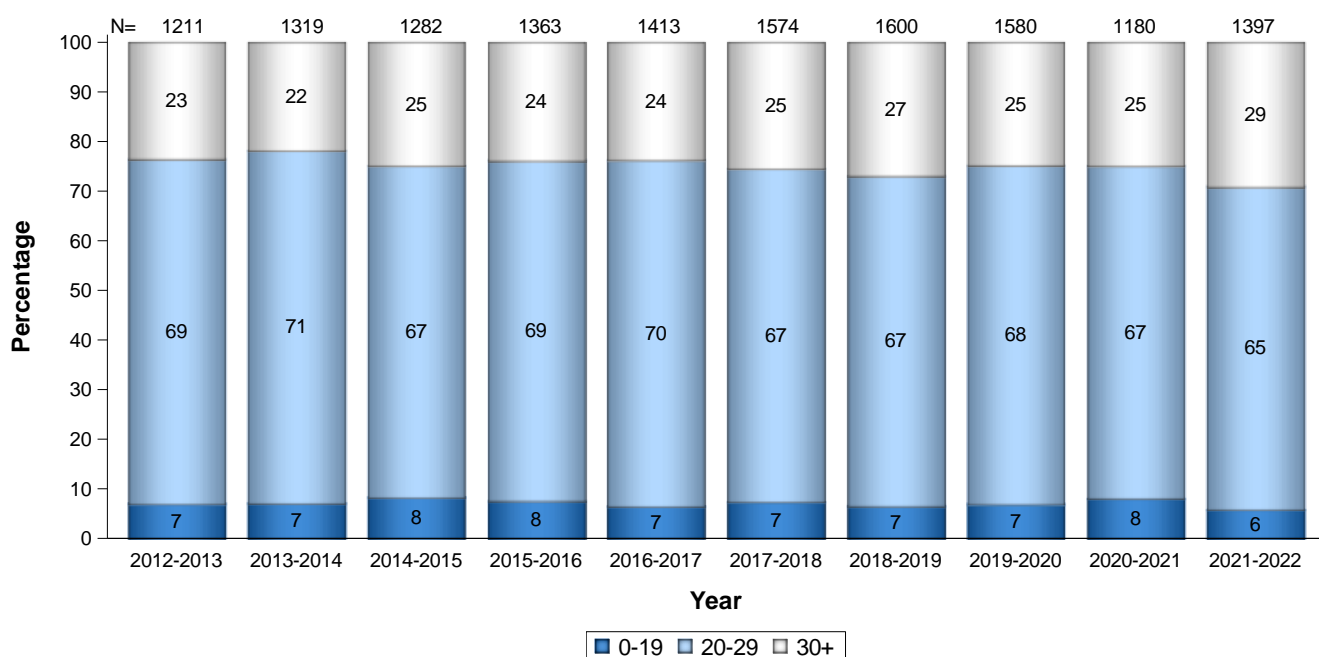


Figure 3.2 BMI of deceased donors in the UK, 1 April 2012 - 31 March 2022



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 801 possible DBD donors and 832 possible DCD donors; 98% of these DBD donors and 74% of these DCD donors attended, proceeded to donation
- Overall, 53% of organs offered from those donors that did proceed were transplanted, but individually, these rates were 83% for kidneys, 61% for livers, 25% for pancreases, 32% for hearts, 14% for lungs and 14% for bowels
- Overall, 83% of organs retrieved were transplanted, but individually, these rates were 87% for kidneys, 79% for livers, 51% for pancreases, 97% for hearts, 86% for lungs and 96% for bowels
- The number of deceased donors per million of population was 20.8, however 6% of actual donors resulted in no organ transplants, compared with 4% the previous year

4.1 The National Organ Retrieval Service (NORS)

There are 16 NORS teams in total, ten abdominal and six cardiothoracic. On 6 January 2020, the abdominal aspect of the service increased capacity to eight abdominal NORS teams available to retrieve organs from deceased donors in the UK for transplantation, at any given time. Prior to this change there were seven abdominal teams available. Three cardiothoracic NORS teams are available at any given time, an arrangement that has been in place since April 2016.

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'.

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 2021-2022 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 may be 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 in the UK, 1 April 2021 – 31 March 2022

NORS team	DBD				DCD			
	Proceeding ²	Non-proceeding	% non-proc	No. attended	Proceeding ²	Non-proceeding	% non-proc	No. attended
Abdominal								
Birmingham ¹	90	0	0	90	69	21	23	90
Cambridge	86	2	2	88	99	28	22	127
Cardiff ¹	30	1	3	31	20	5	20	25
Edinburgh	67	1	1	68	46	23	33	69
King's	138	5	3	143	89	30	25	119
Leeds ¹	88	1	1	89	57	29	34	86
Manchester ¹	73	1	1	74	58	32	36	90
Newcastle	64	1	2	65	48	18	27	66
Oxford ¹	65	2	3	67	74	21	22	95
Royal Free ¹	83	2	2	85	51	14	22	65
Abdominal total	784	16	2	800	611	221	27	832
Cardiothoracic¹								
Birmingham	44	23	34	67	2	8	80	10
Glasgow	22	19	46	41	2	2	50	4
Harefield	33	28	46	61	31	29	48	60
Manchester	37	27	42	64	8	8	50	16
Newcastle	25	14	36	39	3	-	-	3
Papworth	32	28	47	60	26	24	48	50
Cardiothoracic total	193	139	42	332	72	71	50	143
Total donors attended	785	16	2	801	612	220	26	832

¹ Part-time teams

² 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 2021-2022, 6% of actual donors resulted in no organ transplants, more than the previous year (4%). Note that the COVID-19 pandemic affected the number of offered, retrieved and transplanted organs in 2021-2022.

Table 4.2 Consented, offered, actual and utilised deceased donors in the UK, 1 April 2021 - 31 March 2022					
	DBD (pmp)		DCD (pmp)		Total (pmp)
Consented donors ¹	875	(13.0)	1021	(15.2)	1896 (28.3)
Offered donors ²	833	(12.4)	924	(13.8)	1757 (26.2)
<i>Kidneys offered</i>	1628		1800		3428
<i>Livers offered</i>	798		840		1638
<i>Pancreases offered</i>	476		329		805
<i>Bowels offered</i>	204		0		204
<i>Hearts offered</i>	453		162		615
<i>Lungs offered</i>	990		758		1748
Actual donors ³	785	(11.7)	612	(9.1)	1397 (20.8)
Utilised donors ⁴	753	(11.2)	557	(8.3)	1310 (19.5)

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
⁴ Utilised donors defined as donors where one or more organs were retrieved and transplanted

There were 1,397 actual deceased organ donors in 2021-2022, but not all organs from these donors were offered for transplantation. **Table 4.3** shows the number of organs offered, retrieved and transplanted from the 785 DBD and 612 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 1,397 deceased donors in the UK, 1 April 2021 - 31 March 2022

Organ	Organs offered for transplantation ¹	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	1538	1448	94	1303	90	85	77
Liver	755	707	94	607	86	80	54
Pancreas	451	241	53	130	54	29	59
Bowel	192	28	15	27	96	14	0
Heart	430	137	32	136	99	32	0
Lung	938	185	20	164	89	17	12
Total	4304	2746	64	2367	86	55	202
DCD donor organs							
Kidney	1215	1182	97	990	84	81	118
Liver	561	310	55	194	63	35	54
Pancreas	236	93	39	41	44	17	20
Heart	131	48	37	44	92	34	1
Lung	540	59	11	46	78	9	7
Total	2683	1692	63	1315	78	49	200
Deceased donor organs							
Kidney	2753	2630	96	2293	87	83	195
Liver	1316	1017	77	801	79	61	108
Pancreas	687	334	49	171	51	25	79
Bowel	192	28	15	27	96	14	0
Heart	561	185	33	180	97	32	1
Lung	1478	244	17	210	86	14	19
Total	6987	4438	64	3682	83	53	402

¹ Includes organs offered outside of organ specific criteria

Suitability Criteria:

Pancreas: donors with a BMI < 40 or aged < 60 years (DBD) or aged < 55 years (DCD)

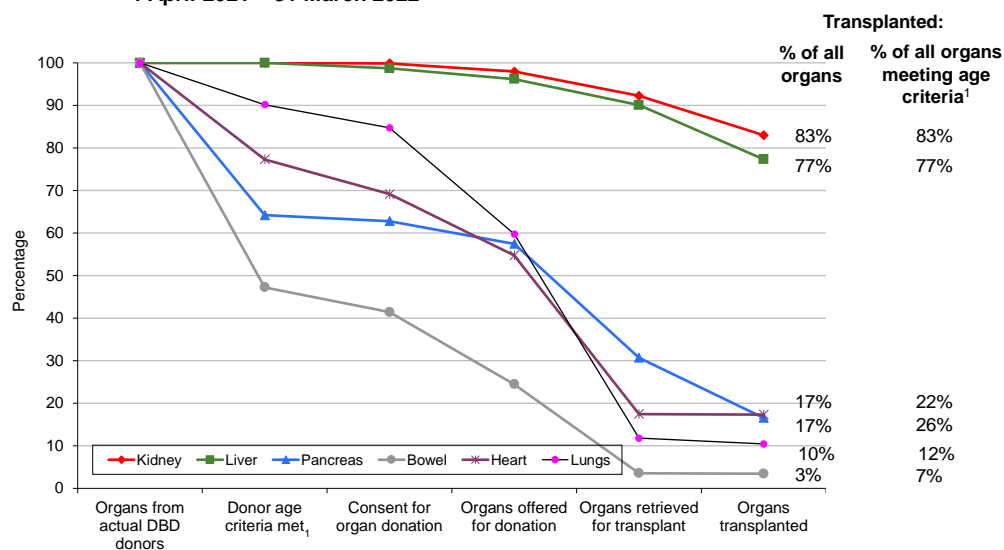
Bowel: donors aged < 60 years or weighing < 90kg

Heart: donors aged < 65 years (DBD) or aged < 55 years (DCD) or did not die due to myocardial infarction (DBD)

Lung: donors aged < 70 years

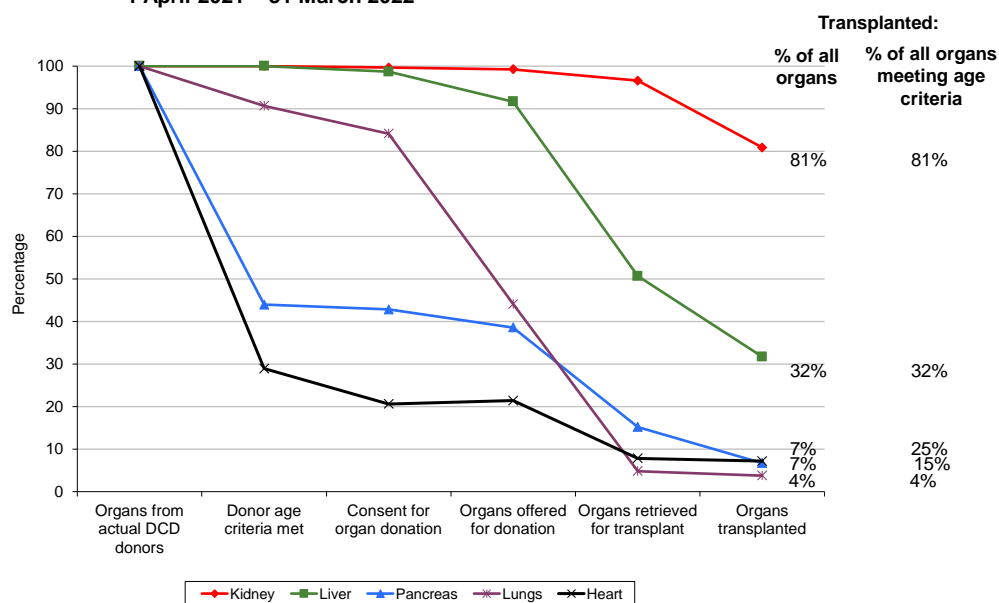
Figures 4.1 and 4.2 show line graphs of the pathway for all donor organs through to transplantation. The charts start at 100% for each organ, representing all organs from the 785 DBD and 612 DCD donors. The proportion of these organs where any national donor age criteria are met is then shown, followed by the proportion with consent, the proportion offered, the proportion retrieved and finally the proportion transplanted. For example, **Figure 4.2** shows that 81% of the kidneys from the 612 DCD donors were transplanted. Transplantation rates for kidneys and livers are generally high, while for other organs, even after allowing for the agreed age criteria, the rates are generally low.

Figure 4.1 Donation and transplantation rates of organs from DBD organ donors in the UK, 1 April 2021 – 31 March 2022



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 >=90kg are excluded

Figure 4.2 Donation and transplantation rates of organs from DCD organ donors in the UK, 1 April 2021 – 31 March 2022



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. Note that reasons associated with the COVID-19 pandemic may also be included under either medical unsuitability or 'other'.

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 2021-2022 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. Note that the COVID-19 pandemic will have affected the 2021-2022 non-utilisation rate. 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 2021 - 31 March 2022

	Kidney	Liver	Pancreas	Bowel
All actual DBD organ donors	785	785	785	785
Donors from whom organs not offered for donation	16	30	334	592
Reasons for organs not being offered¹				
Family permission refused	0	4	7	39
Permission refused by coroner	1	4	3	3
Permission refused other	0	2	1	4
Donor unsuitable - medical	0	0	0	2
Donor unsuitable - non-medical	3	0	18	58
Donor unsuitable - age	0	0	243	28
Organ unsuitable - clinical	8	17	41	19
Poor function	3	2	4	2
Donor age ≥ 60 or donor weight ≥ 90kg	-	-	-	413
Other	1	1	17	24
Organs offered for donation	1538	755	451	192
Organs not retrieved (% of organs offered for donation)	90 (6)	48 (6)	210 (47)	164 (85)
Donor unsuitable - medical	0	4	7	14
Donor unsuitable - non-medical	0	3	26	30
Donor unsuitable - age	5	0	26	20
Organ unsuitable - clinical	57	29	85	54
Poor function	22	6	21	9
Other	6	6	45	37
Organs retrieved (% of organs offered for donation)	1448 (94)	707 (94)	241 (53)	28 (15)
Organs transplanted in the UK	1303	607	130	27
Organs transplanted overseas	0	6	0	0
Organs not transplanted	145	100	111	1
Reasons for organ not being transplanted				
Donor unsuitable - medical	36	22	12	0
Donor unsuitable - non-medical	0	7	0	0
Donor unsuitable - age	2	-	2	0
Organ unsuitable - clinical	31	40	62	0
Poor function	10	10	1	0
Other	66	21	34	1
TOTAL ORGANS RETRIEVED, NOT TRANSPLANTED (Number used for research)	145 (77)	100 (54)	111 (59)	1 (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 2021 - 31 March 2022

	Kidney	Liver	Pancreas
All actual DCD organ donors	612	612	612
Donors from whom organs not offered for donation	5	51	376
Reasons for organs not being offered¹			
Family permission refused	0	4	5
Permission refused by coroner	2	4	2
Donor unsuitable - medical	0	0	0
Donor unsuitable - non-medical	0	1	22
Donor unsuitable - age	1	5	300
Organ unsuitable - clinical	1	29	28
Poor function	0	6	2
Other	1	2	17
Organs offered for donation	1215	561	236
Organs not retrieved (% of organs offered for donation)	33 (3)	251 (45)	143 (61)
Donor unsuitable - medical	6	7	4
Donor unsuitable - non-medical	0	10	16
Donor unsuitable - age	3	64	37
Organ unsuitable - clinical	21	104	56
Poor function	2	20	1
Other	1	46	29
Organs retrieved (% of organs offered for donation)	1182 (97)	310 (55)	93 (39)
Organs transplanted in the UK	990	194	41
Organs transplanted overseas	0	0	0
Organs not transplanted	192	116	52
Reasons for organ not being transplanted			
Donor unsuitable - medical	58	9	7
Donor unsuitable - non-medical	0	6	0
Donor unsuitable - age	1	2	2
Organ unsuitable - clinical	55	48	27
Poor function	4	15	0
Other	73	36	16
TOTAL ORGANS RETRIEVED, NOT TRANSPLANTED (Number used for research)	192 (118)	116 (54)	52 (20)

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 deceased donors in the UK, 1 April 2021 - 31 March 2022

	Heart (DBD)	Lung (DBD)	Heart (DCD)	Lung (DCD)
All actual organ donors	785	785	612	612
Donors from whom organs not offered for donation	355	316	481	342
Reasons for organs not being offered¹				
Family permission refused	32	22	23	21
Permission refused by coroner	26	18	27	18
Permission refused other	6	3	1	1
Donor unsuitable - medical	2	5	0	5
Donor unsuitable - non-medical	3	0	31	4
Donor unsuitable - age	169	60	309	59
Organ unsuitable - clinical	64	55	51	111
Poor function	42	135	29	117
Other	11	18	10	6
Organs offered for donation	430	938	131	540
Organs not retrieved (% of organs offered for donation)	293 (68)	753 (80)	83 (63)	481 (89)
Reasons for non-retrieval				
Donor unsuitable - medical	10	22	2	22
Donor unsuitable - non-medical	27	40	8	16
Donor unsuitable - age	28	40	1	32
Organ unsuitable - clinical	66	197	17	188
Poor function	105	309	30	107
Other	56	145	23	116
Organs retrieved (% of organs offered for donation)	137 (32)	185 (20)	48 (37)	59 (11)
Organs transplanted in the UK	135	158	44	46
Organs transplanted overseas	1	6	0	0
Organs not transplanted	1	21	4	13
Reasons for organ not being transplanted				
Donor unsuitable - medical	0	0	0	0
Donor unsuitable - non-medical	0	2	0	0
Donor unsuitable - age	1	0	0	2
Organ unsuitable - clinical	0	0	0	0
Poor function	0	5	2	4
Other	0	14	2	7
TOTAL ORGANS RETRIEVED, NOT TRANSPLANTED (Number used for research)	1 (0)	21 (12)	4 (1)	13 (7)

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

Figure 4.3 Percentage of kidneys retrieved that were not transplanted from deceased organ donors in the UK, 1 April 2012 - 31 March 2022

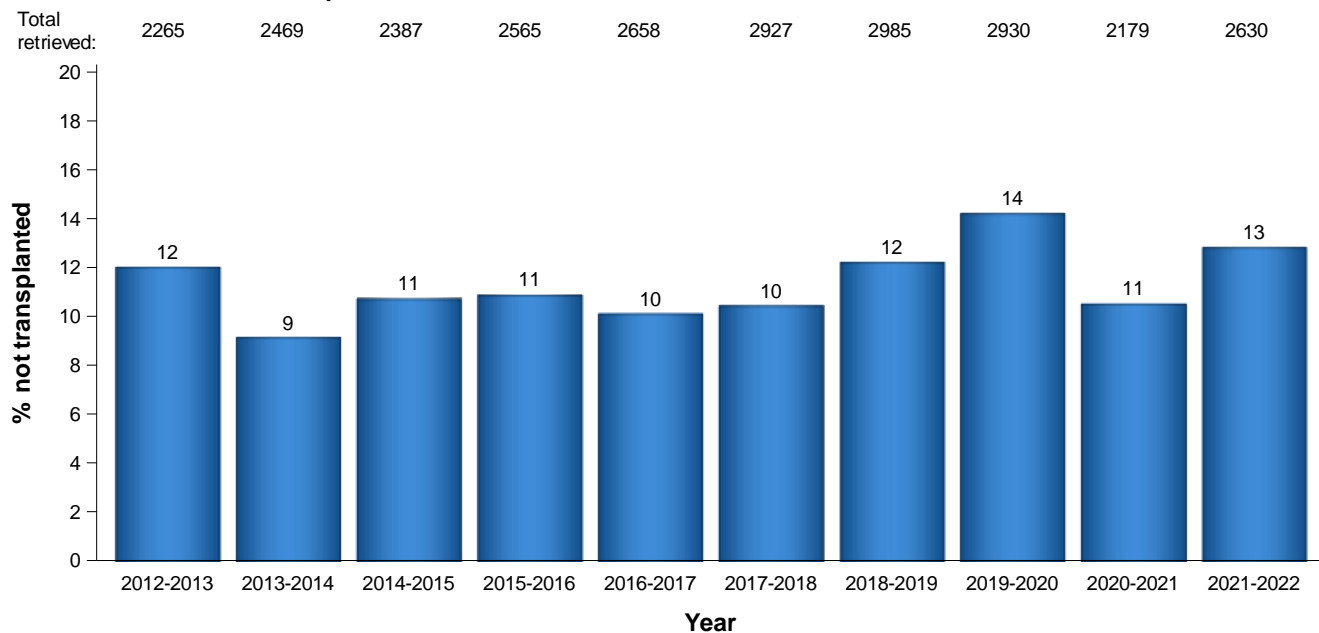


Figure 4.4 Percentage of livers retrieved that were not transplanted from deceased organ donors in the UK, 1 April 2012 - 31 March 2022

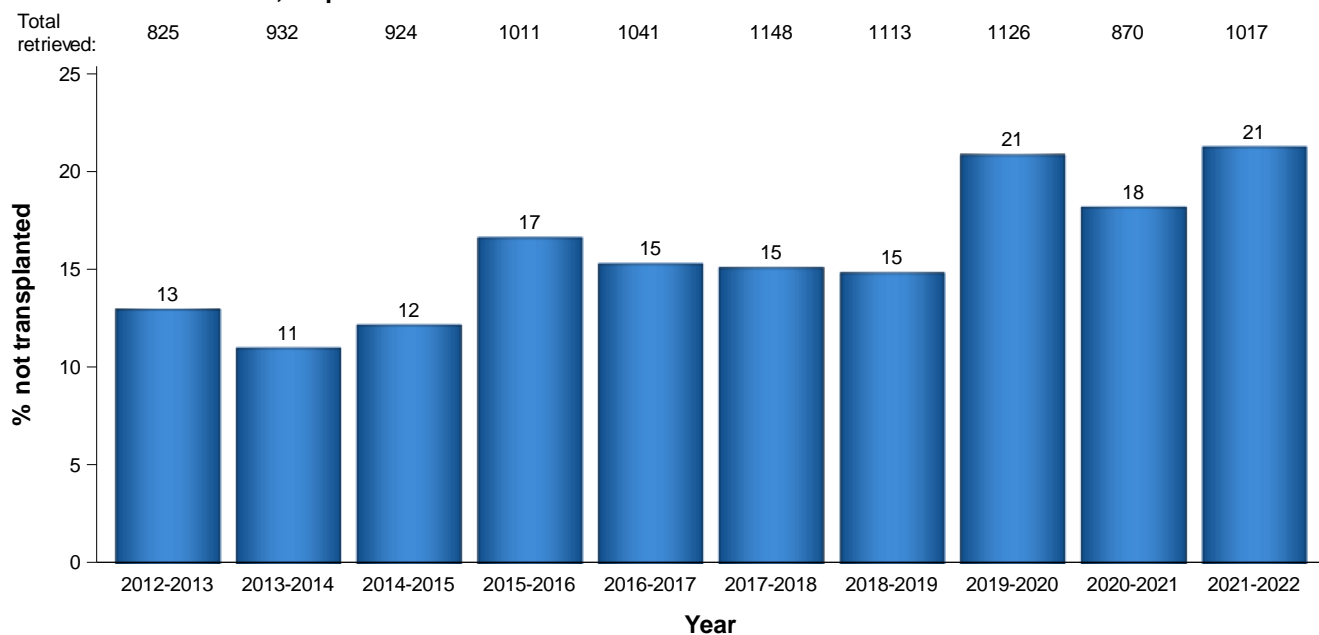
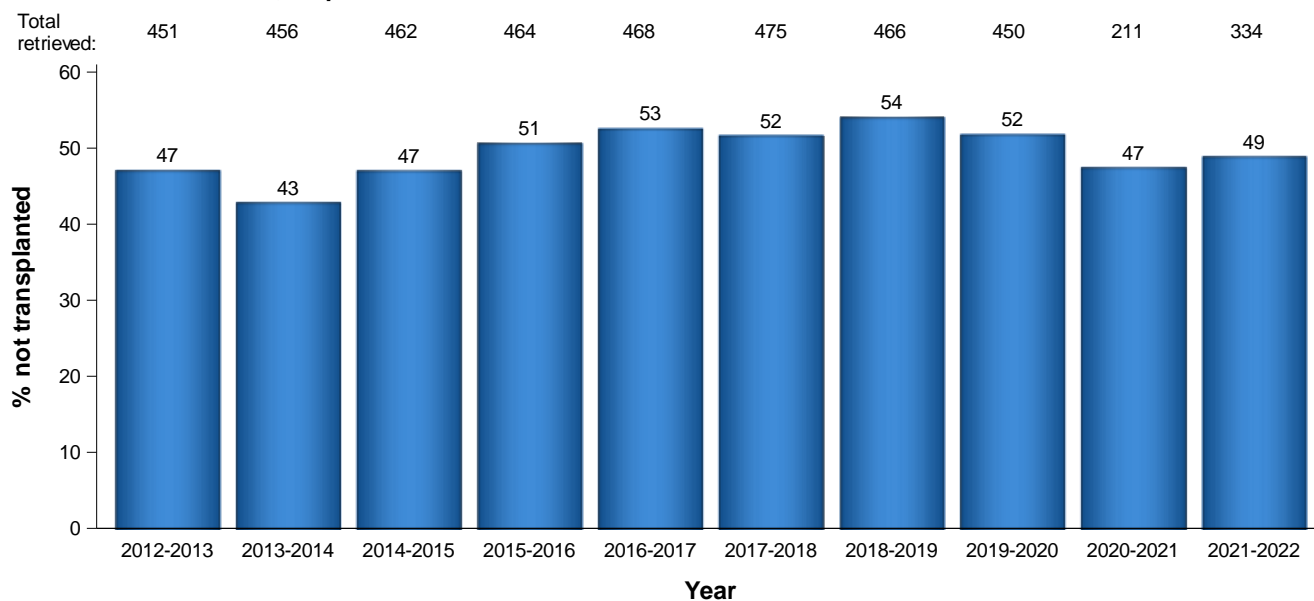


Figure 4.5 Percentage of pancreases¹ retrieved that were not transplanted from deceased organ donors in the UK, 1 April 2012 - 31 March 2022



¹Includes pancreases retrieved for islet transplantation and not transplanted due to the outcome of the islet isolation

Figure 4.6 Percentage of hearts retrieved that were not transplanted from deceased organ donors in the UK, 1 April 2012 - 31 March 2022

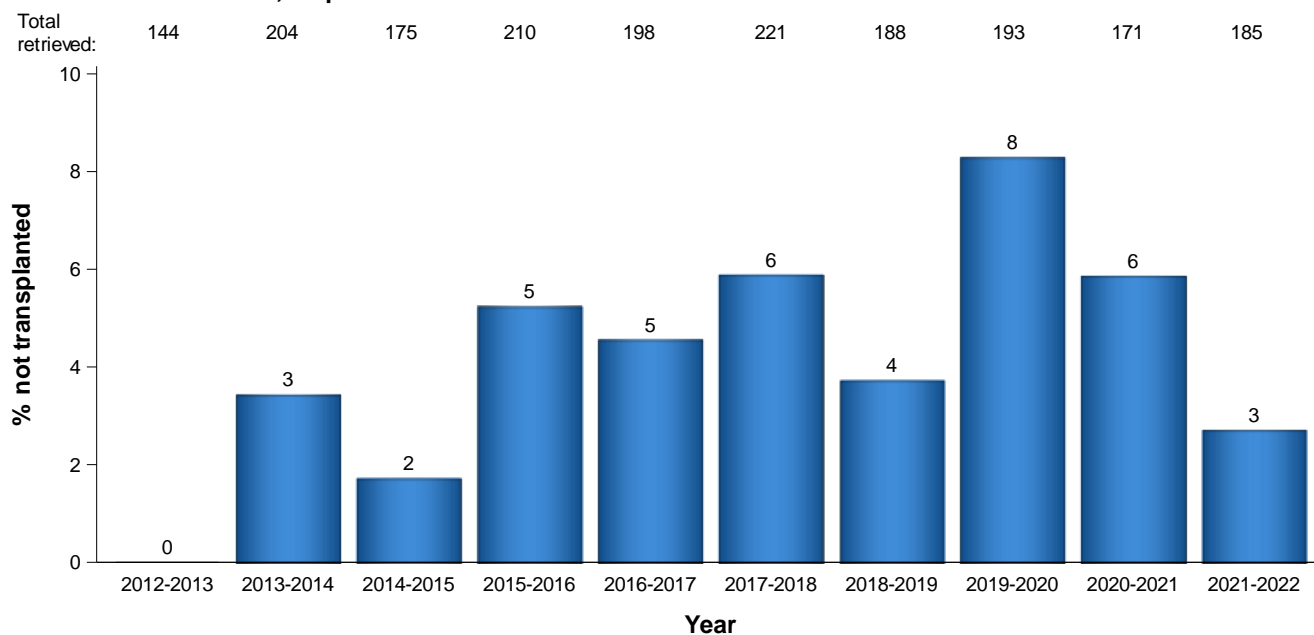
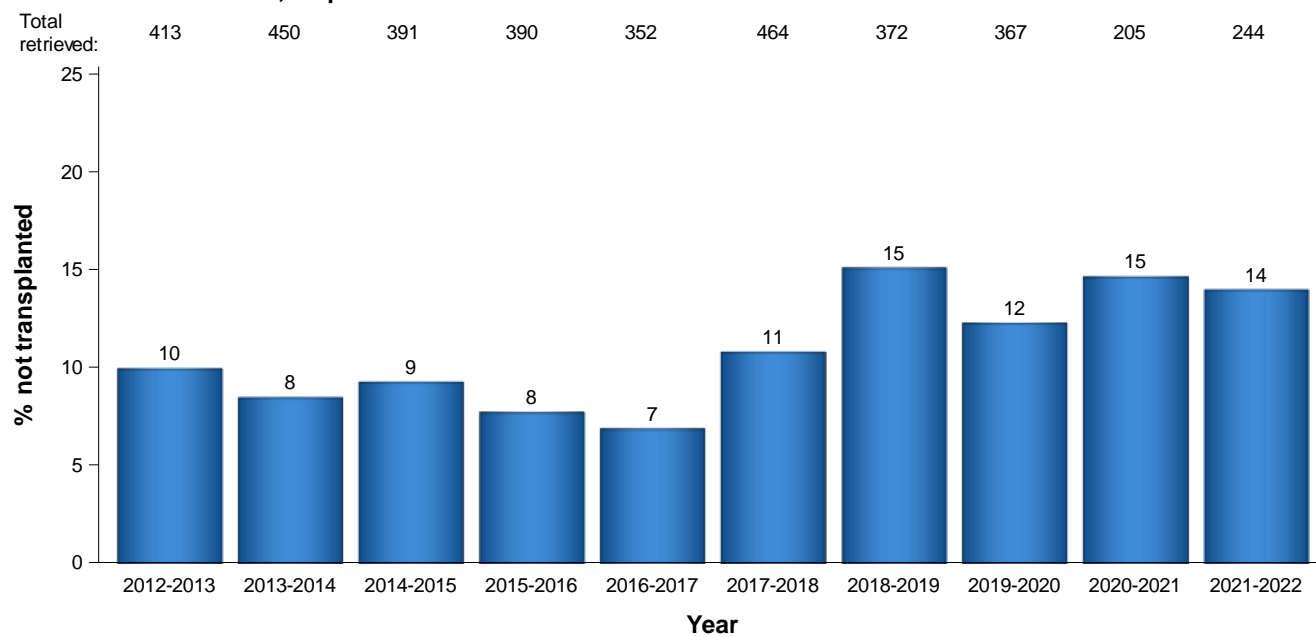


Figure 4.7 Percentage of lungs retrieved that were not transplanted from deceased organ donors in the UK, 1 April 2012 - 31 March 2022



Kidney Activity

Key messages

- The number of patients registered on the kidney transplant list this year increased to 5,023
- The number of deceased kidney donors increased by 20% to 1,331
- Kidney transplants from living donors increased by 106% to 884, while transplants from deceased donors increased by 17% to 2,263
- 100 kidney transplants were made possible by the paired living kidney donation programme (17 2-way and 22 3-way exchanges)
- There were 68 non-directed altruistic living kidney donors, leading to 94 patients benefitting from a living donor transplant

5.1 Overview

Note that the COVID-19 pandemic has affected the number of offered, retrieved and transplanted organs in 2021-2022.

The number of deceased kidney donors increased by 20% in 2021-2022 compared to 2020-2021 and the number of deceased donor kidney transplants increased by 17%. There were 5,023 patients waiting for a kidney transplant at 31 March 2022, with the number of patients on the national list increasing as more patients are reactivated on the list following the height of the COVID-19 pandemic.

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 2022 for a kidney only or multi-organ kidney transplant has fallen by 21% since 31 March 2013. These registrations include patients suspended on the kidney waiting list but active on the liver waiting list for a combined liver and kidney transplant.

On 11 September 2019, a new National Kidney Offering Scheme was introduced to offer kidneys from both donors after brain death and donors after circulatory death. This is a change from the previous system where kidneys from donors after circulatory death were offered under a different scheme than kidneys from donors after brain death. The scheme has two tiers with priority going to patients who are the most difficult to match or who have waited over 7 years for a transplant.

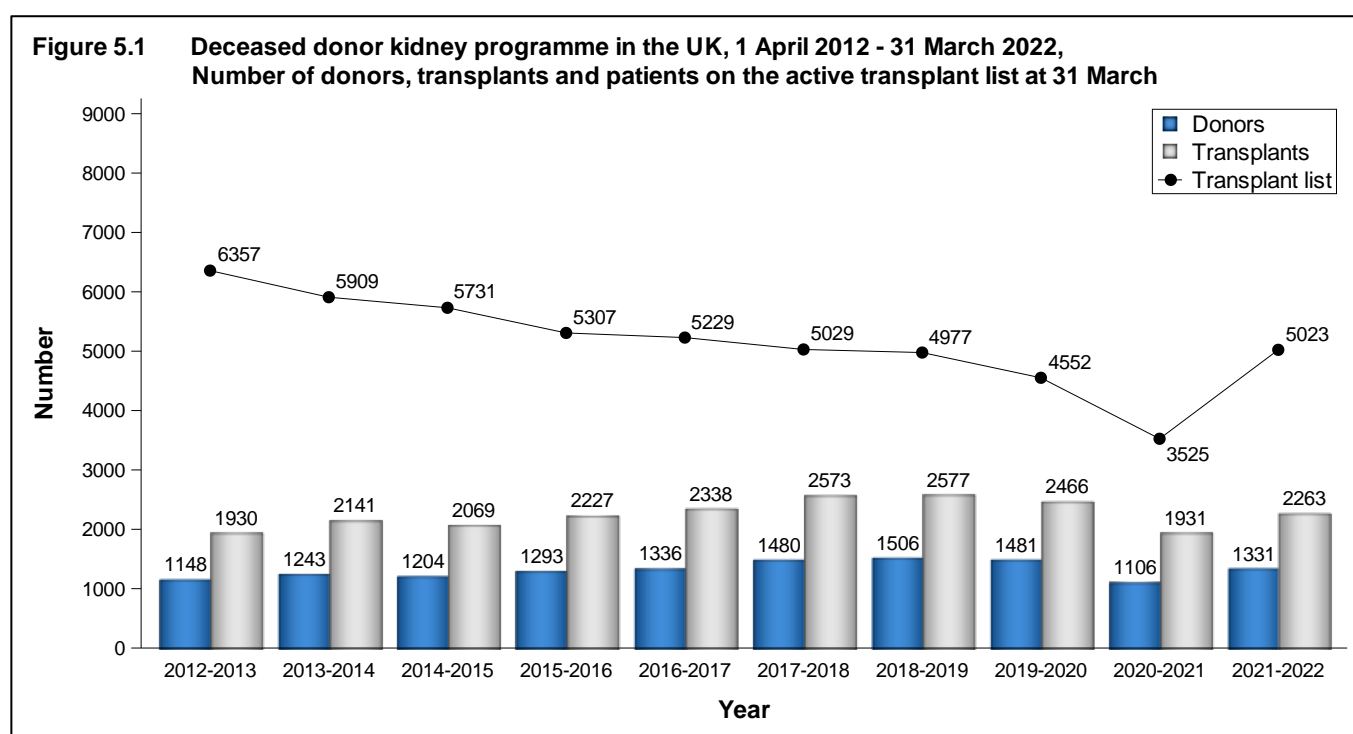


Table 5.1 shows the number of deceased and living donor kidney transplants carried out in 2021-2022 at each centre. As yet, very few kidneys from donors after circulatory death are transplanted in paediatric patients (<18 years). Donation figures for centres in London are not reported individually as 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 increased to 1,331 in 2021-2022 from 1,106 in 2020-2021 and the number of transplants increased from 1,931 to 2,263. The number of kidney donors after circulatory death increased to 598 from 405 in 2020-2021 and the number of transplants from such donors increased by 41% to 972.

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 2021 - 31 March 2022 (2020-2021) and transplant list at 31 March 2022 (2021) in the UK, by centre

Centre	Deceased kidney donors				Deceased donor transplants				Living donor transplants		Active transplant list	
	DBD		DCD		DBD		DCD					
Belfast	35	(34)	17	(15)	29	(87)	28	(48)	60	(14)	69	(85)
Birmingham	36	(34)	38	(25)	86	(61)	41	(19)	49	(21)	400	(349)
Bristol	28	(39)	28	(18)	44	(52)	37	(28)	29	(17)	164	(129)
Cambridge	25	(24)	43	(31)	57	(104)	97	(112)	26	(11)	136	(93)
Cardiff	26	(19)	14	(10)	33	(34)	30	(16)	31	(12)	127	(87)
Coventry ¹	17	(11)	16	(4)	26	(39)	27	(21)	14	(9)	108	(76)
Edinburgh	12	(18)	13	(17)	41	(58)	18	(18)	41	(27)	185	(167)
Glasgow	34	(45)	19	(16)	45	(68)	44	(46)	42	(35)	230	(180)
Leeds	49	(40)	34	(32)	52	(70)	48	(56)	51	(27)	264	(213)
Leicester	24	(9)	23	(11)	25	(36)	21	(36)	24	(19)	227	(124)
Liverpool	24	(30)	20	(17)	45	(33)	24	(23)	20	(12)	118	(90)
London ²	215	(182)	156	(88)	-	-	-	-	-	-	-	-
Great Ormond Street	-	-	-	-	7	(6)	4	(1)	27	(8)	15	(20)
Guy's	-	-	-	-	102	(33)	59	(18)	90	(15)	329	(61)
Royal Free	-	-	-	-	45	(61)	58	(19)	25	(23)	214	(145)
Royal London	-	-	-	-	96	(35)	50	(4)	36	(16)	319	(310)
St George's	-	-	-	-	62	(43)	45	(8)	32	(14)	108	(62)
WLRTC	-	-	-	-	120	(57)	63	(27)	33	(11)	520	(151)
Manchester	55	(65)	46	(36)	129	(86)	93	(62)	81	(37)	490	(492)
Newcastle	30	(25)	20	(16)	40	(90)	21	(33)	47	(28)	223	(185)
Nottingham	17	(26)	22	(21)	30	(21)	28	(14)	19	(5)	147	(88)
Oxford ¹	26	(31)	27	(15)	89	(114)	67	(54)	51	(32)	289	(247)
Plymouth	16	(13)	14	(7)	16	(26)	9	(11)	16	(13)	81	(28)
Portsmouth	37	(35)	30	(18)	43	(11)	42	(2)	24	(7)	154	(42)
Sheffield	27	(21)	18	(8)	29	(17)	18	(13)	12	(7)	106	(101)
TOTAL	733	(701)	598	(405)	1291	(1242)	972	(689)	884³	(429^{4,5})	5023	(3525)

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 4 transplant performed at London, London Bridge Hospital

⁴ Includes an additional 3 transplants performed at London, Cromwell Hospital and 6 transplants performed at London, London Bridge Hospital

⁵ Includes 2 domino donors

5.2 Transplant list

The number of patients registered on the kidney or kidney and pancreas transplant list increased in the year: on 31 March 2022, 5,023 patients were registered as active, compared with 3,525 at the end of March 2021. The number of patients waiting for a kidney transplant represents 74.9 patients per million population (pmp).

Of the 5,023 patients on the active transplant list at 31 March 2022, 251 required a kidney and pancreas/islet transplant (154 at 31 March 2021).

The outcome of patients registered on the UK kidney and kidney/pancreas transplant list at 1 April 2021, or subsequently registered during the financial year, is shown in **Table 5.2**. A total of 4,124 patients joined the kidney transplant list last year, while a further 256 joined the kidney/pancreas transplant list.

Table 5.2 Kidney transplant list and new registrations in the UK, 1 April 2021 - 31 March 2022						
Outcome of patient at 31 March 2022	Active and suspended patients at 1 April 2021		New registrations in 2021-2022¹		TOTAL	
	N	%	N	%	N	%
Kidney transplant list						
Remained active/suspended	5135	66	3202	78	8337	70
Transplanted	2049	26	866	21	2915	24
Removed ²	407	5	23	1	430	4
Died	227	3	33	1	260	2
TOTAL	7818		4124		11942	
Kidney/pancreas transplant list						
Remained active/suspended	226	62	227	89	453	73
Transplanted	100	27	23	9	123	20
Removed ³	28	8	2	1	30	5
Died	11	3	4	2	15	2
TOTAL	365		256		621	

¹ Includes re-registrations for second or subsequent patients
² Includes 6 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 2022 and 2021 by country/NHS region of patient's residence. In 2022, the overall kidney transplant list rate was 74.9 pmp with rates across NHS regions ranging from 47.1 pmp to 123.1 pmp.

Table 5.3 Active kidney transplant list at 31 March, by Country/ NHS region of patient residence				
Country/ NHS region of residence	Kidney transplant list (pmp)			
	2022		2021	
North East and Yorkshire	595	(68.9)	514	(59.5)
North West	525	(74.0)	510	(71.9)
Midlands	946	(88.7)	674	(63.2)
East of England	309	(47.1)	212	(32.3)
London	1108	(123.1)	583	(64.8)
South East	532	(59.6)	257	(28.8)
South West	345	(60.8)	209	(36.9)
England	4360	(77.1)	2959	(52.3)
Isle of Man	3	(37.5)	4	(50.0)
Channel Islands	4	(23.5)	4	(23.5)
Wales	163	(51.4)	126	(39.7)
Scotland	413	(75.5)	345	(63.1)
Northern Ireland	70	(36.8)	86	(45.3)
TOTAL¹	5023	(74.9)	3525	(52.5)
¹ Includes patients in 2022 (2021) residing in: Unspecified UK 8 (0); Overseas 2 (1)				

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 34% of patients are transplanted within one year, while five years after listing 78% of patients have received a transplant.

The median (average) waiting time for a kidney only transplant has fallen from 589 days reported last year to 550 days for an adult patient and is shown by blood group in **Table 5.4** and patient ethnicity in **Table 5.5**. Because of the need to match donor and recipient blood groups and tissue types, waiting times to transplant differ according to patient blood groups and ethnicity due to differences between the donor pool and patients awaiting a kidney transplant. Note that these waiting times are not adjusted for other relevant factors which may be influential and which may differ across blood or ethnic groups.

Figure 5.2 Post-registration outcome for 3346 new adult kidney only registrations made in the UK, 1 April 2016 - 31 March 2017

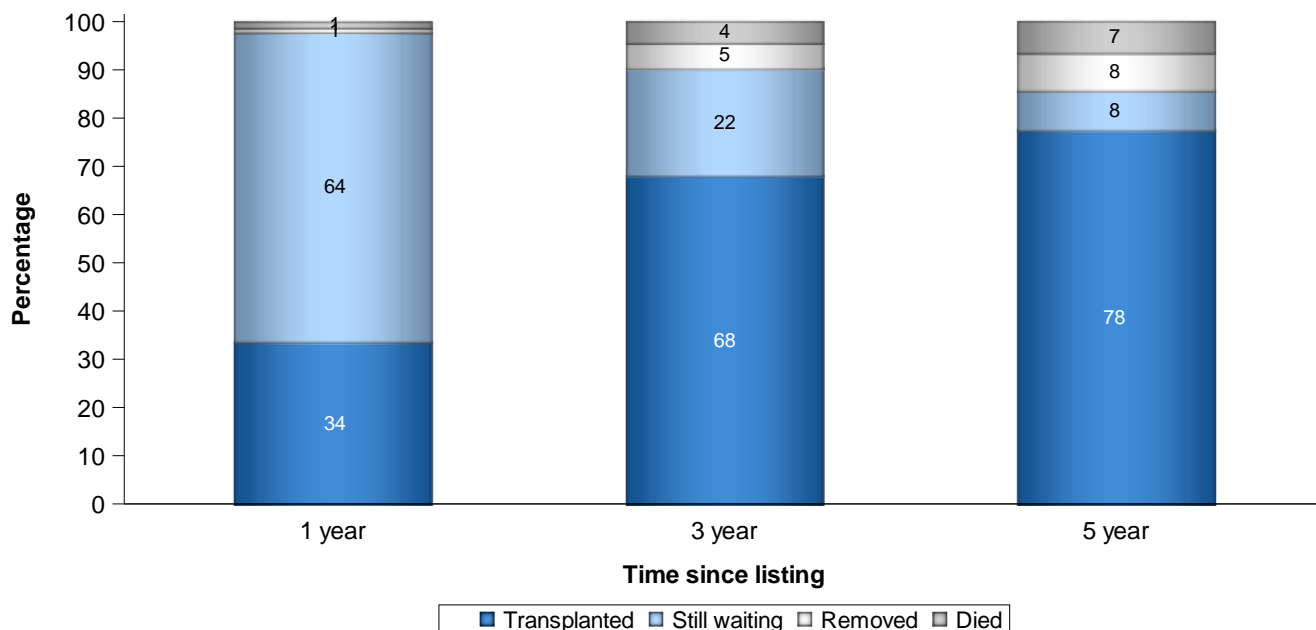


Table 5.4 Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2015 - 31 March 2019

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
O	4987	729	709 - 749
A	3843	351	337 - 365
B	1562	790	745 - 835
AB	498	161	139 - 183
TOTAL	10890	550	536 - 564
Paediatric			
O	126	311	192 - 430
A	99	197	108 - 286
B	48	430	345 - 515
AB	15	351	58 - 644
TOTAL	288	282	220 - 344

Table 5.5 Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2015 - 31 March 2019

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
White	7433	488	473 - 503
Asian	1817	650	618 - 682
Black	1067	735	687 - 783
Other	445	629	572 - 686
TOTAL¹	10890	550	536 - 564
Paediatric			
White	152	191	137 - 245
Asian	89	432	355 - 509
Black	29	415	94 - 736
Other	16	548	452 - 644
TOTAL²	288	282	220 - 344

¹ Includes 128 patients whose ethnicity was not reported

² Includes 2 patients whose ethnicity was not reported

5.3 Donor and organ supply

Of the 785 organ donors after brain death in the UK in 2021-2022, 733 (93%) were kidney donors. From these donors, 1,448 kidneys were retrieved. There were 598 kidney donors after circulatory death in 2021-2022. From these donors, 1182 kidneys were retrieved. **Table 5.6** shows this activity by donor country/NHS region 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 10.9 pmp, with rates across NHS regions ranging from 8.6 to 12.5 pmp. The number of kidneys retrieved from donors after brain death in the UK is 21.6 pmp and varies from 17.1 to 24.7 pmp.

The overall rate for kidney donors after circulatory death is 8.9 pmp, with rates across NHS regions ranging from 4.7 to 11.1 pmp. The number of kidneys retrieved from donors after circulatory death is 17.6 pmp and varies from 9.1 to 22.0 pmp.

Table 5.6 Kidney donation and retrieval rates for deceased donors in the UK, 1 April 2021 - 31 March 2022, by Country/ NHS region								
Country/ NHS region of residence	Kidney donors (pmp)				Kidneys retrieved (pmp)			
	DBD		DCD		DBD		DCD	
North East and Yorkshire	102	(11.8)	70	(8.1)	203	(23.5)	139	(16.1)
North West	61	(8.6)	65	(9.2)	121	(17.1)	130	(18.3)
Midlands	99	(9.3)	100	(9.4)	197	(18.5)	198	(18.6)
East of England	64	(9.8)	73	(11.1)	126	(19.2)	144	(22.0)
London	81	(9.0)	42	(4.7)	160	(17.8)	82	(9.1)
South East	112	(12.5)	93	(10.4)	221	(24.7)	183	(20.5)
South West	69	(12.2)	58	(10.2)	136	(24.0)	114	(20.1)
England	588	(10.4)	501	(8.9)	1164	(20.6)	990	(17.5)
Isle of Man	1	(12.5)	0	(0.0)	2	(25.0)	0	(0.0)
Channel Islands	3	(17.6)	2	(11.8)	6	(35.3)	4	(23.5)
Wales	37	(11.7)	16	(5.0)	72	(22.7)	31	(9.8)
Scotland	44	(8.0)	32	(5.9)	87	(15.9)	64	(11.7)
Northern Ireland	34	(17.9)	17	(8.9)	67	(35.3)	34	(17.9)
TOTAL¹	733	(10.9)	598	(8.9)	1448	(21.6)	1182	(17.6)
¹ Includes 56 donors with unknown UK postcode (26 DBD and 30 DCD)								

5.4 Transplants

The number of kidney transplants by recipient country/NHS region 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 24.1 to 57.9 pmp across NHS regions and overall was 31.7 pmp. The living donor transplant rate ranged from 10.7 to 13.7 pmp across NHS regions and overall was 12.9 pmp.

Table 5.7 Kidney only transplant rates per million population (pmp), in the UK, 1 April 2021 - 31 March 2022, by country and English NHS region								
Country/ NHS region of residence	DBD		DCD		TOTAL		Living	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East and Yorkshire	118	(13.7)	90	(10.4)	208	(24.1)	107	(12.4)
North West	141	(19.9)	101	(14.2)	242	(34.1)	86	(12.1)
Midlands	157	(14.7)	110	(10.3)	267	(25.0)	114	(10.7)
East of England	95	(14.5)	123	(18.8)	218	(33.2)	70	(10.7)
London	314	(34.9)	207	(23.0)	521	(57.9)	117	(13.0)
South East	131	(14.7)	114	(12.8)	245	(27.4)	122	(13.7)
South West	75	(13.2)	65	(11.5)	140	(24.7)	61	(10.8)
England	1031	(18.2)	810	(14.3)	1841	(32.6)	677	(12.0)
Isle of Man	1	(12.5)	1	(12.5)	2	(25.0)	1	(12.5)
Channel Islands	4	(23.5)	1	(5.9)	5	(29.4)	1	(5.9)
Wales	46	(14.5)	37	(11.7)	83	(26.2)	47	(14.8)
Scotland	78	(14.3)	59	(10.8)	137	(25.0)	83	(15.2)
Northern Ireland	29	(15.3)	28	(14.7)	57	(30.0)	58	(30.5)
TOTAL^{1,2}	1190	(17.7)	936	(14.0)	2126	(31.7)	868	(12.9)
¹ Excludes 1 recipient of a DBD donor kidney and 16 recipients of a living donor kidney who reside outside of the UK								
² Includes 2 recipients with an unknown UK postcode (1 DBD and 1 living)								

The number of kidney only transplants at each transplant centre is shown in **Table 5.8** for adult patients only. Kidney transplants from donors after brain death include 1 en bloc kidneys and 12 double kidney transplants in 2021-2022 (0 and 6 in 2020-2021). Kidney transplants from donors after circulatory death include 3 en bloc and 18 double kidney transplants in 2021-2022 (4 and 5 in 2020-2021). This table excludes multi-organ transplants: 6 (7) kidney and liver, 120 (83) kidney and pancreas, 7 (5) kidney and islets, and 1 (0) kidney and heart in 2021-2022 (2020-2021).

**Table 5.8 Adult kidney only transplants in the UK,
1 April 2020 - 31 March 2022, by transplant centre**

Transplant centre	2020-2021				2021-2022			
	DBD	DCD	Living donor	TOTAL	DBD	DCD	Living donor	TOTAL
Belfast	87	47	8	142	29	28	59	116
Birmingham	52	17	16	85	80	41	41	162
Bristol	49	26	14	89	39	35	21	95
Cambridge	82	105	11	198	49	91	26	166
Cardiff	29	14	12	55	29	29	29	87
Coventry ¹	39	21	9	69	26	27	14	67
Edinburgh	51	13	27	91	33	15	41	89
Glasgow	63	44	31	138	44	44	38	126
Guy's	29	13	4	46	79	50	71	200
Leeds	66	56	22	144	50	47	48	145
Leicester	36	36	19	91	25	21	24	70
Liverpool	33	23	12	68	45	24	20	89
Manchester	75	57	34	166	105	83	67	255
Newcastle	88	32	25	145	35	21	44	100
Nottingham	16	14	4	34	26	25	15	66
Oxford ¹	94	52	32	178	54	56	50	160
Plymouth	26	11	13	50	16	9	16	41
Portsmouth	11	2	7	20	43	42	24	109
Sheffield	17	13	7	37	29	18	12	59
St George's	43	8	14	65	62	45	32	139
The Royal Free	59	19	23	101	45	58	25	128
The Royal London	35	4	16	55	96	50	36	182
WLRTC	56	27	11	94	115	62	31	208
TOTAL	1136	654	379²	2169²	1154	921	788³	2863³

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 5 transplants performed at London Bridge Hospital

³ Includes 4 transplants performed at London Bridge Hospital

Living donor kidney transplants increased by 106% to 884 in 2021-2022, representing 28% 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 97% increase in these transplants. In addition, there are now a number of 'non-directed' living donor transplants (also known as altruistic donor transplants). Last year 68 such donors donated a kidney to a recipient, 64 were transplanted into an adult recipient. Of the 68 non-directed altruistic donors, 36 went into an altruistic donor chain (14 short (2 transplants each) and 22 long chains (3 transplants each)) benefiting 58 adult patients in the paired/pooled scheme. The kidneys from the paired donors of these recipients led to 33 adult patients on the deceased donor transplant list. Thus 68 non-directed altruistic donors created chains benefiting 94 patients in total (91 adult and 3 paediatric patients).

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 2021-2022, there were 97 paired living kidney donor transplants (94 adult and 3 paediatric recipients).

As a percentage of the number of patients on the active transplant list at 31 March 2022, the number of living donor adult transplants in the year was 16% and ranged from 6% to 86% at individual transplant centres.

Table 5.9 Adult living donor kidney transplants in the UK, 1 April 2021 - 31 March 2022, and percentage of active transplant list at 31 March, by transplant centre/region

Transplant centre	Directed	Non-directed (altruistic) to waiting list	Paired/ pooled exchanges	Altruistic donor chain	TOTAL	
					N	% list
Belfast	38	4	13	4	59	86
Birmingham	25	4	4	8	41	11
Bristol	13	0	5	3	21	13
Cambridge	21	1	2	2	26	19
Cardiff	24	1	0	3	29	23
Coventry ¹	12	0	1	1	14	13
Edinburgh	24	2	8	7	41	22
Glasgow	27	0	4	7	38	17
Guy's	52	3	7	9	71	23
Leeds	31	1	11	5	48	19
Leicester	19	1	2	2	24	11
Liverpool	19	0	0	1	20	17
Manchester	52	4	6	5	67	14
Newcastle	33	0	4	7	44	20
Nottingham	10	2	3	0	15	11
Oxford ¹	36	3	5	6	50	17
Plymouth	16	0	0	0	16	20
Portsmouth	19	0	3	2	24	16
Sheffield	9	0	1	2	12	11
St George's	21	1	5	5	32	30
The Royal Free	19	1	3	2	25	12
The Royal London	27	0	4	5	36	11
WLRTC	23	0	3	5	31	6
TOTAL²	574	28	94	91	788	16

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

² Includes 4 directed transplants performed at London Bridge

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 Non-directed altruistic kidney donors in the UK, 1 April 2020 - 31 March 2022, by donor centre								
Donor centre	Transplant list	2020-2021 Donation to			Transplant list	2021-2022 Donation to		
		Chain	Total	%		Chain	Total	%
Belfast	1	1	2	6	8	5	13	19
Birmingham	1	3	4	12	0	2	2	3
Bristol	0	1	1	3	2	0	2	3
Cambridge	0	0	0	0	0	0	0	0
Cardiff	0	2	2	6	3	0	3	4
Coventry ¹	0	0	0	0	0	0	0	0
Edinburgh	1	1	2	6	3	2	5	7
Glasgow	2	0	2	6	1	2	3	4
Guy's	0	3	3	9	4	8	12	18
Leeds	1	1	2	6	2	2	4	6
Leicester	0	0	0	0	1	0	1	1
Liverpool	0	1	1	3	0	0	0	0
Manchester	2	4	6	18	2	0	2	3
Newcastle	0	2	2	6	1	0	1	1
Nottingham	0	0	0	0	0	1	1	1
Oxford ¹	1	1	2	6	0	3	3	4
Plymouth	0	1	1	3	1	3	4	6
Portsmouth	1	2	3	9	1	3	4	6
Sheffield	0	0	0	0	1	0	1	1
St George's	0	1	1	3	2	0	2	3
The Royal Free	0	0	0	0	0	1	1	1
The Royal London	0	0	0	0	0	4	4	6
WLRTC	0	0	0	0	0	0	0	0
Total donors	10	24	34	100	32	36	68	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 96 living donor transplants and 52 deceased donor transplants in paediatric patients in 2021-2022. The paediatric transplant list has fallen by 9% from 115 patients at 31 March 2021 to 105 at the end of March 2022.

Table 5.11 Paediatric kidney only transplants in the UK, 1 April 2020 - 31 March 2022, by transplant centre								
Transplant centre	2020-2021				2021-2022			
	DBD	DCD	Living donor	TOTAL	DBD	DCD	Living donor	TOTAL
Belfast	0	1	6	7	0	0	1	1
Birmingham	7	2	5	14	5	0	8	13
Bristol	3	2	3	8	5	2	8	15
Glasgow	5	2	4	11	1	0	4	5
Great Ormond Street	6	1	8	15	7	4	27	38
Guy's	1	2	11	14	5	2	19	26
Leeds	4	0	5	9	1	1	3	5
Manchester	3	1	3	7	8	3	14	25
Newcastle	1	0	3	4	1	0	3	4
Nottingham	5	0	1	6	4	3	4	11
Adult centres	0	0	0	0	0	0	5	5
TOTAL	35	11	50^{1,3}	96³	37	15	96²	148
¹ Includes 1 paired living donor transplants ² Includes 4 non-directed donor transplants, 3 paired living donor transplants and 3 altruistic donor chains (3 as a patient on transplant list at end of chain) ³ Includes 1 transplants performed at London Bridge Hospital								

At 31 March 2022, there were approximately 43,100 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 3,011 kidney only transplant recipients in 2021-2022, dialysis status at time of transplant was reported for 2,778 (92%). Of these 2,778 transplants, 512 (18%) were carried out in pre-dialysis patients.

Pre-emptive transplants accounted for 20% of all paediatric kidney only transplants with reported dialysis status, compared with 18% of those in adults. Living donor transplants are more likely to be carried out before the need for dialysis than deceased donor transplants: 34% and 12% 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 2021 - 31 March 2022			
	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	2075	1950 (94.0)	(12.3)
Living donor transplant	788	695 (88.2)	(35.5)
Paediatric			
Deceased donor transplant	52	49 (94.2)	(10.2)
Living donor transplant	96	84 (87.5)	(25.0)

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

Table 5.13 Median cold ischaemia time for kidney only transplants in the UK, 1 April 2021 - 31 March 2022				
	Number of kidney only transplants ¹	Median (hours)	Inter-quartile range ²	
			Q1	Q3
Adult				
DBD donor transplant	1154	12.8	10.3	17.2
DCD donor transplant	921	13.0	10.4	17.1
Total	2075	12.9	10.3	17.2
Paediatric				
DBD donor transplant	37	12.1	9.8	15.6
DCD donor transplant	15	9.2	8.4	11.2
Total	52	11.2	9.1	14.8
TOTAL	2127	12.8	10.3	17.2

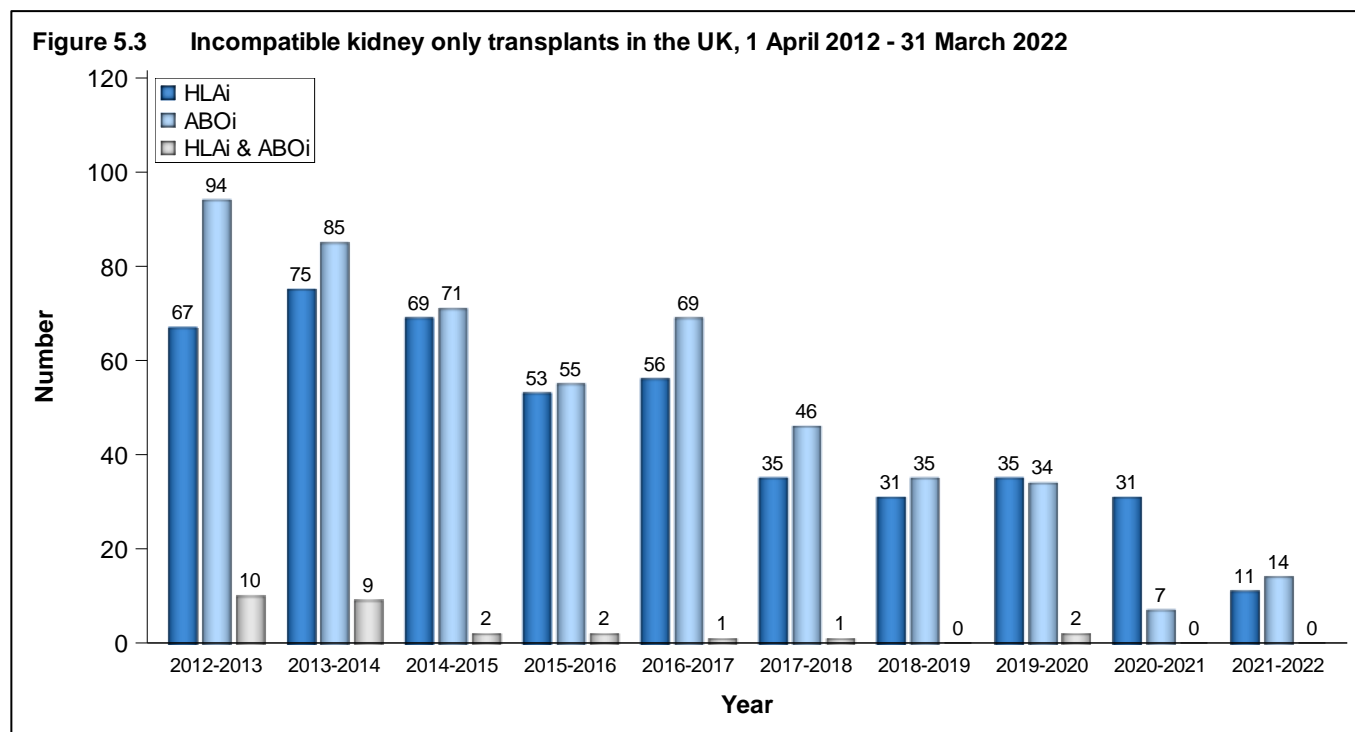
¹ Not all cold ischaemia times are reported
² 25% of times are shorter than Q1, 25% are longer than Q3

Kidneys from donors after brain death and some kidneys from donors after circulatory death are allocated on the basis of a national Kidney Offering Scheme which incorporates HLA matching between donor and recipient. These HLA matches are based on four levels which are described in **Table 5.14**. Prior to 11 September 2019 patients with 000 HLA-A, B, DR mismatch (Level 1) were prioritised in the scheme, whereas kidneys were rarely transplanted as a Level 4 match. Under the new scheme, Level 4 matches are only permitted for difficult to match patients. 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 poorer HLA match between donor and recipient than deceased donor transplantation. 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, 001, 101, 201
3	[0 DR and 2 B] or [1 DR and 0/1 B]	020, 120, 220, 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 2021 - 31 March 2022						
	DBD		DCD		Living	
	N	%	N	%	N	%
Adult						
Level 1 (Best match)	37	(3)	14	(2)	54	(9)
Level 2	273	(24)	216	(24)	82	(14)
Level 3	597	(52)	506	(55)	287	(49)
Level 4	247	(21)	183	(20)	160	(27)
Not reported	0	-	2	-	205	-
Paediatric						
Level 1 (Best match)	2	(5)	0	(0)	12	(17)
Level 2	26	(70)	10	(67)	18	(25)
Level 3	6	(16)	3	(20)	40	(56)
Level 4	3	(8)	2	(13)	2	(3)
Not reported	0	-	0	-	24	-

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 463 HLA incompatible (HLAi) transplants performed; 197 were deceased donor transplants and 266 were living donor transplants, whilst the vast majority of ABO incompatible (ABOi) transplants were living donor transplants (506 of 510). 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.

Table 5.16 Demographic characteristics of deceased kidney donors and transplant recipients, 1 April 2021 - 31 March 2022, and transplant list patients at 31 March							
		Donors		Transplant recipients		Active transplant list patients	
		N	(%)	N	(%)	N	(%)
Age	0-17	38	(3)	54	(2)	105	(2)
	18-34	175	(13)	290	(13)	542	(11)
	35-49	302	(23)	514	(23)	1428	(28)
	50-59	344	(26)	569	(25)	1475	(29)
	60-69	321	(24)	603	(27)	1089	(22)
	70+	151	(11)	233	(10)	384	(8)
	mean (SD)	51	(16)	52	(15)	51	(14)
Sex	Male	764	(57)	1408	(62)	2992	(60)
	Female	567	(43)	855	(38)	2016	(40)
	Unknown	0	-	0	-	15	-
Ethnicity	White	1200	(92)	1463	(66)	3146	(64)
	Asian	36	(3)	393	(18)	950	(19)
	Black	23	(2)	255	(11)	582	(12)
	Other	40	(3)	112	(5)	232	(5)
	Unknown	32	-	40	-	113	-
Blood group	O	627	(47)	948	(42)	2690	(54)
	A	537	(40)	899	(40)	1260	(25)
	B	122	(9)	287	(13)	956	(19)
	AB	44	(3)	129	(6)	117	(2)
	Unknown ¹	1	-	0	-	0	-
Graft number	First graft	-	-	1901	(84)	4015	(80)
	Re-graft	-	-	362	(16)	1008	(20)
TOTAL		1331	(100)	2263	(100)	5023	(100)
¹ 1 donor had an indeterminate blood group							

Table 5.17 Demographic characteristics of living kidney donors and transplant recipients, 1 April 2021 - 31 March 2022

		Donors		Transplant recipients	
		N	(%)	N	(%)
Age	0-17	0	(0)	96	(11)
	18-34	175	(20)	199	(23)
	35-49	320	(36)	224	(25)
	50-59	230	(26)	190	(21)
	60-69	127	(14)	124	(14)
	70+	32	(4)	51	(6)
	mean (SD)	47	(13)	43	(18)
Sex	Male	397	(45)	533	(60)
	Female	487	(55)	348	(39)
	Unknown	-	-	3	-
Ethnicity	White	769	(87)	718	(83)
	Asian	68	(8)	82	(10)
	Black	25	(3)	32	(4)
	Other	22	(2)	31	(4)
	Unknown	0	-	21	-
Blood group	O	522	(59)	379	(43)
	A	245	(28)	333	(38)
	B	104	(12)	130	(15)
	AB	13	(1)	42	(5)
Graft number	First graft	-	-	762	(86)
	Re-graft	-	-	122	(14)
TOTAL		884	(100)	884	(100)

Pancreas Activity

Key messages

- The number of patients waiting on the pancreas transplant list increased by 62% during the year, to 278 at 31 March 2022 due to changes reflecting the COVID pandemic
- The number of pancreas donors after brain death increased by 52% to 241, while transplants from donors after brain death increased by 45% to 112
- The number of pancreas donors after circulatory death increased by 79% to 93, while transplants from donors after circulatory death increased by 71% to 41
- 15 islet transplants were made possible by the pancreas islet transplant programme

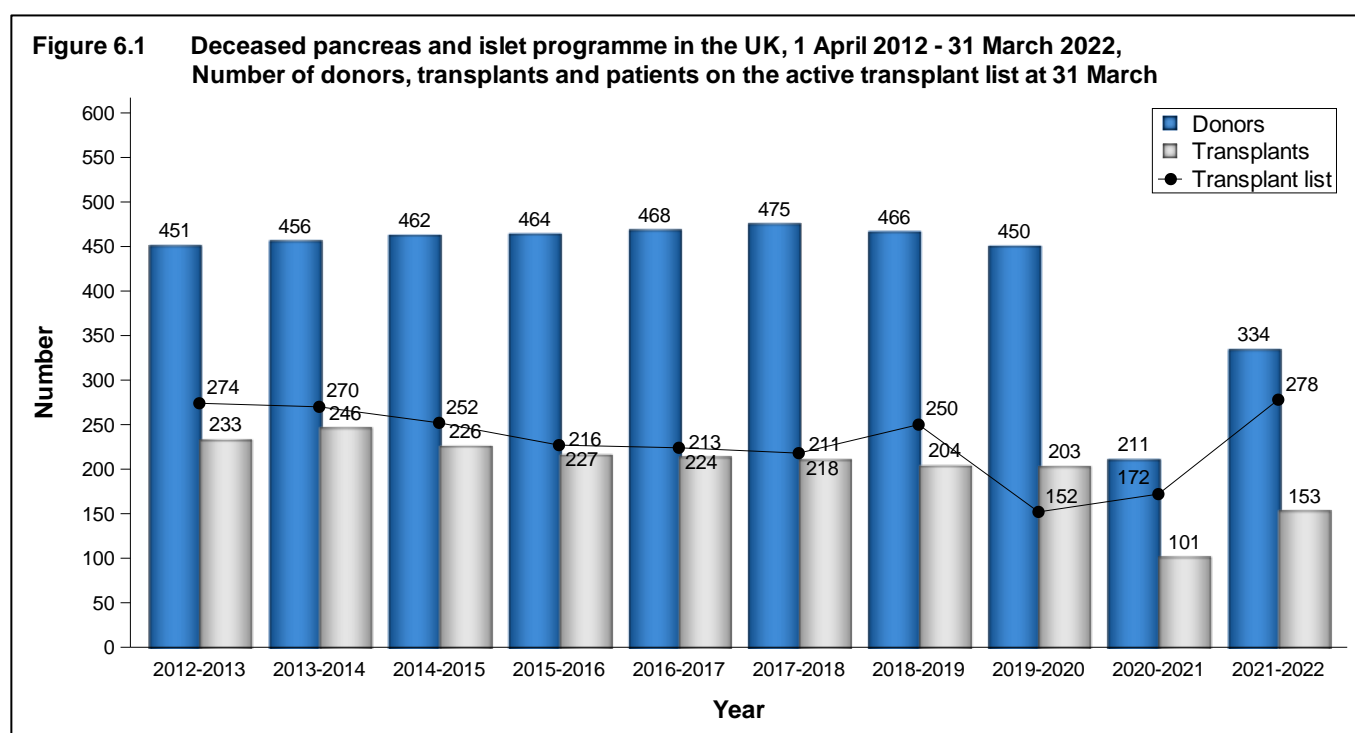
6.1 Overview

Note that the COVID-19 pandemic will have affected the number of offered, retrieved and transplanted organs in 2021-2022.

The number of patients registered on the active transplant list for a pancreas, simultaneous pancreas/kidney (SPK), simultaneous islet/kidney (SIK), or islet transplant has remained similar over the last ten years from 274 patients at 31 March 2013 to 278 patients at 31 March 2022. The number of pancreas donors fell from 451 to 334. The number of transplants has decreased in the last 4 years to 153 transplants in 2021-2022. A summary of activity for deceased donor pancreas transplants and the transplant list for 1 April 2012 - 31 March 2022 is shown in **Figure 6.1**.

On 11 September 2019, an additional top tier of patients was introduced to the National Pancreas Offering Scheme. Patients in this top tier are either categorised as very difficult to HLA match to a donor or have been waiting for more than 3 years for a pancreas or islet transplant. All other patients appear in subsequent tiers and are prioritised according to a point system based on a range of clinical factors. A score is calculated for every potentially suitable patient and the pancreas is allocated preferentially to the patient with the most points after those in the new top tier. 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.

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 2021-2022 there were 18 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 2022 by centre. The number of patients registered on the pancreas transplant list increased by 62% in the year: on 31 March 2022, 278 patients were registered active, compared with 172 at the end of March 2021.

Of the 278 patients on the active transplant list at 31 March 2022, 243 (87%) required a SPK transplant (143 at 31 March 2021), 9 (3%) patients required a pancreas only transplant (10 at 31 March 2021) and 26 (9%) were registered for a pancreas islet transplant (including 8 for a SIK transplant).

The outcome of patients registered on the UK pancreas transplant list at 1 April 2021, or subsequently registered during the financial year, is shown in **Table 6.2**. Twelve patients joined the pancreas transplant list while 256 joined the list for a 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 2022 (2021) in the UK, by centre												
Centre	Kidney/ pancreas		Kidney/islet		Active transplant lists						TOTAL	
					Pancreas alone		Islet					
							Routine		Priority			
Bristol	-	-	0	(0)	-	-	0	(0)	0	(0)	0	(0)
Cambridge	13	(5)	-	-	0	(0)	-	-	-	-	13	(5)
Cardiff	6	(1)	-	-	1	(0)	-	-	-	-	7	(1)
Edinburgh	35	(22)	1	(2)	0	(0)	4	(1)	0	(0)	40	(25)
Guy's	31	(0)	-	-	0	(0)	-	-	-	-	31	(0)
King's College	-	-	0	(0)	-	-	0	(0)	0	(0)	0	(0)
Manchester	70	(43)	6	(8)	3	(2)	3	(0)	1	(1)	83	(54)
Newcastle	13	(10)	0	(1)	2	(3)	5	(3)	3	(1)	23	(18)
Oxford	64	(62)	1	(0)	3	(5)	2	(1)	0	(1)	70	(69)
Royal Free	-	-	0	(0)	-	-	0	(0)	0	(0)	0	(0)
WLRTC	11	(0)	-	-	0	(0)	-	-	-	-	11	(0)
TOTAL	243	(143)	8	(11)	9	(10)	14	(5)	4	(3)	278	(172)
WLRTC - West London Renal and Transplant Centre												

**Table 6.2 Whole pancreas transplant list and new registrations in the UK,
1 April 2021 - 31 March 2022**

Outcome of patient at 31 March 2022	Active and suspended patients at 1 April 2021		New registrations in 2021-2022 ¹		TOTAL	
	N	%	N	%	N	%
Pancreas transplant list						
Remained active/suspended	58	87	7	58	65	82
Transplanted	6	9	5	42	11	14
Removed	2	3	0	0	2	3
Died	1	1	0	0	1	1
TOTAL	67		12		79	
Kidney/pancreas transplant list						
Remained active/suspended	226	62	227	89	453	73
Transplanted	100	27	23	9	123	20
Removed ²	28	8	2	1	30	5
Died	11	3	4	2	15	2
TOTAL	365		256		621	

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/NHS region of patient's residence are shown in **Table 6.3**. At 31 March 2022, the overall transplant list rate was 4.1 pmp and across NHS regions ranged from 2.7 to 6.2 pmp.

Table 6.3 Active pancreas, kidney/pancreas, and islet transplant list at 31 March, by Country/ NHS region of patient residence

Country/ NHS region of residence	Pancreas/Islet transplant list (pmp)			
	2022		2021	
North East and Yorkshire	42	(4.9)	37	(4.3)
North West	44	(6.2)	26	(3.7)
Midlands	48	(4.5)	31	(2.9)
East of England	18	(2.7)	6	(0.9)
London	28	(3.1)	5	(0.6)
South East	24	(2.7)	19	(2.1)
South West	20	(3.5)	18	(3.2)
England	224	(4.0)	142	(2.5)
Isle of Man	0	(0.0)	0	(0.0)
Channel Islands	0	(0.0)	0	(0.0)
Wales	11	(3.5)	5	(1.6)
Scotland	38	(6.9)	23	(4.2)
Northern Ireland	2	(1.1)	2	(1.1)
TOTAL	278	(4.1)	172	(2.6)

¹Includes patients in 2022 (2021) residing in: Unspecified UK 3 (0)

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. 33% of patients are transplanted within one year, while three years after listing 71% of patients have received a transplant. The median (average) waiting time for a pancreas transplant is 364 days and is shown by blood group in **Table 6.4** and ethnicity in **Table 6.5**. Note that these waiting times are not adjusted for other relevant factors which may be influential and which may differ across blood or ethnic groups.

Figure 6.2 Post-registration outcome for 227 new pancreas only and kidney/pancreas registrations made in the UK, 1 April 2018 - 31 March 2019

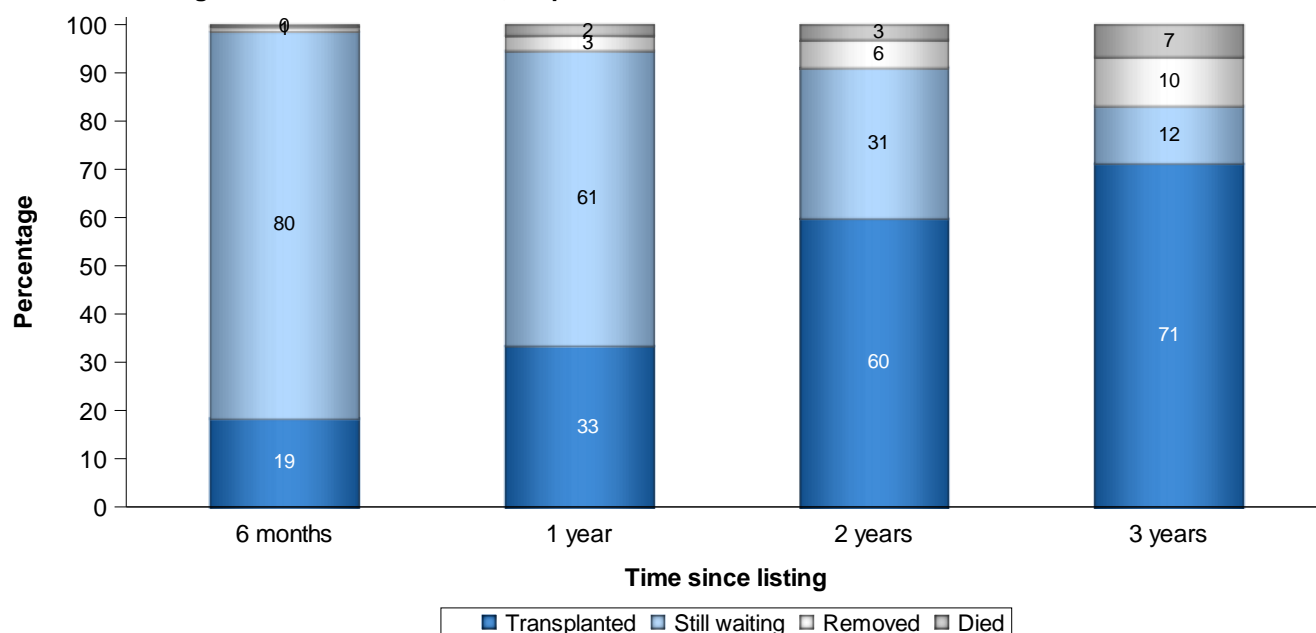


Table 6.4 Median waiting time to pancreas only and kidney/pancreas transplant in the UK, for patients registered 1 April 2016 - 31 March 2020, by blood group

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
O	418	453	425 - 481
A	368	229	195 - 263
B	120	471	398 - 544
AB	32	136	113 - 159
TOTAL	938	364	336 - 392

Table 6.5 Median waiting time to pancreas only and kidney/pancreas transplant in the UK, for patients registered 1 April 2016 - 31 March 2020, by ethnicity

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
White	794	363	331 - 395
Asian	66	366	327 - 405
Black	50	414	376 - 452
Other	21	209	38 - 380
TOTAL¹	938	364	336 - 392

¹ Includes 7 recipients with unknown ethnicity

6.3 Donor and organ supply

Of the 785 organ donors after brain death in the UK in 2021-2022, 241 (31%) donated a pancreas. There were 93 pancreas donors after circulatory death in 2021-2022. **Table 6.6** shows this activity by country/NHS region 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 3.6 pmp, with rates ranging from 2.8 to 5.0 pmp across NHS regions and for donors after circulatory death is 1.4 pmp, with rates ranging from 0.2 to 2.5 pmp across NHS regions.

Table 6.6 Pancreas donation rates for deceased donors in the UK, 1 April 2021 - 31 March 2022, by Country/ NHS region

Country/ NHS region of residence	Pancreas donors (pmp)					
	DBD		DCD		TOTAL	
North East and Yorkshire	37	(4.3)	11	(1.3)	48	(5.6)
North West	20	(2.8)	8	(1.1)	28	(3.9)
Midlands	32	(3.0)	18	(1.7)	50	(4.7)
East of England	21	(3.2)	8	(1.2)	29	(4.4)
London	26	(2.9)	2	(0.2)	28	(3.1)
South East	45	(5.0)	22	(2.5)	67	(7.5)
South West	19	(3.4)	9	(1.6)	28	(4.9)
England	200	(3.5)	78	(1.4)	278	(4.9)
Isle of Man	0	(0.0)	0	(0.0)	0	(0.0)
Channel Islands	1	(5.9)	1	(5.9)	2	(11.8)
Wales	13	(4.1)	2	(0.6)	15	(4.7)
Scotland	8	(1.5)	4	(0.7)	12	(2.2)
Northern Ireland	9	(4.7)	1	(0.5)	10	(5.3)
TOTAL¹	241	(3.6)	93	(1.4)	334	(5.0)

¹ Includes 17 donors with unknown UK postcode (10 DBD and 7 DCD)

6.4 Transplants

The number of pancreas and islet transplants by recipient country/NHS region 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 0.9 to 2.2 pmp across NHS regions and overall was 1.7 pmp. For donors after circulatory death, the overall rate was 0.6 pmp and ranged from 0.3 to 1.1 pmp across NHS regions.

Country/ NHS region of residence	DBD		DCD		TOTAL	
	N	(pmp)	N	(pmp)	N	(pmp)
North East and Yorkshire	16	(1.9)	3	(0.3)	19	(2.2)
North West	10	(1.4)	3	(0.4)	13	(1.8)
Midlands	17	(1.6)	6	(0.6)	23	(2.2)
East of England	6	(0.9)	7	(1.1)	13	(2.0)
London	13	(1.4)	4	(0.4)	17	(1.9)
South East	20	(2.2)	5	(0.6)	25	(2.8)
South West	8	(1.4)	4	(0.7)	12	(2.1)
England	90	(1.6)	32	(0.6)	122	(2.2)
Isle of Man	0	(0.0)	0	(0.0)	0	(0.0)
Channel Islands	0	(0.0)	0	(0.0)	0	(0.0)
Wales	5	(1.6)	5	(1.6)	10	(3.2)
Scotland	13	(2.4)	4	(0.7)	17	(3.1)
Northern Ireland	4	(2.1)	0	(0.0)	4	(2.1)
TOTAL	112	(1.7)	41	(0.6)	153	(2.3)

There were 153 deceased donor pancreas and islet transplants in 2021-2022, more than the 101 transplants performed in 2020-2021. Of these 153, 120 (78%) were SPK transplants, 11 (7%) were pancreas only transplants (pancreas alone (PTA) or pancreas after kidney (PAK)) and 22 (15%) were islet transplants (including 7 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 2021-2022, the median CIT for a DBD donor whole pancreas transplant is 10.8 hours (Inter-Quartile (IQ) range 9.1 – 13.9) and for a DCD donor transplant is 8.0 hours (IQ range 8.0 – 8.0) and overall is 10.7 hours (IQ range 8.9 – 13.9).

At 31 March 2022, there were approximately 2,200 recipients with a functioning pancreas transplant (including multi-organ transplants) being followed-up, as reported to the UK Transplant Registry.

Table 6.8 Pancreas and islet transplants, 1 April 2021 - 31 March 2022 (2020-2021) by centre												
Centre	SPK		SIK		Transplant type				Islet			
					PTA		PAK		Routine		Priority	
Bristol	-	-	0	(0)	-	-	-	-	0	(0)	0	(0)
Cambridge	11	(27)	-	-	0	(0)	0	(1)	-	-	-	-
Cardiff	5	(7)	-	-	0	(0)	1	(0)	-	-	-	-
Edinburgh	8	(11)	3	(1)	0	(0)	0	(0)	5	(2)	5	(2)
Guy's	21	(5)	-	-	0	(0)	0	(0)	-	-	-	-
King's College	-	-	0	(0)	-	-	-	-	0	(0)	0	(1)
Manchester	20	(9)	3	(3)	1	(0)	3	(0)	0	(0)	1	(0)
Newcastle	4	(2)	0	(0)	1	(0)	1	(0)	2	(3)	1	(1)
Oxford	45	(21)	1	(1)	3	(2)	1	(0)	1	(1)	0	(0)
Royal Free	-	-	0	(0)	-	-	-	-	0	(0)	0	(0)
WLRTC	6	(1)	-	-	0	(0)	0	(0)	-	-	-	-
TOTAL	120	(83)	7	(5)	5	(2)	6	(1)	8	(6)	7	(4)
WLRTC - West London Renal and Transplant Centre												

Table 6.9 Pancreas and islet transplants, 1 April 2021 - 31 March 2022 by centre and donor type										
Centre	SPK		SIK		PTA/PAK		Islet		TOTAL	
	DBD	DCD	DBD	DCD	DBD	DCD	DBD	DCD	DBD	DCD
Bristol	-	-	0	0	-	-	0	0	0	0
Cambridge	5	6	-	-	0	0	-	-	5	6
Cardiff	4	1	-	-	0	1	-	-	4	2
Edinburgh	5	3	3	0	0	0	9	1	17	4
Guy's	14	7	-	-	0	0	-	-	14	7
King's College	-	-	0	0	-	-	0	0	0	0
Manchester	14	6	2	1	4	0	0	1	20	8
Newcastle	4	0	0	0	2	0	3	0	9	0
Oxford	34	11	1	0	3	1	0	1	38	13
Royal Free	-	-	0	0	-	-	0	0	0	0
WLRTC	5	1	-	-	0	0	-	-	5	1
TOTAL	85	35	6	1	9	2	12	3	112	41
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 2021 - 31 March 2022, and transplant list patients at 31 March							
		Donors		Transplant recipients		Active transplant list patients	
		N	(%)	N	(%)	N	(%)
Age	0-17	25	(7)	-	-	-	-
	18-34	104	(31)	40	(26)	68	(24)
	35-49	131	(39)	63	(41)	140	(50)
	50-59	70	(21)	40	(26)	65	(23)
	60-69	3	(1)	9	(6)	5	(2)
	70+	1	(0)	1	(1)	-	-
	mean (SD)	38	(14)	43	(10)	42	(9)
Sex	Male	185	(55)	79	(52)	139	(50)
	Female	149	(45)	74	(48)	138	(50)
	Unknown	0	-	0	-	1	-
Ethnicity	White	294	(89)	129	(85)	252	(91)
	Asian	8	(2)	13	(9)	11	(4)
	Black	6	(2)	7	(5)	9	(3)
	Other	22	(7)	3	(2)	5	(2)
	Unknown	4	-	1	-	1	-
Blood group	O	157	(47)	56	(37)	152	(55)
	A	136	(41)	63	(41)	86	(31)
	B	34	(10)	26	(17)	35	(13)
	AB	7	(2)	8	(5)	5	(2)
Graft number	First graft	-	-	136	(89)	252	(91)
	Re-graft	-	-	17	(11)	26	(9)
TOTAL		334	(100)	153	(100)	278	(100)

Cardiothoracic Activity

Key messages

- At 31 March 2022, there were 328 patients on the active heart transplant list, 258 on the lung list and 9 on the heart-lung list
- Of the 785 organ donors after brain death during 2021-2022, 137 (17%) donated their heart and 95 (12%) donated at least one lung
- The number of heart transplants increased by 11% to 179; 54% of these were urgent heart transplants, 17% were super-urgent, and 29% were non-urgent
- The number of lung and heart-lung transplants increased by 20% this year to 109; 28% of these were urgent lung transplants, 2% were super-urgent, and 70% were non-urgent.
- There were 44 DCD heart transplants in 2021-2022, 22 more than the previous year

7.1 Overview

Note that the COVID-19 pandemic will have affected the number of offered, retrieved and transplanted organs in 2021-2022. This is particularly true for lung transplant activity which was severely impacted by the pandemic.

Last year the number of heart transplants increased by 11% to 179 compared with 2020-2021, and the number of lung or heart-lung transplants increased by 20% to 109. There were increases in both the heart and the lung transplant lists since 31 March 2021; this is because more patients joined the list during 2021-2022 due to the pandemic. The number of patients active on the heart transplant list at year end has increased by 64% since 2013, while the number of patients active on the lung or heart-lung transplant list has increased by 10% since 2013.

A summary of the deceased donor cardiothoracic activity from 1 April 2012 to 31 March 2022 is shown in **Figure 7.1** for heart activity and **Figure 7.2** for lung activity. Donors who donate both heart and lung(s) are included in both figures, but heart-lung block transplants and patients active on the transplant list for a heart-lung block are only included in **Figure 7.2**.

Figure 7.1 Deceased donor heart programme in the UK, 1 April 2012 - 31 March 2022, Number of donors, transplants and patients on the active transplant list at 31 March

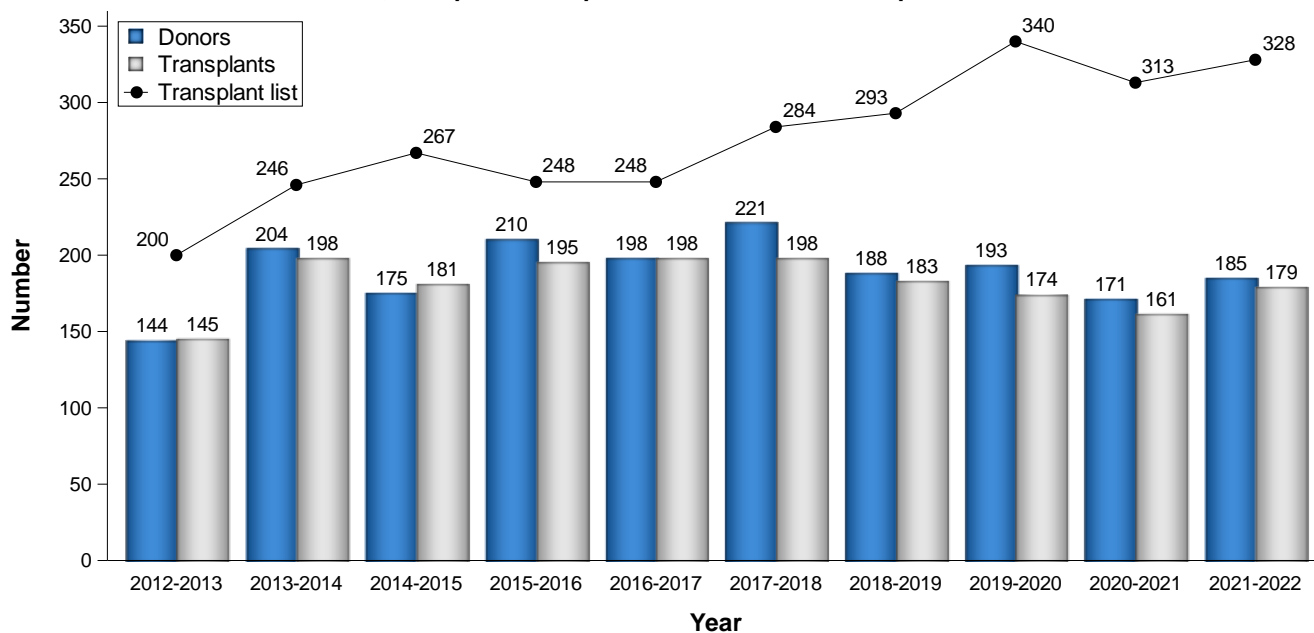
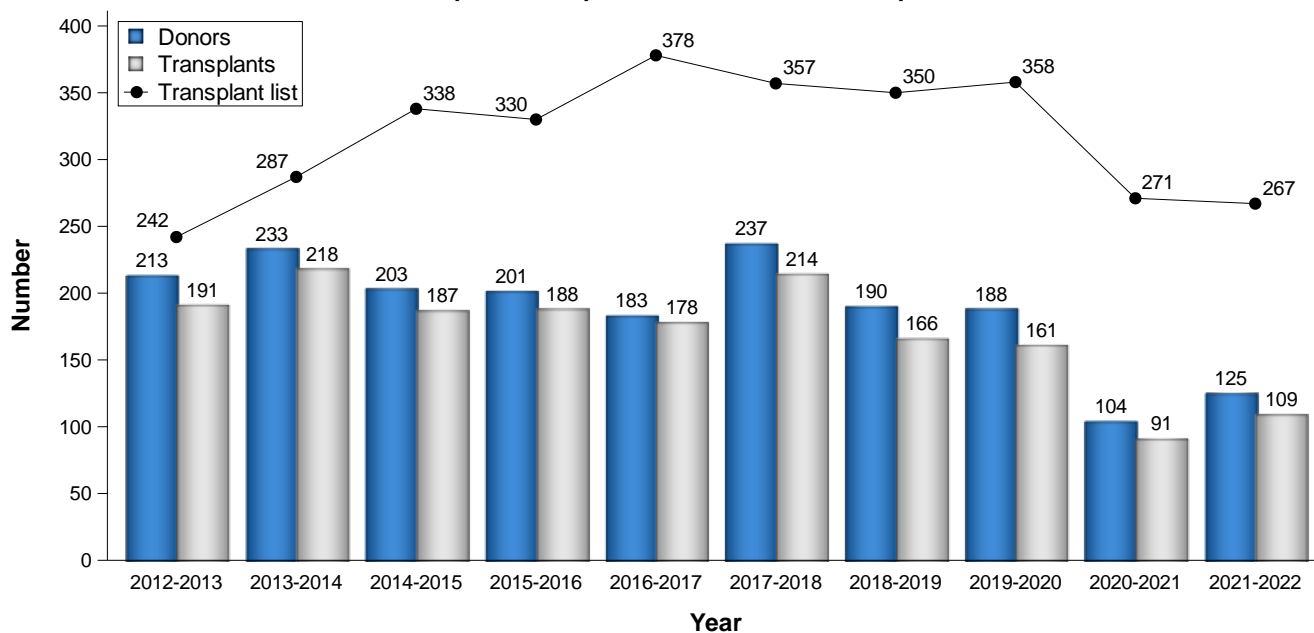


Figure 7.2 Deceased donor lung and heart-lung programme in the UK, 1 April 2012 - 31 March 2022, Number of donors, transplants and patients on the active transplant list at 31 March



7.2 Transplant list

Table 7.1 shows the number of patients on the active transplant lists at 31 March 2022 by centre. There were five patients waiting on the super-urgent heart transplant list. There were no patients waiting on the super-urgent lung transplant list, and ten patients waiting on the urgent lung transplant list. The lung transplant list accounts for 45% of the patients waiting for a cardiothoracic organ transplant. Overall, Newcastle and Harefield had the largest cardiothoracic transplant waiting lists on 31 March 2022.

Table 7.1 Patients on the cardiothoracic transplant lists at 31 March 2022 (2021) 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	43	(35)	4	(7)	0	(1)	2	(2)	42	(41)	0	(0)	0	(0)	91	(86)
Glasgow	14	(13)	2	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	16	(13)
Great Ormond Street	1	(3)	0	(0)	0	(0)	0	(1)	1	(1)	0	(0)	0	(0)	2	(5)
Harefield	62	(54)	4	(3)	2	(1)	0	(0)	55	(66)	0	(0)	0	(0)	123	(124)
Manchester	30	(33)	2	(1)	1	(1)	1	(1)	39	(48)	0	(0)	0	(0)	73	(84)
Newcastle	72	(77)	10	(5)	0	(0)	3	(1)	60	(60)	6	(4)	0	(0)	151	(147)
Papworth	32	(33)	3	(1)	1	(1)	2	(2)	43	(32)	3	(1)	0	(0)	84	(70)
TOTAL	254	(248)	25	(17)	4	(4)	8	(7)	240	(248)	9	(5)	0	(0)	540	(529)
Paediatric																
Great Ormond Street	14	(14)	4	(8)	1	(0)	1	(2)	7	(4)	1	(2)	0	(0)	28	(30)
Newcastle	17	(17)	9	(5)	0	(0)	0	(1)	1	(1)	0	(1)	0	(0)	27	(25)
TOTAL	31	(31)	13	(13)	1	(0)	1	(3)	8	(5)	1	(3)	0	(0)	55	(55)

During 2021-2022, there were 274 registrations onto the heart transplant list, 9 registrations onto the heart-lung transplant list and 186 onto the lung transplant list. Registration outcomes as at 31 March 2022 for patients on the list at 1 April 2021 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 2021 - 31 March 2022						
Outcome of patient at 31 March 2022	Active and suspended patients at 1 April 2021		New registrations in 2021-2022 ¹		TOTAL	
	N	%	N	%	N	%
Heart transplant list						
Remained active/suspended	238	65	130	47	368	57
Transplanted	76	21	102	37	178	28
Removed	39	11	34	12	73	11
Died	15	4	8	3	23	4
TOTAL	368		274		642	
Heart-lung transplant list						
Remained active/suspended	6	55	4	44	10	50
Transplanted ²	3	27	0	0	3	15
Removed	1	9	5	56	6	30
Died	1	9	0	0	1	5
TOTAL	11		9		20	
Lung transplant list						
Remained active/suspended	156	55	116	62	272	58
Transplanted	54	19	48	26	102	22
Removed	49	17	4	2	53	11
Died	26	9	18	10	44	9
TOTAL	285		186		471	
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/NHS region of patient's residence. The overall UK heart transplant list rate at 31 March 2022 was 4.9 pmp and ranged from 2.9 to 6.9 across NHS regions. The overall UK lung transplant list rate was 4.0 pmp and ranged from 2.7 to 5.0 across NHS regions.

Table 7.3 Active cardiothoracic transplant list at 31 March, by country/NHS region of patient residence

Country/ NHS region of residence	Heart transplant list (pmp)				Lung transplant list (pmp)			
	2022		2021		2022		2021	
North East and Yorkshire	60	(6.9)	69	(8.0)	39	(4.5)	44	(5.1)
North West	35	(4.9)	31	(4.4)	34	(4.8)	36	(5.1)
Midlands	50	(4.7)	44	(4.1)	53	(5.0)	49	(4.6)
East of England	19	(2.9)	21	(3.2)	20	(3.0)	19	(2.9)
London	45	(5.0)	42	(4.7)	24	(2.7)	24	(2.7)
South East	43	(4.8)	34	(3.8)	28	(3.1)	26	(2.9)
South West	23	(4.1)	21	(3.7)	20	(3.5)	19	(3.4)
England	275	(4.9)	262	(4.6)	218	(3.9)	217	(3.8)
Isle of Man	0	(0.0)	1	(12.5)	0	(0.0)	1	(12.5)
Channel Islands	1	(5.9)	0	(0.0)	0	(0.0)	3	(17.6)
Wales	11	(3.5)	12	(3.8)	14	(4.4)	17	(5.4)
Scotland	24	(4.4)	19	(3.5)	26	(4.8)	22	(4.0)
Northern Ireland	16	(8.4)	16	(8.4)	8	(4.2)	10	(5.3)
TOTAL^{1,2}	328	(4.9)	313	(4.7)	267	(4.0)	271	(4.0)

¹Includes heart patients in 2022 (2021) residing in: Unspecified UK 0 (1); Republic of Ireland 1 (1); Overseas 0 (1)
²Includes lung patients in 2022 (2021) residing in: Unspecified UK 1 (1)

The transplant list outcomes for adult patients listed for a cardiothoracic organ transplant between 1 April 2018 and 31 March 2019 are summarised in **Figure 7.3**, **Figure 7.4** and **Figure 7.5**, for non-urgent heart, urgent heart and non-urgent lung registrations, respectively. 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, 13% of non-urgent heart patients were transplanted while 5% had died, compared with 55% transplanted and 4% died for urgent heart patients. Of those listed for a non-urgent lung transplant, 25% were transplanted within six months, rising to 45% after three years, however at three years, 20% had died. The patients removed from these lists may have subsequently died.

In October 2016 and May 2017, respectively, the super-urgent heart offering scheme and urgent and super-urgent lung offering schemes were introduced, with corresponding new registration types. The outcomes and median waiting times of such registrations are not represented in **Figures 7.3 – 7.5** and in **Tables 7.4** and **7.5**. The post-registration outcomes of super-urgent heart, super-urgent lung and urgent lung registrations are not presented due to the small number of patients who start off on these lists.

Figure 7.3 Post-registration outcome for 174 first non-urgent heart only registrations made in the UK, 1 April 2018 - 31 March 2019

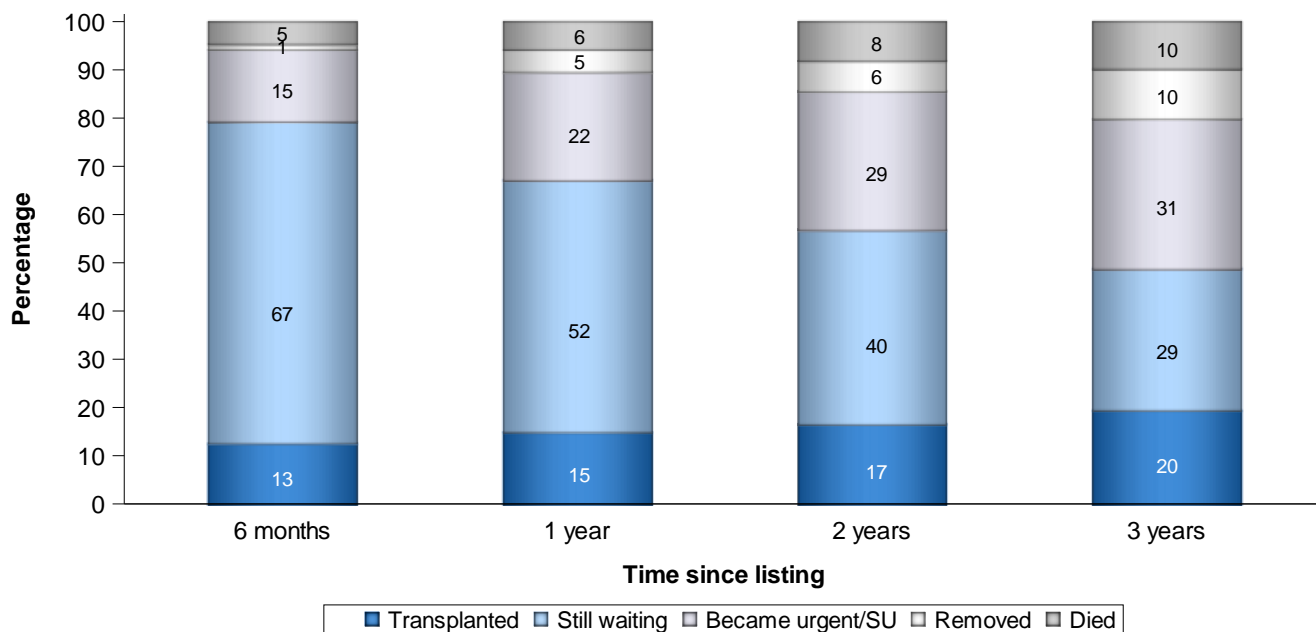


Figure 7.4 Post-registration outcome for 164 first urgent heart only registrations made in the UK, 1 April 2018 - 31 March 2019

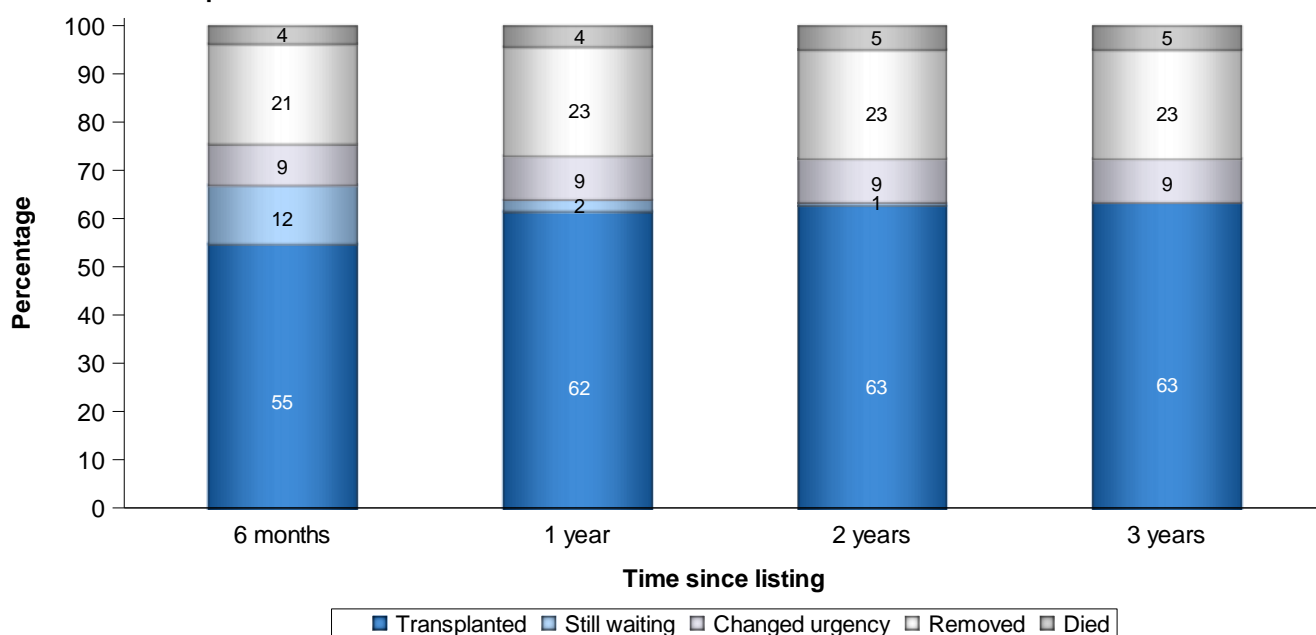


Figure 7.5 Post-registration outcome for 260 first non-urgent lung only registrations made in the UK, 1 April 2018 - 31 March 2019

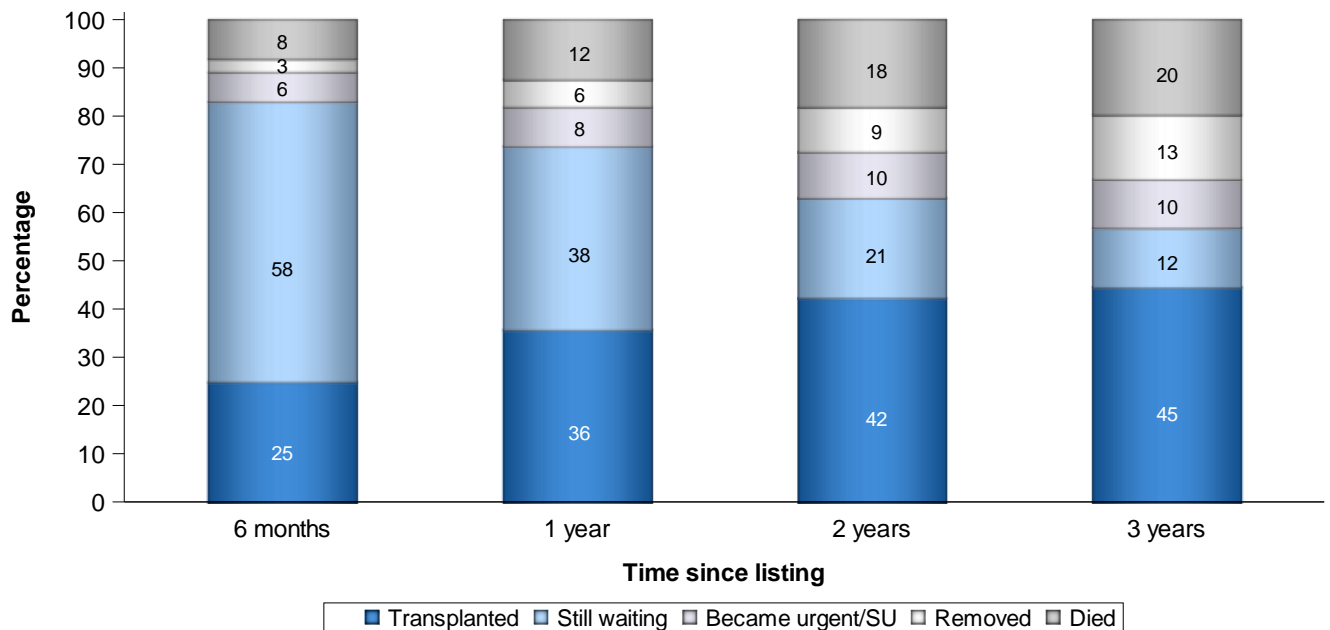


Table 7.4 and **Table 7.5** show the median waiting time to cardiothoracic organ transplant by blood group and ethnicity of patient, respectively, for patients registered between 1 April 2013 and 31 March 2019. The overall median waiting time to non-urgent heart transplantation for adult patients who were never on the urgent or super-urgent list was 6 years. For patients who had been on the urgent list, the overall median time on the urgent list before transplant was 37 days. For patients who had been on the super-urgent list ('ever super-urgent'), the overall median time on the super-urgent list before transplant was 10 days.

The overall median waiting time to non-urgent lung transplantation for adult patients who were never on the urgent or super-urgent list, was 380 days, but for blood group O patients alone was longer, at 590 days. The overall median time on the urgent list before transplant was 17 days. Median waiting time is not calculated for adult super-urgent lung patients due to the small number of registrations

For paediatric heart patients, the median waiting time was 510 days for non-urgent registrations and 91 days for urgent registrations (this is not broken down by blood group or ethnicity and is not presented for super-urgent patients due to low numbers). The overall median waiting time to non-urgent lung transplantation for paediatric patients who were never on the urgent or super-urgent list, was 202 days. Median waiting time is not calculated for paediatric urgent or super-urgent lung patients due to the small number of registrations. Note that these waiting time estimates 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 2013 - 31 March 2019

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult non-urgent heart¹			
O	235	-	-
A	252	1434	572 - 2296
B	57	1269	451 - 2087
AB	15	276	0 - 760
TOTAL	559	2189	-
Adult urgent heart²			
O	335	54	47 - 61
A	360	22	17 - 27
B	109	43	31 - 55
AB	39	25	17 - 33
TOTAL	843	37	33 - 41
Adult super-urgent heart	110	10	5 - 15
Paediatric non-urgent heart¹	56	510	65 - 955
Paediatric urgent heart²	254	91	73 - 109
Adult non-urgent lung¹			
O	715	590	502 - 678
A	676	247	206 - 288
B	156	404	168 - 640
AB	52	176	127 - 225
TOTAL	1599	380	326 - 434
Adult urgent lung²	99	17	11 - 23
Paediatric non-urgent lung¹	38	202	120 - 284

- Median and/or 95% confidence interval cannot be estimated due to insufficient numbers of patients transplanted

¹ Excludes patients that were moved to the urgent/super-urgent lists

² Excludes patients that were moved to the super-urgent list

Table 7.5 Median waiting time to cardiothoracic transplant in the UK, for patients registered 1 April 2013 - 31 March 2019

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult non-urgent heart¹			
White	494	2189	-
Asian	38	1535	-
Black	19	-	-
Other	0	-	-
TOTAL	559	2189	-
Adult urgent heart²			
White	699	37	33 - 41
Asian	80	37	12 - 62
Black	42	63	15 - 111
Other	15	34	0 - 90
TOTAL	843	37	33 - 41
Adult super-urgent heart	110	10	5 - 15
Paediatric non-urgent heart¹	56	510	65 - 955
Paediatric urgent heart	254	91	73 - 109
Adult non-urgent lung¹			
White	1501	366	319 - 413
Asian	64	-	-
Black	20	-	-
Other	0	-	-
TOTAL	1599	380	326 - 434
Adult urgent lung²	99	17	11 - 23
Paediatric non-urgent lung¹	38	202	120 - 284

- Median and/or 95% confidence interval cannot be estimated due to insufficient numbers of patients transplanted

¹ Excludes patients that were moved to the urgent/super-urgent lists

² Excludes patients that were moved to the super-urgent list

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 where the heart was 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 785 DBD donors, 137 (17%) donated their heart, resulting in 136 transplants. Of the 612 DCD donors, 48 (8%) donated their heart, resulting in 44 transplants.

Table 7.7 shows the number of deceased organ donors identified in each lung allocation zone, and the number of donors where at least one lung was 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 785 DBD donors, 95 (12%) donated at least one lung, with 87 proceeding to transplantation. Of the 612 DCD donors, 30 (5%) donated at least one lung, with 24 proceeding to transplantation.

Table 7.6 Heart organ donation and retrieval rates in the UK, 1 April 2021 - 31 March 2022, by heart allocation zone and donor type								
Heart Allocation Zone	Number of donors	DBD			Number of donors	DCD		Number donated heart and lungs
		Number of heart donors (utilised)		Number donated heart and lungs		Number of heart donors (utilised)		
Birmingham	118	22	(22)	3	89	4	(4)	0
Glasgow	60	10	(10)	2	37	1	(1)	0
Harefield	176	34	(34)	9	153	15	(14)	3
Manchester	97	16	(16)	7	89	5	(4)	0
Newcastle	179	31	(30)	9	131	16	(16)	2
Papworth	155	24	(24)	9	113	7	(5)	1
TOTAL	785	137	(136)	39	612	48	(44)	6

Table 7.7 Lung organ donation and retrieval rates in the UK, 1 April 2021 - 31 March 2022, by lung allocation zone and donor type								
Lung Allocation Zone	Number of donors	DBD			Number of donors	DCD		Number donated heart and lungs
		Number of lung donors (utilised)		Number donated heart and lungs		Number of lung donors (utilised)		
Birmingham	106	9	(7)	3	82	1	(0)	0
Harefield	245	33	(30)	13	180	12	(10)	4
Manchester	96	16	(16)	8	81	4	(4)	0
Newcastle	175	17	(15)	7	112	4	(2)	0
Papworth	163	20	(19)	8	157	9	(8)	2
TOTAL	785	95	(87)	39	612	30	(24)	6

The rates per million population for cardiothoracic organ donors are shown in **Table 7.8** by country/NHS region of residence. No adjustments have been made for potential demographic differences in populations. The overall heart donor rate was 2.8 pmp in 2021-2022 and varied across NHS regions from 1.8 pmp to 3.7 pmp. For lungs, the overall donor rate was 1.9 pmp in 2021-2022 and varied across NHS regions from 1.1 pmp to 2.8 pmp.

Table 7.8 Cardiothoracic donation rates for deceased donors in the UK, 1 April 2021 - 31 March 2022, by country/ NHS region											
Country/ NHS region of residence	Heart (pmp)					Lung(s) (pmp)					TOTAL
	DBD		DCD		TOTAL	DBD		DCD		TOTAL	
North East and Yorkshire	21	(2.4)	10	(1.2)	31 (3.6)	16	(1.9)	4	(0.5)	20 (2.3)	
North West	10	(1.4)	3	(0.4)	13 (1.8)	6	(0.8)	2	(0.3)	8 (1.1)	
Midlands	20	(1.9)	10	(0.9)	30 (2.8)	12	(1.1)	8	(0.8)	20 (1.9)	
East of England	13	(2.0)	6	(0.9)	19 (2.9)	10	(1.5)	1	(0.2)	11 (1.7)	
London	14	(1.6)	3	(0.3)	17 (1.9)	13	(1.4)	3	(0.3)	16 (1.8)	
South East	24	(2.7)	9	(1.0)	33 (3.7)	18	(2.0)	7	(0.8)	25 (2.8)	
South West	9	(1.6)	4	(0.7)	13 (2.3)	5	(0.9)	1	(0.2)	6 (1.1)	
England	111	(2.0)	45	(0.8)	156 (2.8)	80	(1.4)	26	(0.5)	106 (1.9)	
Isle of Man	0	(0.0)	0	(0.0)	0 (0.0)	0	(0.0)	0	(0.0)	0 (0.0)	
Channel Islands	1	(5.9)	0	(0.0)	1 (5.9)	0	(0.0)	1	(5.9)	1 (5.9)	
Wales	6	(1.9)	0	(0.0)	6 (1.9)	3	(0.9)	1	(0.3)	4 (1.3)	
Scotland	9	(1.6)	1	(0.2)	10 (1.8)	6	(1.1)	1	(0.2)	7 (1.3)	
Northern Ireland	3	(1.6)	0	(0.0)	3 (1.6)	1	(0.5)	0	(0.0)	1 (0.5)	
TOTAL¹	137	(2.0)	48	(0.7)	185 (2.8)	95	(1.4)	30	(0.4)	125 (1.9)	
¹ Includes 9 heart (7 DBD and 2 DCD) and 6 lung (5 DBD and 1 DCD) with an unknown UK postcode											

7.4 Transplants

The number of cardiothoracic organ transplants by recipient country/NHS region 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 1.8 to 3.6 pmp across NHS regions and overall was 2.6 pmp. The lung transplant rate ranged from 0.9 to 3.2 pmp across NHS regions and overall was 1.6 pmp. Lung transplant rates include the small number of heart-lung transplants.

Table 7.9 Cardiothoracic transplant rates per million population (pmp) in the UK, 1 April 2021 - 31 March 2022, by country/ NHS region

Country/ NHS region of residence	DBD		Heart (pmp)		TOTAL		DBD		Lung(s) (pmp)		TOTAL	
			DCD						DCD			
North East and Yorkshire	24	(2.8)	7	(0.8)	31	(3.6)	11	(1.3)	3	(0.3)	14	(1.6)
North West	12	(1.7)	3	(0.4)	15	(2.1)	9	(1.3)	4	(0.6)	13	(1.8)
Midlands	17	(1.6)	2	(0.2)	19	(1.8)	14	(1.3)	6	(0.6)	20	(1.9)
East of England	15	(2.3)	7	(1.1)	22	(3.4)	20	(3.0)	1	(0.2)	21	(3.2)
London	13	(1.4)	5	(0.6)	18	(2.0)	11	(1.2)	0	(0.0)	11	(1.2)
South East	14	(1.6)	7	(0.8)	21	(2.4)	8	(0.9)	5	(0.6)	13	(1.5)
South West	6	(1.1)	5	(0.9)	11	(1.9)	3	(0.5)	2	(0.4)	5	(0.9)
England	101	(1.8)	36	(0.6)	137	(2.4)	76	(1.3)	21	(0.4)	97	(1.7)
Isle of Man	1	(12.5)	0	(0.0)	1	(12.5)	0	(0.0)	1	(12.5)	1	(12.5)
Channel Islands	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Wales	5	(1.6)	0	(0.0)	5	(1.6)	3	(0.9)	0	(0.0)	3	(0.9)
Scotland	21	(3.8)	4	(0.7)	25	(4.6)	3	(0.5)	1	(0.2)	4	(0.7)
Northern Ireland	7	(3.7)	2	(1.1)	9	(4.7)	3	(1.6)	1	(0.5)	4	(2.1)
TOTAL¹	135	(2.0)	42	(0.6)	177	(2.6)	85	(1.3)	24	(0.4)	109	(1.6)

¹ Excludes 1 heart recipient who resides in the Republic of Ireland and 1 heart recipient who resides overseas

Table 7.10 and **Table 7.11** show cardiothoracic organ transplant activity for each centre by urgency status and donor type, respectively. In 2021-2022, a total of 288 transplants were carried out; an increase of 14% on 2020-2021. Of these, 179 were heart transplants, of which 127 (71%) were urgent or super-urgent and additionally, 44 (25%) were achieved from donors after circulatory death. There was a total of 109 lung or heart-lung transplants, of which 33 (30%) were urgent or super-urgent.

Table 7.10 Cardiothoracic transplants from deceased donors, 1 April 2021 - 31 March 2022 (2020 - 2021)
by age group, centre, transplant type and urgency

Transplant centre	Transplant type														TOTAL	
	Non-urgent		Heart Urgent		Super-urgent		Heart-lung		Non-urgent		Lung Urgent		Super-urgent			
Adult																
Birmingham	2	(4)	10	(12)	4	(10)	1	(1)	5	(4)	3	(2)	0	(0)	25	(33)
Glasgow	10	(6)	11	(12)	3	(2)	0	(0)	0	(0)	0	(0)	0	(0)	24	(20)
Great Ormond Street	3	(1)	0	(0)	0	(0)	0	(0)	0	(1)	0	(0)	0	(0)	3	(2)
Harefield	8	(0)	11	(12)	5	(1)	0	(0)	23	(23)	1	(4)	1	(1)	49	(41)
Manchester	2	(2)	11	(11)	3	(2)	0	(1)	12	(11)	4	(1)	0	(0)	32	(28)
Newcastle	6	(4)	25	(16)	2	(3)	0	(0)	5	(16)	15	(5)	1	(0)	54	(44)
Papworth	14	(14)	11	(15)	11	(8)	2	(0)	28	(13)	6	(6)	0	(0)	72	(56)
TOTAL	45	(31)	79	(78)	28	(26)	3	(2)	73	(68)	29	(18)	2	(1)	259	(224)
Paediatric ¹																
Great Ormond Street	3	(2)	11	(14)	2	(3)	0	(0)	0	(1)	2	(1)	0	(0)	18	(21)
Newcastle	4	(2)	6	(5)	1	(0)	0	(0)	0	(0)	0	(0)	0	(0)	11	(7)
TOTAL	7	(4)	17	(19)	3	(3)	0	(0)	0	(1)	2	(1)	0	(0)	29	(28)

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

Table 7.11 Cardiothoracic transplants from deceased donors, 1 April 2021 - 31 March 2022 (2020 - 2021) by age group, centre, transplant type and donor type

Transplant centre	Transplant type													
	Heart				Heart-lung				Lung				TOTAL	
	DBD		DCD		DBD		DCD		DBD		DCD			
Adult														
Birmingham	13	(26)	3	(0)	1	(1)	0	(0)	6	(6)	2	(0)	25	(33)
Glasgow	21	(20)	3	(0)	0	(0)	0	(0)	0	(0)	0	(0)	24	(20)
Great Ormond Street	2	(0)	1	(1)	0	(0)	0	(0)	0	(1)	0	(0)	3	(2)
Harefield	13	(11)	11	(2)	0	(0)	0	(0)	21	(21)	4	(7)	49	(41)
Manchester	15	(15)	1	(0)	0	(1)	0	(0)	11	(11)	5	(1)	32	(28)
Newcastle	23	(20)	10	(3)	0	(0)	0	(0)	15	(16)	6	(5)	54	(44)
Papworth	26	(26)	10	(11)	2	(0)	0	(0)	27	(13)	7	(6)	72	(56)
TOTAL	113	(118)	39	(17)	3	(2)	0	(0)	80	(68)	24	(19)	259	(224)
Paediatric ¹														
Great Ormond Street	15	(15)	1	(4)	0	(0)	0	(0)	2	(2)	0	(0)	18	(21)
Newcastle	7	(6)	4	(1)	0	(0)	0	(0)	0	(0)	0	(0)	11	(7)
TOTAL	22	(21)	5	(5)	0	(0)	0	(0)	2	(2)	0	(0)	29	(28)

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

At 31 March 2022 there were approximately 4,100 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. 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.

In 2021-2022, the median IT for a DBD heart transplant was 3.5 hours (Inter-Quartile (IQ) range 2.9 – 3.9) and for a DCD heart transplant was 5.6 hours (IQ range 4.8 – 6.5) and overall was 3.7 hours (IQ range 3.2 – 4.6).

The median IT for a DBD donor lung transplant was 6.6 hours (IQ range 5.4 – 8.1) and for a DCD donor lung transplant was 7.9 hours (IQ range 6.7 – 9.4) and overall was 7.0 hours (IQ range 5.7 – 8.4).

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 2021 - 31 March 2022, and transplant list patients at 31 March							
		Donors		Transplant recipients		Active transplant list patients	
		N	(%)	N	(%)	N	(%)
Age	0-17	22	(8)	37	(13)	57	(10)
	18-34	96	(36)	31	(11)	61	(10)
	35-49	86	(32)	73	(25)	129	(22)
	50-59	36	(14)	85	(30)	173	(29)
	60-69	22	(8)	62	(22)	170	(29)
	70+	3	(1)	-	-	5	(1)
	mean (SD)	38	(15)	45	(17)	47	(18)
Sex	Male	130	(49)	189	(66)	383	(64)
	Female	135	(51)	99	(34)	211	(36)
	Unknown	0	-	0	-	1	-
Ethnicity	White	230	(88)	252	(89)	480	(82)
	Asian	9	(3)	22	(8)	65	(11)
	Black	6	(2)	5	(2)	29	(5)
	Other	16	(6)	5	(2)	9	(2)
	Unknown	4	-	4	-	12	-
Blood group	O	142	(54)	108	(38)	340	(57)
	A	102	(38)	131	(45)	178	(30)
	B	17	(6)	39	(14)	69	(12)
	AB	4	(2)	10	(3)	8	(1)
Graft number	First graft	-	-	285	(99)	582	(98)
	Re-graft	-	-	3	(1)	13	(2)
TOTAL		265	(100)	288	(100)	595	(100)

Liver Activity

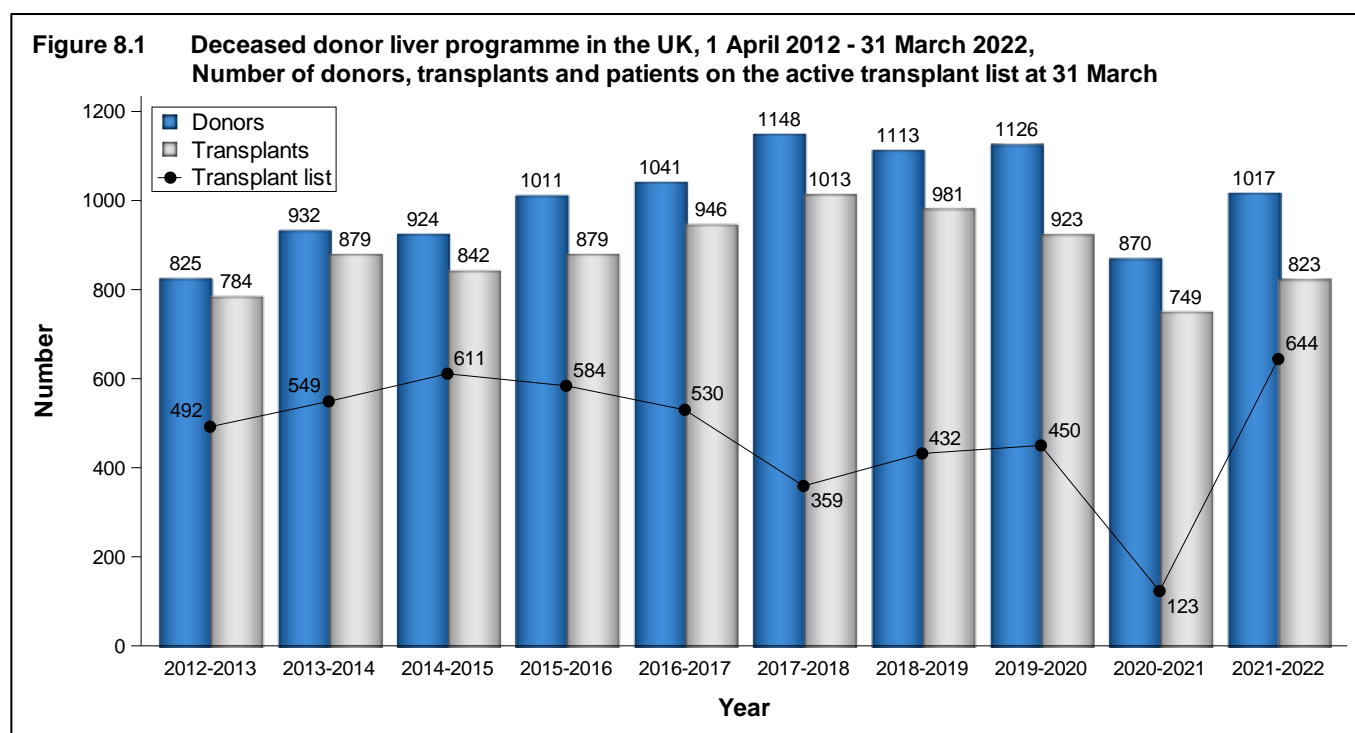
Key messages

- The number of patients on the active liver transplant list at 31 March 2022 was 644, an increase of 424% from 2021. This was mainly due to the reactivation of non clinically urgent patients following the height of the pandemic.
- The number of liver donors after brain death increased by 3% to 707, while transplants from donors after brain death increased by 1 to 629
- The number of liver donors after circulatory death increased by 70% to 310, while transplants from donors after circulatory death increased by 60% to 194

8.1 Overview

Note that the COVID-19 pandemic will have affected the number of offered, retrieved and transplanted organs in 2021-2022 as well as the number of patients active on the liver transplant list as at 31 March 2021.

The number of deceased liver donors and transplants in the UK in the last ten years is shown in **Figure 8.1**. There has been a decrease in the number of patients registered on the active liver transplant list between 2012/2013 and 2019/2020. However, this number has increased by 424% to 644 patients active in March 2022, higher than pre-pandemic levels. The numbers of donors and transplants has steadily increased over the last decade although both have slightly decreased over the last three years.



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 2021-2022, 1017 organ donors donated their liver for transplant: 707 donors after brain death and 310 donors after circulatory death. There were 644 patients on the active transplant list at 31 March 2022, an increase of 424% from 31 March 2021.

Overall, the number of liver transplants (either whole liver or liver lobe transplants) from donors after brain death increased by 1 to 629, and donors after circulatory death increased by 60% to 194, compared with the previous financial year. Additionally, there were 25 living liver lobe donor transplants (NHS Group 1: 16 and Group 2: 9).

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. In 2021-2022, there were 79 deceased donor adult super-urgent transplants, representing 11% of all adult deceased transplants and 23 deceased donor paediatric super-urgent transplants, representing 30% of all paediatric deceased transplants.

Table 8.1 Deceased and living liver donors and transplants, 1 April 2021 - 31 March 2022 (2020-2021) and transplant list patients at 31 March 2022 (2021) 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	140	(129)	64	(38)	204	(167)	140	(132)	26	(11)	166	(143)	0	(0)	186	(23)
Cambridge	65	(51)	53	(25)	118	(76)	53	(50)	49	(37)	102	(87)	0	(0)	52	(10)
Edinburgh	84	(101)	32	(19)	116	(120)	42	(61)	18	(6)	60	(67)	0	(0)	38	(11)
King's College	176	(179)	75	(40)	251	(219)	142	(130)	46	(34)	188	(164)	0	(0)	166	(24)
Leeds	126	(121)	45	(28)	171	(149)	73	(81)	15	(16)	88	(97)	4	(1)	80	(7)
Newcastle	36	(34)	12	(5)	48	(39)	28	(32)	13	(2)	41	(34)	0	(0)	28	(6)
Royal Free	67	(64)	19	(14)	86	(78)	76	(67)	25	(12)	101	(79)	0	(0)	59	(9)
TOTAL	694	(679)	300	(169)	994	(848)	554	(554) ⁶	192	(118)	746	(672) ⁶	11 ^{2,7}	(4) ^{3,8}	609	(90)
Paediatric																
Birmingham	9	(5)	0	(3)	9	(8)	28	(26)	1	(0)	29	(26)	0	(0)	3	(7)
Cambridge	1	(0)	0	(3)	1	(3)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Edinburgh	0	(1)	1	(0)	1	(1)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
King's College	3	(2)	6	(4)	9	(6)	28	(36)	1	(3)	29	(39)	8	(10)	19	(16)
Leeds	0	(1)	2	(2)	2	(3)	19	(12)	0	(0)	19	(12)	5	(8)	12	(10)
Newcastle	0	(0)	1	(0)	1	(0)	0	(0)	0	(0)	0	(0)	0	(0)	1	(0)
Royal Free	0	(0)	0	(1)	0	(1)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	13	(9)	10	(13)	23	(22)	75	(74)	2	(3)	77	(77)	14 ^{4,9}	(18) ⁵	35	(33)

¹ Includes donors whose livers were retrieved by other teams

² Includes 4 and 7 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

³ Includes 1 and 3 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

⁴ Includes 12 and 2 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

⁵ Includes 13 and 5 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

⁶ Includes 1 transplant at London Bridge involving a private patient

⁷ Includes 3 transplants at London Cromwell and 4 transplants at London Bridge involving private patients

⁸ Includes 3 transplants at London Bridge involving private patients

⁹ Includes 1 transplant at London Cromwell involving a private patient

8.2 Transplant list

During 2021-2022, 1,250 patients joined the liver transplant list. Outcomes for patients on the list at 1 April 2021 and those joining the list during the year are shown in **Table 8.2**. There have been 114 (9%) new registrations that were super-urgent.

Table 8.2 Liver transplant list and new registrations in the UK, 1 April 2021 - 31 March 2022						
Outcome of patient at 31 March 2022	Active and suspended patients at 1 April 2021		New registrations in 2021-2022 ¹		TOTAL	
	N	%	N	%	N	%
Remained active/suspended	233	39	522	42	755	41
Transplanted	217	36	626	50	843	46
Removed ²	125	21	63	5	188	10
Died ³	24	4	39	3	63	3
TOTAL	599		1250		1849	

¹ Includes re-registrations for second or subsequent patients
² Includes 34 patients removed and re-registered at a different centre or on different pathway
³ Includes patients removed due to deteriorating condition

Table 8.3 shows the active transplant list in the UK at 31 March 2022 and 2021 by country/NHS region of patient's residence. At 31 March 2022, the overall rate was 9.6 pmp and ranged from 7.9 to 10.7 pmp across English NHS regions.

**Table 8.3 Active liver transplant list at 31 March
by Country/NHS region of patient residence**

Country/ NHS region of residence	Liver transplant list (pmp)			
	2022		2021	
North East and Yorkshire	71	(8.2)	11	(1.3)
North West	74	(10.4)	14	(2.0)
Midlands	114	(10.7)	28	(2.6)
East of England	52	(7.9)	6	(0.9)
London	79	(8.8)	14	(1.6)
South East	81	(9.1)	12	(1.3)
South West	60	(10.6)	9	(1.6)
England	531	(9.4)	94	(1.7)
Isle of Man	0	(0.0)	0	(0.0)
Channel Islands	0	(0.0)	1	(5.9)
Wales	37	(11.7)	5	(1.6)
Scotland	39	(7.1)	13	(2.4)
Northern Ireland	28	(14.7)	3	(1.6)
TOTAL¹	644	(9.6)	123	(1.8)

¹Includes patients in 2022 (2021) residing in: Unspecified UK 2 (0); Republic of Ireland 2 (5); Overseas 5 (2)

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, 71% of patients had received a liver transplant while 8% of patients had died whilst waiting or had been removed due to their condition deteriorating. 3% had been removed for other reasons such as the patient's condition improving, as a result of non-compliance or at the request of the patient or family.

Figure 8.2 Post-registration outcome for 1046 new elective liver only registrations made in the UK, 1 April 2019 - 31 March 2020

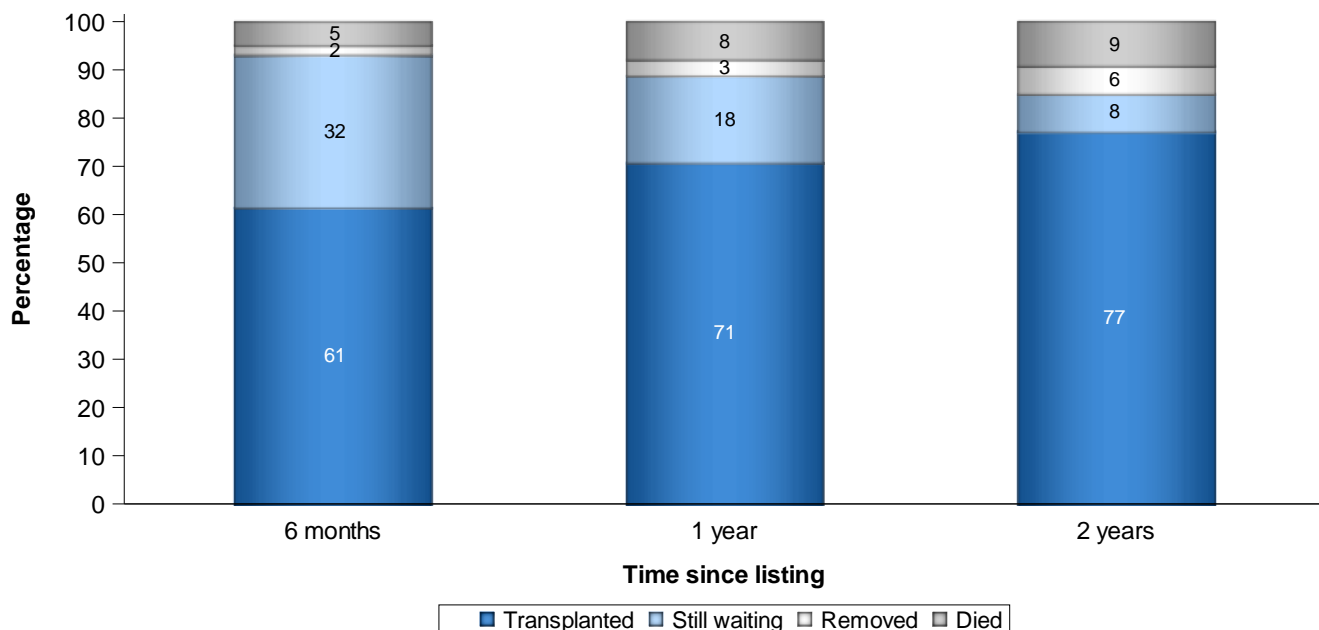


Table 8.4 and **Table 8.5** show the median waiting time to liver transplant for adult and paediatric elective registrations, separately, including a breakdown by blood group and ethnicity for adult elective registrations only. On average, adult patients wait 84 days for a transplant while paediatric patients wait an average of 66 days. Note that these waiting times are not adjusted for other relevant factors which may be influential and differ across blood or ethnic groups.

Table 8.4 Median waiting time to liver transplant in the UK, for patients registered 1 April 2019 - 31 March 2021

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
O	805	123	99 - 147
A	698	62	50 - 74
B	207	103	69 - 137
AB	83	27	16 - 38
TOTAL	1793	84	74 - 94
Paediatric	142	66	48 - 84

Table 8.5 Median waiting time to liver transplant in the UK, for patients registered 1 April 2019 - 31 March 2021

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
White	1519	80	69 - 91
Asian	143	101	62 - 140
Black	45	126	57 - 195
Other	43	90	3 - 177
TOTAL	1793¹	84	74 - 94
Paediatric	142	66	48 - 84

¹ Includes 43 patients with unknown ethnicity

8.3 Donor and organ supply

Of the 1,397 organ donors, 1017 (73%) donated their liver and 801 (79%) of these donated livers were used; see **Table 8.6**. Of livers retrieved from donors after brain death and donors after circulatory death, 86% and 63% were transplanted, respectively. Segments from 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 2021 - 31 March 2022, by allocation zone

Allocation zone	Number of donors						Number of livers retrieved (used)					
	Solid organ			Liver			DBD			DCD		
	DBD	DCD	TOTAL	DBD	DCD	TOTAL	DBD			DCD		TOTAL
Birmingham	161	125	286	149	64	213	149	(128)		64	(42)	213 (170)
Cambridge	72	89	161	66	53	119	66	(59)		53	(39)	119 (98)
Edinburgh	94	60	154	84	33	117	84	(73)		33	(20)	117 (93)
King's College	196	151	347	179	81	260	179	(158)		81	(43)	260 (201)
Leeds	145	113	258	126	47	173	126	(100)		47	(28)	173 (128)
Newcastle	40	30	70	36	13	49	36	(29)		13	(8)	49 (37)
Royal Free	77	44	121	67	19	86	67	(60)		19	(14)	86 (74)
TOTAL	785	612	1397	707	310	1017	707	(607)		310	(194)	1017 (801)

The rates per million population (pmp) for liver donors are shown in **Table 8.7** by donor country/NHS region of residence. No adjustments have been made for potential demographic differences in populations. The overall deceased liver donor rate was 15.2 pmp in 2021-2022 and ranged from 11.2 pmp to 17.9 pmp across English NHS regions.

**Table 8.7 Liver donation rates for deceased donors in the UK,
1 April 2021 - 31 March 2022, by Country/ NHS region**

Country/ NHS region of residence	DBD		Liver donors (pmp) DCD		TOTAL	
North East and Yorkshire	98	(11.3)	33	(3.8)	131	(15.2)
North West	56	(7.9)	30	(4.2)	86	(12.1)
Midlands	97	(9.1)	53	(5.0)	150	(14.1)
East of England	61	(9.3)	38	(5.8)	99	(15.1)
London	80	(8.9)	21	(2.3)	101	(11.2)
South East	105	(11.8)	55	(6.2)	160	(17.9)
South West	67	(11.8)	28	(4.9)	95	(16.8)
England	564	(10.0)	258	(4.6)	822	(14.5)
Isle of Man	1	(12.5)	0	(0.0)	1	(12.5)
Channel Islands	3	(17.6)	2	(11.8)	5	(29.4)
Wales	40	(12.6)	5	(1.6)	45	(14.2)
Scotland	42	(7.7)	21	(3.8)	63	(11.5)
Northern Ireland	33	(17.4)	6	(3.2)	39	(20.5)
TOTAL¹	707	(10.5)	310	(4.6)	1017	(15.2)

¹ Includes 42 donors (24 DBD and 18 DCD) with unknown UK postcode

8.4 Transplants

The number of liver transplants by recipient country/NHS region of residence are shown in **Table 8.8**. No adjustments have been made for potential demographic differences in populations. The deceased donor transplant rate ranged from 10.2 to 13.6 pmp across English NHS regions and overall was 12.1 pmp.

Table 8.8 Liver transplant rates per million population (pmp), in the UK, 1 April 2021 - 31 March 2022, by country and English NHS region								
Country/ NHS region of residence	DBD		DCD		TOTAL		Living	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East and Yorkshire	70	(8.1)	18	(2.1)	88	(10.2)	2	(0.2)
North West	65	(9.2)	11	(1.6)	76	(10.7)	5	(0.7)
Midlands	115	(10.8)	25	(2.3)	140	(13.1)	0	(0.0)
East of England	53	(8.1)	34	(5.2)	87	(13.3)	2	(0.3)
London	91	(10.1)	31	(3.4)	122	(13.6)	3	(0.3)
South East	74	(8.3)	30	(3.4)	104	(11.6)	1	(0.1)
South West	57	(10.1)	14	(2.5)	71	(12.5)	1	(0.2)
England	525	(9.3)	163	(2.9)	688	(12.2)	14	(0.2)
Isle of Man	1	(12.5)	0	(0.0)	1	(12.5)	0	(0.0)
Channel Islands	1	(5.9)	0	(0.0)	1	(5.9)	0	(0.0)
Wales	22	(6.9)	6	(1.9)	28	(8.8)	0	(0.0)
Scotland	51	(9.3)	18	(3.3)	69	(12.6)	0	(0.0)
Northern Ireland	19	(10.0)	5	(2.6)	24	(12.6)	0	(0.0)
TOTAL^{1,2}	621	(9.3)	192	(2.9)	813	(12.1)	15	(0.2)

¹ Excludes 20 recipients who reside outside the UK (8 DBD, 2 DCD, 10 Living)
² Includes 3 (2 DBD and 1 living) recipients with an unknown UK postcode

The number of whole, reduced and split liver transplants by urgency status of the transplant (elective, super-urgent) in 2021-2022 is shown in **Table 8.9**. The term 'reduced' is used when only one lobe of the liver is transplanted and the term 'split' applies when both lobes of the liver are transplanted into two different recipients.

Overall, the number of deceased donor liver transplants increased by 10% in 2021-2022. There were 823 deceased donor liver transplants performed in 2021-2022: 733 whole liver, including 7 liver and kidney, 2 liver and heart and 1 liver and lung; 66 split liver, and 24 deceased liver lobe. Split liver transplants accounted for 73% of liver lobe transplant activity.

Table 8.9 Deceased liver transplants performed in the UK, 1 April 2020 - 31 March 2022

Transplant centre	2020-2021								2021-2022							
	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	123	13	3	1	26	3	152	17	155	15	3	2	17	3	175	20
Cambridge	72	12	0	0	3	0	75	12	91	7	0	0	4	0	95	7
Edinburgh	63	4	0	0	0	0	63	4	58	2	0	0	0	0	58	2
King's College	144	12	12	7	26	2	182	21	153	29	6	6	19	4	178	39
Leeds	85	10	4	0	9	1	98	11	70	15	6	2	13	1	89	18
Newcastle	30	4	0	0	0	0	30	4	38	3	0	0	0	0	38	3
Royal Free	68	7	0	0	4	0	72	7	85	11	0	0	5	0	90	11
TOTAL	585¹	62	19	8	68	6	672¹	76	650	82	15	10	58	8	723	100

E=Elective, SU=Super-urgent

Birmingham, King's College and Leeds transplant paediatric patients

¹ Includes 1 transplant at London Bridge involving a private patient

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 2021-2022, the median CIT for a DBD donor whole liver only transplant was 8.6 hours (Inter-Quartile (IQ) range 7.3 – 10.1) and for a DCD donor whole liver only transplant was 8.0 hours (IQ range 6.6 – 10.4) and overall was 8.5 hours (IQ range 7.0 – 10.1). Please note some of the reported CITs may 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 2022 there were approximately 11,400 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** along with the liver graft number for transplant recipients and patients active on the transplant list.

Table 8.10 Demographic characteristics of deceased liver donors and transplant recipients, 1 April 2021 - 31 March 2022, and transplant list patients at 31 March							
		Donors		Transplant recipients		Active transplant list patients	
		N	(%)	N	(%)	N	(%)
Age	0-17	34	(3)	85	(10)	37	(6)
	18-34	161	(16)	79	(10)	86	(13)
	35-49	233	(23)	179	(22)	176	(27)
	50-59	243	(24)	228	(28)	188	(29)
	60-69	238	(23)	234	(28)	148	(23)
	70+	108	(11)	18	(2)	9	(1)
	mean (SD)	50	(17)	48	(18)	47	(16)
Sex	Male	557	(55)	531	(65)	386	(60)
	Female	460	(45)	292	(35)	258	(40)
Ethnicity	White	908	(91)	662	(82)	523	(84)
	Asian	33	(3)	99	(12)	66	(11)
	Black	18	(2)	28	(3)	19	(3)
	Other	35	(4)	14	(2)	18	(3)
	Unknown	23	-	20	-	18	-
Blood group	O	476	(47)	320	(39)	346	(54)
	A	419	(41)	363	(44)	212	(33)
	B	95	(9)	100	(12)	84	(13)
	AB	26	(3)	40	(5)	2	(0)
	Unknown ¹	1	-	0	-	0	-
Graft number	First graft	-	-	769	(93)	574	(89)
	Re-graft	-	-	54	(7)	70	(11)
TOTAL		1017	(100)	823	(100)	644	(100)
¹ Includes 1 donor with indeterminate blood group							



Intestinal Activity

Key messages

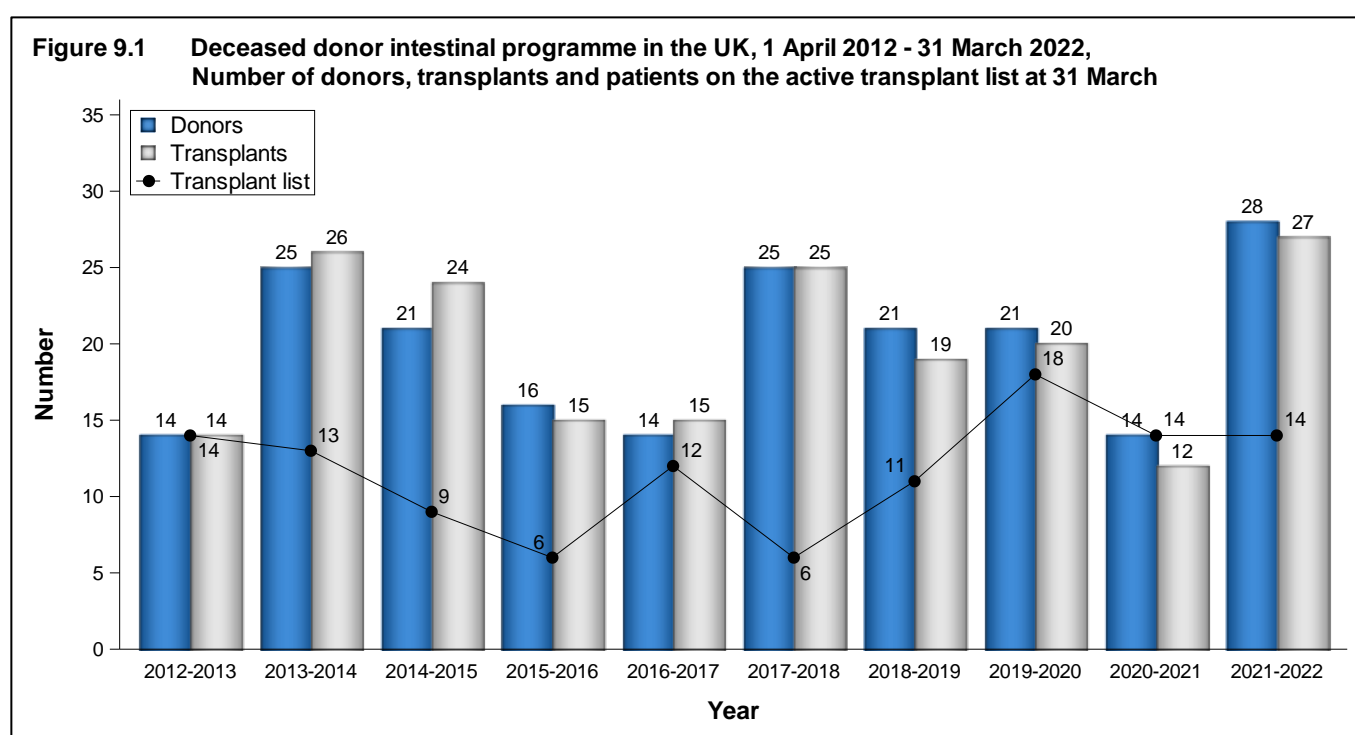
- There were 14 patients on the active intestinal transplant list at 31 March 2022 in total
- There were 34 registrations for an intestinal transplant during 2021-2022
- 27 intestinal transplants were carried out in 2021-2022 (12 in the previous year)
- On average, patients wait 4 months for a transplant

9.1 Overview

Note that the COVID-19 pandemic will have affected the number of offered, retrieved and transplanted organs in 2021-2022.

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 for an intestinal transplant has remained stable at 14. In the last financial year, the number of intestinal transplants increased to the highest number seen in the period analysed.



9.2 Transplant list

In 2021-2022, there were 34 registrations for an intestinal transplant corresponding to 34 patients. The outcome of these registrations for paediatric (aged <18 years) and adult patients, as at 31 March 2022, broken down by transplant centre, can be found in **Table 9.1**. Overall, 13 (38%) remained active/suspended, 15 (44%) resulted in a transplant, 2 (6%) died on the transplant list, and 4 (12%) were removed.

Table 9.1 Outcome of intestinal registrations in the UK, 1 April 2021 and 31 March 2022									
Transplant centre	Outcome of registrations as at 31 March 2022								TOTAL
	Transplanted N	%	Died N	%	Removed N	%	Active/Susp N	%	
Adult									
Cambridge	8	42	2	11	0	0	9	47	19
Oxford	4	50	0	0	2	25	2	25	8
TOTAL	12	44	2	7	2	7	11	41	27
Paediatric									
Birmingham	3	60	0	0	2	40	0	0	5
King's College	0	0	0	0	0	0	2	100	2
TOTAL	3	43	0	0	2	29	2	29	7

Table 9.2 shows the active intestinal transplant list in the UK at 31 March 2022 and 2021 by country/NHS region of patient's residence. At 31 March 2022, the overall transplant list rate was 0.2 pmp and ranged from 0.0 to 0.5 pmp across NHS regions, although these numbers are very small, so these are not meaningful differences.

Table 9.2 Active intestinal transplant list at 31 March by Country/NHS region of patient residence				
Country/ NHS region of residence	Intestinal transplant list (pmp)			
	2022		2021	
North East and Yorkshire	4	(0.5)	2	(0.2)
North West	0	(0.0)	1	(0.1)
Midlands	0	(0.0)	2	(0.2)
East of England	1	(0.2)	4	(0.6)
London	2	(0.2)	1	(0.1)
South East	2	(0.2)	2	(0.2)
South West	2	(0.4)	1	(0.2)
England	11	(0.2)	13	(0.2)
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	3	(0.5)	1	(0.2)
Northern Ireland	0	(0.0)	0	(0.0)
TOTAL	14	(0.2)	14	(0.2)

Table 9.3 shows median waiting time to elective intestinal transplant by registration type. On average, patients wait 133 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 2017 - 31 March 2021, by registration type			
Registration type	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Bowel only ¹	18	139	85 - 193
Liver, bowel and pancreas ¹	53	179	125 - 233
Bowel and pancreas ¹	35	90	32 - 148
TOTAL	106	133	93 - 173

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/NHS region of residence. The overall DBD intestinal donor rate was 0.4 pmp and ranged from 0.2 to 0.7 pmp across NHS regions. Of the 785 DBD solid organ donors, 28 (4%) donated their small bowel. A large majority of DBD solid organ donors are lost because they are outside of the age and weight criteria for bowel donation. The next most common reason for losing donors is lack of consent for bowel donation. Of those donors with consent for bowel donation, the most common reason for not offering them is no suitable recipient on the transplant list followed by donor history. Of those donors that are offered, a large number are not accepted, most commonly, due to donor virology, donor history and unsuitable size.

Table 9.4 Intestinal donation rates for deceased donors after brain death, in the UK, 1 April 2021 - 31 March 2022, by Country/ NHS region

Country/ NHS region of residence	Solid organ donors (pmp)		Intestinal donors (pmp)		% of solid organ donors	Organs used
North East and Yorkshire	111	(12.8)	2	(0.2)	1.8	2
North West	64	(9.0)	3	(0.4)	4.7	3
Midlands	103	(9.7)	3	(0.3)	2.9	3
East of England	68	(10.4)	2	(0.3)	2.9	2
London	91	(10.1)	3	(0.3)	3.3	3
South East	118	(13.2)	6	(0.7)	5.1	6
South West	73	(12.9)	4	(0.7)	5.5	4
England	628	(11.1)	23	(0.4)	3.7	23
Isle of Man	1	(12.5)	0	(0.0)	0.0	0
Channel Islands	4	(23.5)	0	(0.0)	0.0	0
Wales	41	(12.9)	5	(1.6)	12.2	4
Scotland	46	(8.4)	0	(0.0)	0.0	0
Northern Ireland	37	(19.5)	0	(0.0)	0.0	0
TOTAL¹	785	(11.7)	28	(0.4)	3.6	27

¹ Includes 28 donors with unknown UK postcode

9.4 Transplants

Table 9.5 shows intestinal transplant activity by transplant centre and transplant type for financial years 2020-2021 and 2021-2022. In 2021-2022, there were a total of 27 transplants, 20 adult and 7 paediatric transplants.

At 31 March 2022 there were approximately 170 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 2021 - 31 March 2022 (2020 - 2021)												
Transplant centre					Transplant type							
	BO		LBP		MV		MMV		LB		TOTAL	
Adult												
Cambridge	1	(0)	0	(0)	9	(1)	4	(5)	0	(0)	14	(6)
Oxford	5	(0)	0	(0)	0	(0)	1	(0)	0	(0)	6	(0)
TOTAL	6	(0)	0	(0)	9	(1)	5	(5)	0	(0)	20	(6)
Paediatric												
Birmingham	1	(1)	1	(0)	0	(4)	2	(0)	0	(0)	4	(5)
King's College	2	(1)	0	(0)	1	(0)	0	(0)	0	(0)	3	(1)
TOTAL	3	(2)	1	(0)	1	(4)	2	(0)	0	(0)	7	(6)
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 2021 - 31 March 2022, and transplant list patients at 31 March					
		Donors		Transplant recipients		Active transplant list patients	
		N	(%)	N	(%)	N	(%)
Age	0-17	8	(29)	7	(26)	4	(29)
	18-34	12	(43)	3	(11)	3	(21)
	35-49	5	(18)	9	(33)	3	(21)
	50-59	3	(11)	5	(19)	2	(14)
	60-69	0	(0)	3	(11)	2	(14)
	Mean (SD)	27	(16)	36	(21)	34	(21)
Sex	Male	11	(39)	18	(67)	9	(64)
	Female	17	(61)	9	(33)	5	(36)
Ethnicity	White	24	(89)	20	(80)	9	(64)
	Asian	0	(0)	2	(8)	1	(7)
	Black	0	(0)	1	(4)	1	(7)
	Other	3	(11)	2	(8)	3	(21)
	Unknown	1	-	2	-	0	-
Blood group	O	18	(64)	10	(37)	5	(36)
	A	9	(32)	10	(37)	6	(43)
	B	1	(4)	7	(26)	2	(14)
	AB	0	(0)	0	(0)	1	(7)
Graft number	First graft	-	-	27	(100)	11	(79)
	Re-graft	-	-	0	(0)	3	(21)
TOTAL		28	(100)	27	(100)	14	(100)

Cornea Activity

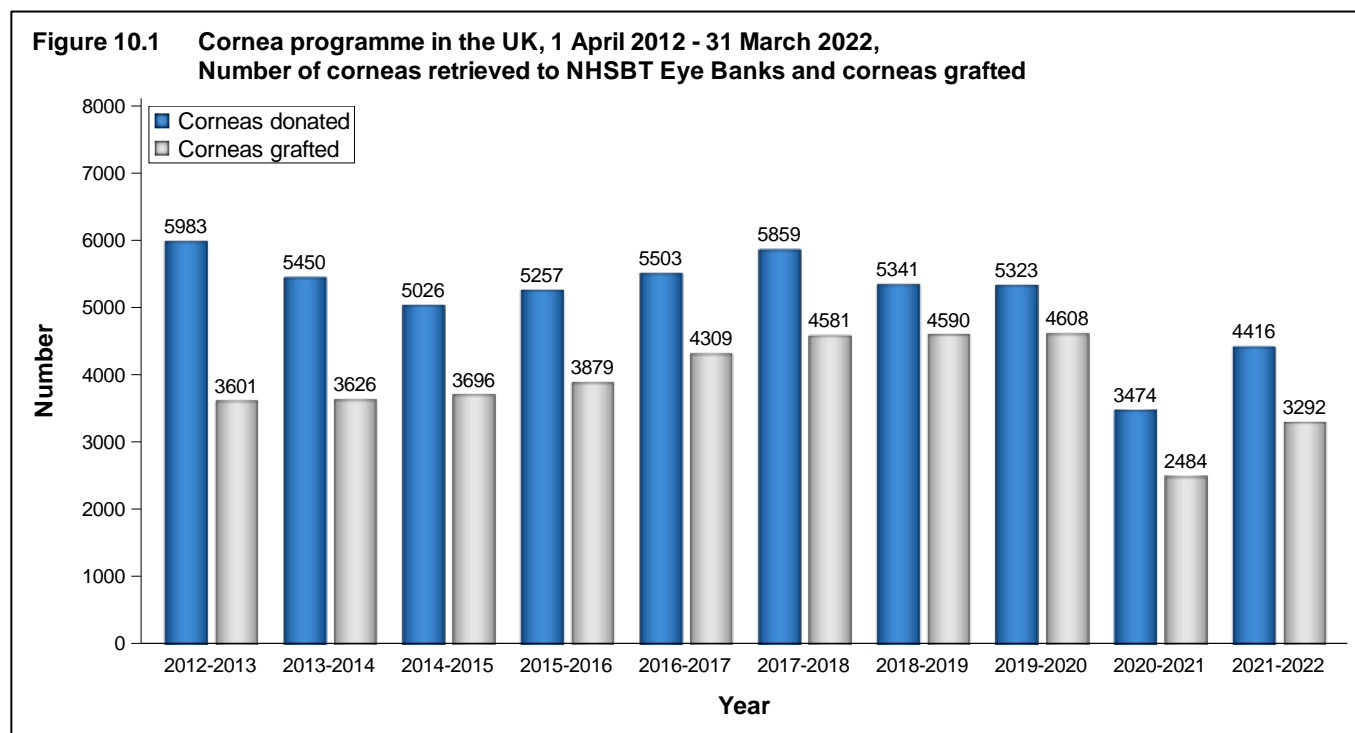
Key messages

- 4,416 corneas were supplied to NHSBT Eye Banks
- Corneas were retrieved from 1,787 cornea-only donors and from 483 solid organ donors after brain death (55%) or after circulatory death (45%)
- The number of transplants increased to 3,292 after the pandemic
- 11%, 33% and 14% of corneal transplants were for keratoconus, Fuchs endothelial dystrophy and pseudophakic bullous keratopathy patients, respectively
- Descemet membrane endothelial keratoplasty transplants are now the most popular technique for corneal transplantation
- 650 (15%) corneas were issued for non-clinical use to support research or training from corneas that were considered unsuitable for transplantation

10.1 Overview

As a result of the COVID-19 pandemic, the number of corneas transplanted (N=2,484) decreased by 46% in 2020-2021 compared with the previous year. In the last financial year, the total number of corneal transplants has risen to 3,292. The number of corneas donated was 4,416, representing an increase of 27% as shown in **Figure 10.1**. Overall, corneal donation and transplantation figures have not fully recovered to pre-pandemic levels.

It should be noted that not all corneal donations in the UK are reported to NHSBT and thus the donation data reported are not the full national data.



In 2021-2022, of 2,270 donors whose corneas were retrieved to NHSBT Eye Banks, 1,787 were cornea-only donors and 483 were cornea and solid organ donors: see **Table 10.1**. Compared to 2020-2021, the number of cornea-only donors increased by 26.6%, and the number of cornea and solid organ donors increased by 25.5%. In 2021-2022, corneas were retrieved from 264 organ donors after brain death and 219 organ donors after circulatory death.

Table 10.1 also shows the number and rate per million population (pmp) of donors whose corneas were retrieved to NHSBT Eye Banks in 2021-2022, by country and NHS region. Information for 2020-2021 is shown for comparison. No adjustments have been made for potential demographic differences in populations.

In 2021-2022, the corneal donor rate increased across England, Scotland, Wales and Northern Ireland. England had the highest corneal donor rate of countries in the UK (32.9 pmp). Across the NHS regions, the corneal donor rate ranged from 15.3 pmp to 68.6 pmp, demonstrating the impact of the NHSBT National Retrieval Centre and the location of non-NHSBT Eye Banks (East Grinstead).

Table 10.1 Corneal donation rates per million population (pmp) in the UK, 1 April 2021 - 31 March 2022 (2020 - 2021), by country/ NHS region for donors whose corneas were retrieved to NHSBT Eye Banks								
Country of residence/ NHS region	Cornea-only		Solid organ and cornea		TOTAL		TOTAL pmp	
North East and Yorkshire	228	(181)	62	(49)	290	(230)	33.6	(26.6)
North West	247	(293)	49	(46)	296	(339)	41.7	(47.8)
Midlands	256	(178)	78	(29)	334	(207)	31.3	(19.4)
East of England	212	(160)	46	(45)	258	(205)	39.3	(31.3)
London	56	(55)	82	(56)	138	(111)	15.3	(12.3)
South East	79	(73)	74	(71)	153	(144)	17.1	(16.1)
South West	343	(255)	46	(46)	389	(301)	68.6	(53.1)
England	1421	(1195)	437	(342)	1858	(1537)	32.9	(27.2)
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	53	(41)	12	(17)	65	(58)	20.5	(18.3)
Scotland	37	(20)	19	(17)	56	(37)	10.2	(6.8)
Northern Ireland	16	(7)	10	(5)	26	(12)	13.7	(6.3)
TOTAL¹	1787	(1412)	483	(385)	2270	(1797)	33.8	(26.8)

¹ Includes UK donors where the hospital/hospice postcode was unspecified

10.2 NHSBT Eye Bank activity

NHSBT Eye Bank activity levels for Filton (Bristol) and, David Lucas (in Liverpool) Eye Banks are shown in **Table 10.2**. In 2021-2022, a total of 4,416 corneas were retrieved to NHSBT, of which 3,464 (78%) were subsequently issued for transplantation. Filton Eye Bank (in Bristol) processed 57% of corneas retrieved in the last financial year.

Of 4,416 corneas retrieved, 650 (15%) were issued for non-clinical use to support research or training. These corneas were primarily unsuitable for transplantation (N=596), corneas in ethanol that had expired in the Eye Bank (N=38) or whole eyes strictly retrieved for the purposes of research (N=2).

Table 10.2 Corneas retrieved into NHSBT Eye Banks, by year 1 April 2021 - 31 March 2022 (2020-2021)								
Eye bank	Total retrieved		Number issued¹		% issued		Difference between number retrieved and issued	
Filton	2540	(2274)	1993	(1730)	78	(76)	547	(544)
David Lucas	1876	(1200)	1471	(817)	78	(68)	405	(383)
Total	4416	(3474)	3464	(2547)	78	(73)	952	(927)
¹ Number issued of those retrieved in each year								

10.3 Transplants

Corneal transplant activity in the UK by country of residence and NHS regions for the years 2020-2021 and 2021-2022 is detailed in **Table 10.3**. Corneas were supplied by NHSBT and non-NHSBT Eye Banks for corneal transplants in the UK. No adjustments have been made for potential demographic differences in populations.

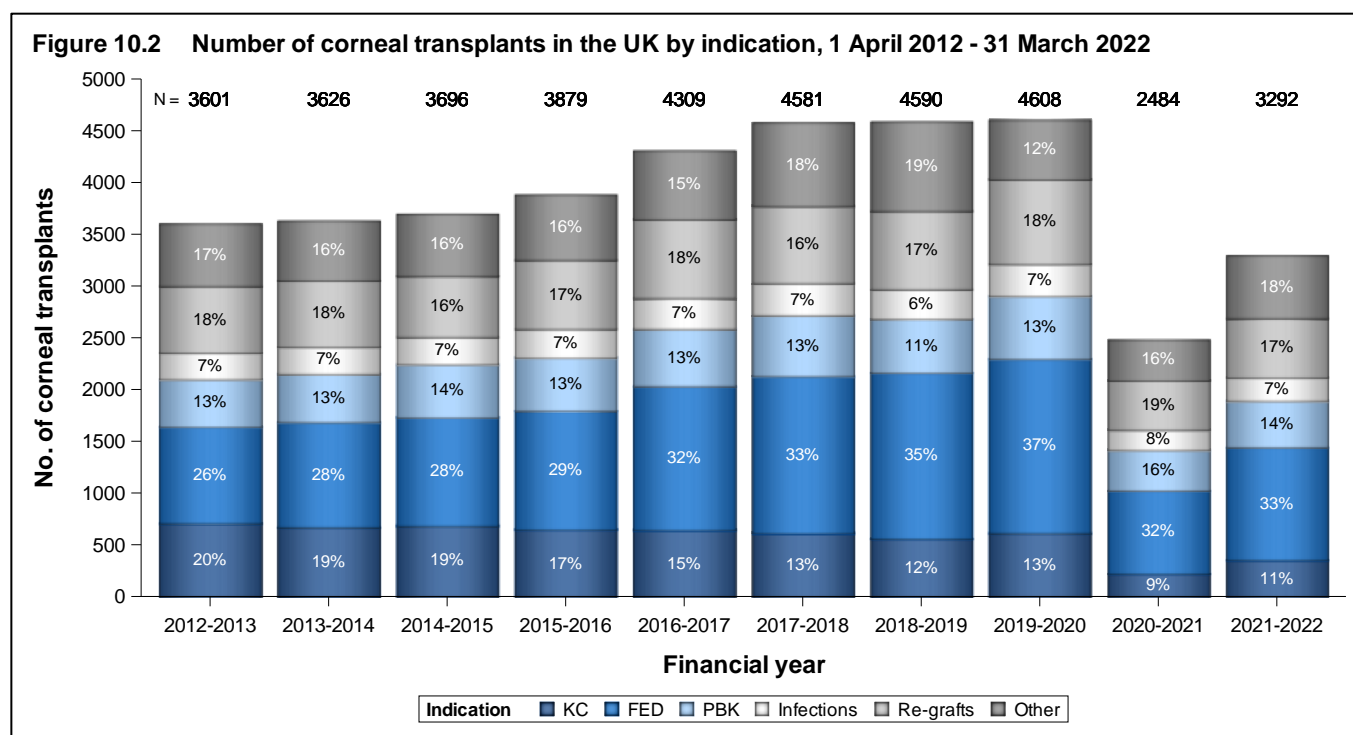
The overall transplant rate was 37.0 pmp in 2020-2021. This increased to 49.1 pmp in 2021-2022. Transplant rates increased across England, Scotland, Wales and Northern Ireland. England had the highest transplant rate in the UK: 50.1 pmp, this ranged from 44.1 pmp to 55.9 pmp across the NHS regions.

Table 10.3 Cornea transplants performed per million population (pmp) in the UK, 1 April 2020 - 31 March 2022, by country/NHS region

Country of residence/ NHS region	Number of transplants (pmp)			
	2020-2021		2021-2022	
North East and Yorkshire	255	(29.5)	381	(44.1)
North West	359	(50.6)	381	(53.7)
Midlands	272	(25.5)	500	(46.9)
East of England	297	(45.3)	356	(54.3)
London	408	(45.3)	455	(50.6)
South East	394	(44.1)	499	(55.9)
South West	249	(43.9)	260	(45.9)
England	2234	(39.5)	2832	(50.1)
Isle of Man	0	(0)	3	(37.5)
Channel Islands	2	(11.8)	6	(35.3)
Wales	70	(22.1)	129	(40.7)
Scotland	128	(23.4)	192	(35.1)
Northern Ireland	17	(8.9)	25	(13.2)
TOTAL¹	2484	(37.0)	3292	(49.1)

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

Figure 10.2 shows the number of corneal transplants in the UK by indication for transplant from 1 April 2012 to 31 March 2022. For corneas transplanted in 2020-2021 and 2021-2022, a further breakdown by indication is shown in **Table 10.4**.



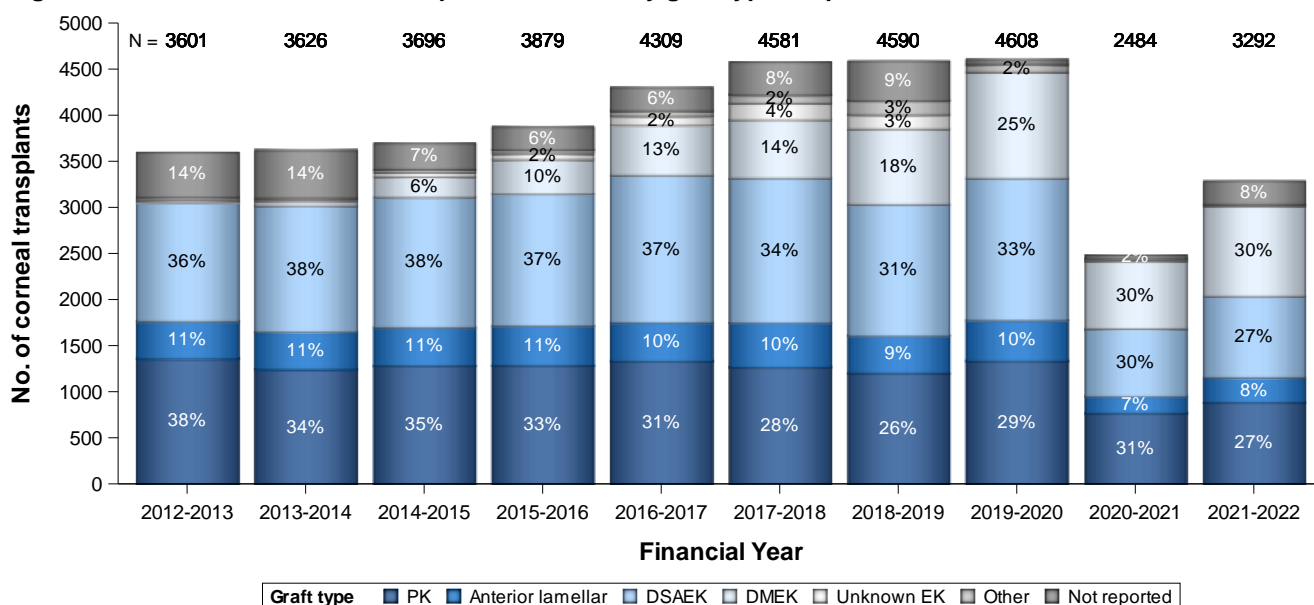
There has been a slight increase in the proportion of corneal transplants for keratoconus (KC) and Fuchs endothelial dystrophy (FED) in 2021-2022. Whereas there has been a slight decrease in the proportion of corneal transplants for pseudophakic bullous keratopathy (PBK), infections and re-grafts in 2021-2022. These results reflect a reduction in low-risk patients being transplanted throughout the COVID-19 pandemic due to the suspension of routine surgeries. The most common indication for transplantation is FED representing 33% of corneal transplants in 2021-2022.

Table 10.4 Corneal transplants in the UK by indication and financial year, 1 April 2020 - 31 March 2022				
Indication for transplant	2020 - 2021		2021 - 2022	
	N	%	N	%
Keratoconus (KC)	224	9.0	355	10.8
Fuchs endothelial dystrophy (FED)	803	32.3	1088	33.0
Pseudophakic bullous keratopathy (PBK)	394	15.9	451	13.7
Infections	194	7.8	227	6.9
Re-grafts	478	19.2	569	17.3
Other (listed below)	391	15.7	602	18.3
Ectasias	15	0.6	17	0.5
Dystrophies	35	1.4	53	1.6
Previous ocular surgery	67	2.7	75	2.3
Injury	38	1.5	35	1.1
Ulcerative keratitis	32	1.3	33	1.0
Opacification	56	2.3	51	1.5
Miscellaneous	119	4.8	112	3.4
Not reported	29	1.2	226	6.9
Total	2484	100.0	3292	100.0

Figure 10.3 shows the number of corneal transplants in the UK by graft type from 1 April 2012 to 31 March 2022. Over the last 10 years, the proportion of penetrating keratoplasty (PK) grafts has reduced by nearly a third. Descemet Membrane Endothelial Keratoplasty (DMEK) transplants are now the most popular technique for corneal transplantation.

Since March 2014, the type of EK graft has been collected on the Ocular Tissue Outcome and Transplant Record form reported to the UK Transplant Registry. Unknown EK graft types have been imputed such that historic grafts and grafts by surgeons that have never reported a DMEK transplant are assumed to be Descemet Stripping Automated EK (DSAEK) transplants. Further changes to the form were made in April 2019 which has improved the reporting of EK grafts. A further breakdown by graft type for corneas transplanted in 2020-2021 and 2021-2022 is shown in **Table 10.5**.

Figure 10.3 Number of corneal transplants in the UK by graft type, 1 April 2012 - 31 March 2022



Between April 2012 to March 2019, unknown EK grafts have been imputed such that historic grafts and grafts by surgeons that have never reported a DMEK transplant are assumed to be DSAEK transplants

Overall, there has been a decline in the reporting of graft types in the last financial year. In 2021-2022, 27% grafts were DSAEK and 30% were DMEK grafts. PK grafts are still a popular choice for corneal transplantation accounting for 27% of transplants in 2021-2022, anterior lamellar transplants remains a small proportion at 8%.

Table 10.5 Corneal transplants in the UK by graft type and financial year, 1 April 2020 - 31 March 2022

Graft type	2020 - 2021		2021 - 2022	
	N	%	N	%
PK	773	31.1	888	27.0
Anterior lamellar	182	7.3	268	8.1
DSAEK	733	29.5	884	26.9
DMEK	738	29.7	977	29.7
Other	19	0.8	21	0.6
Not reported	39	1.6	254	7.7
All grafts	2484	100.0	3292	100.0

Unknown EK grafts have been imputed such that historic grafts and grafts by surgeons that have never reported a DMEK transplant are assumed to be DSAEK transplants

10.4 Demographic characteristics

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

Table 10.6 Demographic characteristics of donors whose corneas were retrieved to NHSBT Eye Banks and transplant recipients in the UK, 1 April 2021 - 31 March 2022						
	Cornea-only donors		Solid organ and cornea donors		Transplant recipients	
	N	%	N	%	N	%
Age group (years)						
0 - 17	5	0.3	3	0.6	30	0.9
18 - 34	24	1.3	42	8.7	290	8.8
35 - 49	88	4.9	95	19.7	332	10.1
50 - 59	192	10.7	121	25.1	373	11.3
60 - 69	384	21.5	142	29.4	590	17.9
70-79	700	39.2	80	16.6	1021	31.0
80+	394	22.0	0	0	656	19.9
Mean (SD)	70	(12)	55	(14)	64	(18)
Sex						
Male	1034	57.9	290	60.0	1757	53.4
Female	753	42.1	193	40.0	1535	46.6
Ethnicity						
White	82	4.6	442	91.5	2711	82.4
Asian	6	0.3	11	2.3	269	8.2
Black	0	0	6	1.2	121	3.7
Other	1	0.1	13	2.7	16	0.5
Not reported	1697	95.0	8	1.7	168	5.1
TOTAL	1787	100.0	483	100.0	3292	100.0



Survival Rates Following Transplantation

This chapter shows graft survival rates over time for kidney, pancreas and corneal 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, ($p < 0.01$). **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 ($p > 0.2$).

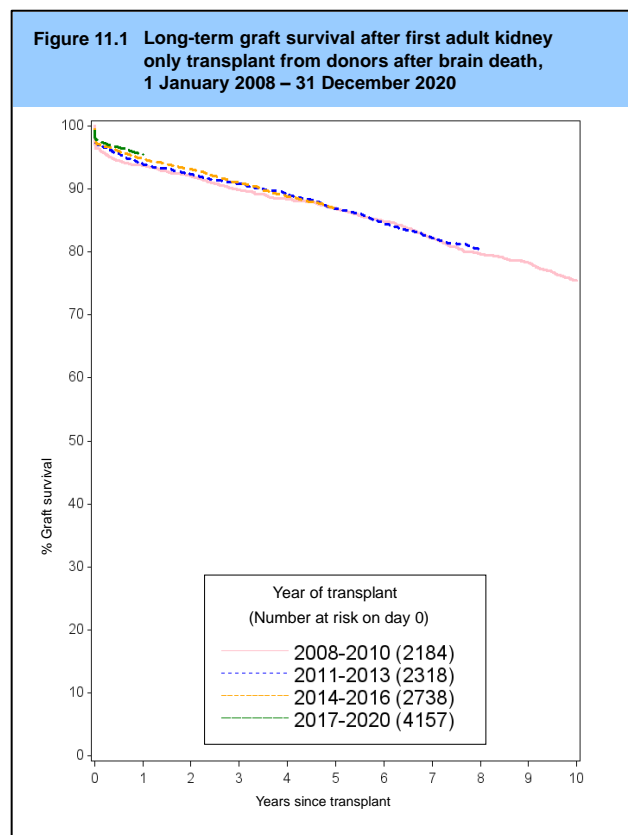


Table 11.1 Graft survival after first adult kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	2184	94	(93-95)	92	(91-93)	87	(85-88)	75	(73-77)
2011-2013	2318	94	(93-95)	92	(91-93)	87	(85-88)		
2014-2016	2738	95	(94-96)	93	(92-94)	87	(86-88)		
2017-2020	4157	95	(95-96)						

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	
2008-2010	2185	96	(95-97)	95	(94-95)	90	(89-91)	76	(74-78)
2011-2013	2319	96	(96-97)	94	(93-95)	88	(87-90)		
2014-2016	2739	97	(96-98)	95	(94-96)	89	(87-90)		
2017-2020	4158	96	(96-97)						

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

Long-term graft survival in adult recipients for kidney transplants from donors after circulatory death is shown in **Figure 11.2**. **Table 11.3** shows the graft survival estimates and confidence intervals for one, two, five and ten years post-transplant. There has been significant variation in one year survival over the time periods shown, $p=0.0001$. **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 ($p=0.02$).

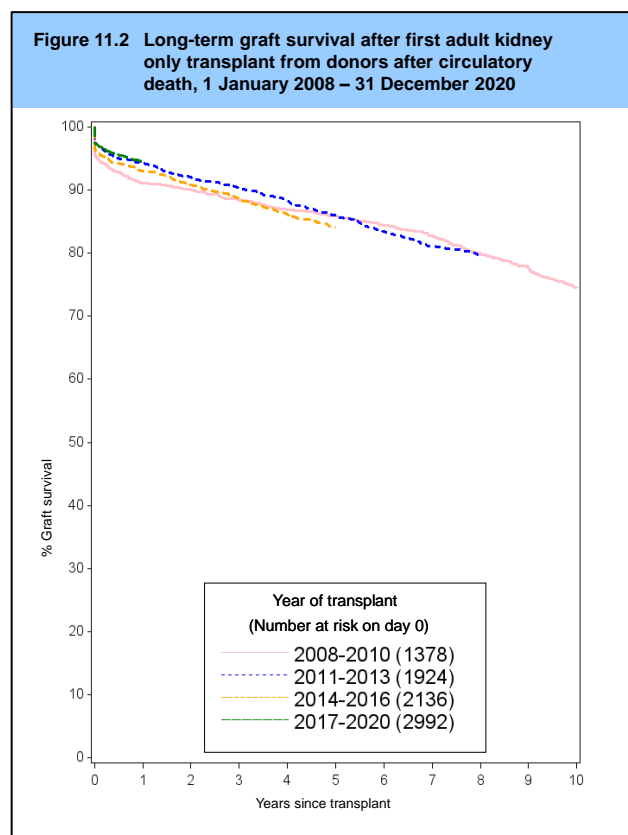


Table 11.3 Graft survival after first adult kidney only transplant from a DCD									
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	1378	91	(89-92)	90	(88-92)	86	(84-88)	75	(72-77)
2011-2013	1924	94	(93-95)	92	(91-93)	86	(84-88)		
2014-2016	2136	93	(92-94)	91	(90-92)	84	(82-86)		
2017-2020	2992	94	(94-95)						

Table 11.4 Patient survival after first adult kidney only transplant from a DCD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	1378	95	(94-96)	94	(92-95)	87	(85-89)	72	(70-75)
2011-2013	1924	96	(94-96)	94	(92-95)	86	(84-87)		
2014-2016	2137	97	(96-98)	95	(94-96)	86	(84-87)		
2017-2020	2996	97	(96-97)						

11.1.3 Adult kidney recipients - living donor

Long-term graft survival in adult recipients for living donor kidney transplants in the UK is shown in **Figure 11.3**. **Table 11.5** shows graft survival estimates and confidence intervals for each time period analysed. There has been a significant improvement in one- and two-year survival over the time periods shown ($p<0.0001$ and $p=0.04$, respectively). **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 ($p>0.14$).

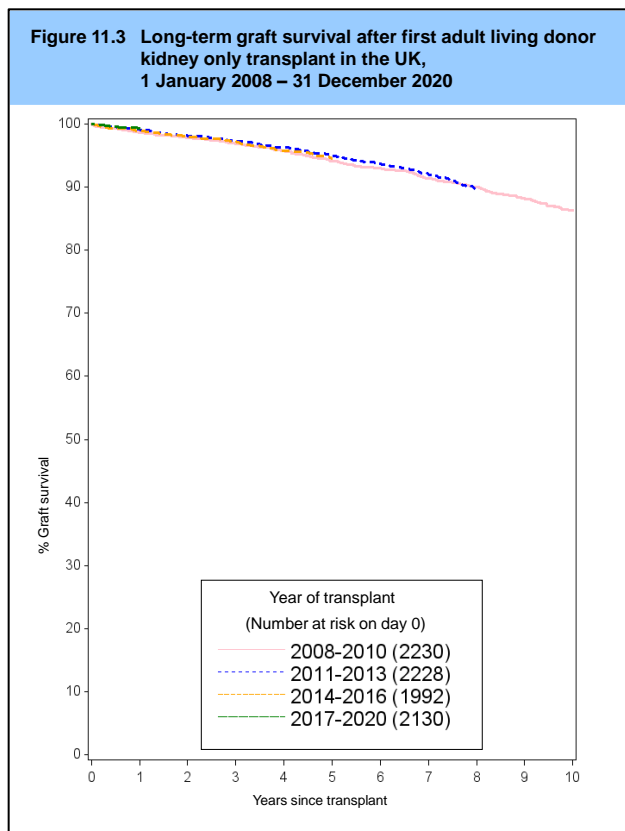


Table 11.5 Graft survival after first adult living donor kidney transplant									
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	2230	97	(96-97)	96	(95-96)	92	(91-93)	83	(81-84)
2011-2013	2228	97	(96-98)	96	(95-97)	91	(90-92)		
2014-2016	1991	98	(97-99)	97	(96-98)	93	(92-94)		
2017-2020	2127	99	(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	
2008-2010	2230	99	(98-99)	98	(97-98)	94	(93-95)	86	(85-88)
2011-2013	2228	99	(99-99)	98	(97-99)	95	(94-96)		
2014-2016	1992	99	(98-99)	98	(97-99)	95	(93-95)		
2017-2020	2130	99	(99-100)						

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

Figure 11.4 shows long-term graft survival in paediatric (<18 years) recipients for first kidney only transplants from donors after brain death. Graft survival estimates and confidence intervals are shown for each time period analysed in **Table 11.7**. There were no statistically significant changes in graft survival over time ($p>0.3$). **Table 11.8** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant changes in patient survival over time ($p>0.4$). There were insufficient paediatric recipients of first kidney only transplants from donors after circulatory death to permit reliable analysis.

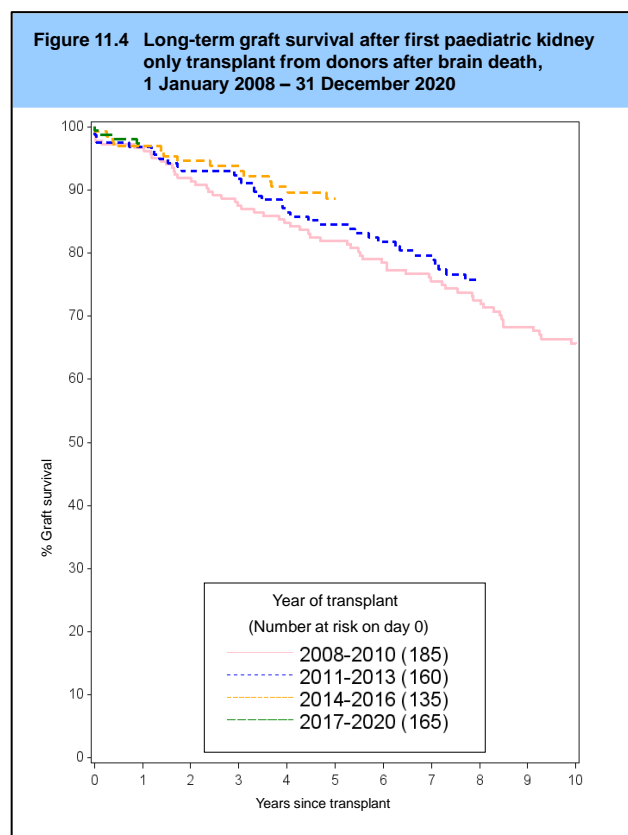


Table 11.7 Graft survival after first paediatric kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	185	97	(93-99)	92	(87-95)	82	(76-87)	66	(58-72)
2011-2013	160	97	(93-99)	93	(88-96)	84	(78-89)		
2014-2016	135	97	(92-99)	95	(89-97)	89	(82-93)		
2017-2020	165	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	
2008-2010	185	99	(96-100)	99	(96-100)	98	(94-99)	96	(92-98)
2011-2013	160	99	(96-100)	99	(95-100)	97	(92-99)		
2014-2016	135	99	(95-100)	99	(95-100)	99	(95-100)		
2017-2020	165	99	(95-100)						

11.1.5 Paediatric kidney recipients - living donor

Long-term graft survival in paediatric recipients for living donor kidney transplants in the UK is shown in **Figure 11.5**. **Table 11.9** shows graft survival estimates and confidence intervals for each time period analysed. There were no statistically significant changes in graft survival over time ($p>0.1$). **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 ($p>0.2$).

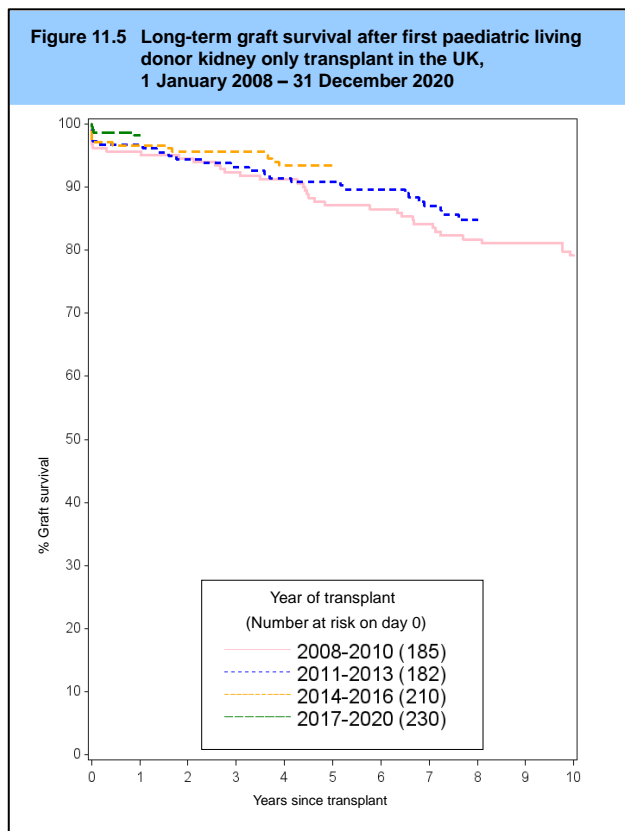


Table 11.9 Graft survival after first paediatric living donor kidney transplant									
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	185	96	(92-98)	95	(90-97)	87	(81-91)	79	(72-85)
2011-2013	182	97	(93-99)	94	(90-97)	91	(85-94)		
2014-2016	210	97	(93-98)	96	(92-98)	93	(89-96)		
2017-2020	230	98	(95-99)						

Table 11.10 Patient survival after first paediatric living donor kidney transplant									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	186	99	(96-100)	99	(96-100)	97	(93-99)	95	(90-97)
2011-2013	182	99	(96-100)	99	(96-100)	99	(96-100)		
2014-2016	210	99	(96-100)	99	(95-100)	98	(95-99)		
2017-2020	230	99	(96-100)						

11.2 Pancreas graft and patient survival

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

Figure 11.6 shows long-term graft survival in recipients receiving their first simultaneous pancreas/kidney (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 a significant improvement in one-, two- and five-year graft survival over the time periods shown, ($p=0.004$, $p=0.02$, $p=0.02$, respectively). Differences in patient survival are not significant over time ($p>0.1$).

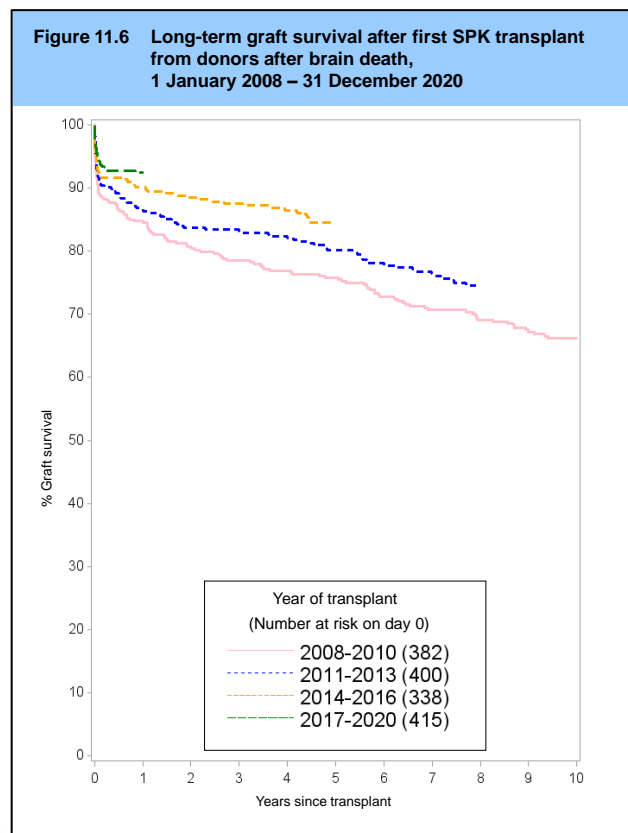


Table 11.11 Graft survival after first SPK transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)					
		One year	Two year	Five year	Ten year		
2008-2010	382	85 (81-88)	80 (76-84)	76 (71-80)	66 (61-71)		
2011-2013	400	86 (83-89)	84 (80-87)	80 (76-84)			
2014-2016	338	90 (86-93)	89 (85-92)	84 (80-88)			
2017-2020	415	92 (90-95)					

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		
2008-2010	384	97 (95-99)	95 (92-97)	90 (86-92)	76 (71-80)		
2011-2013	400	96 (94-98)	94 (91-96)	88 (84-91)			
2014-2016	339	97 (94-98)	97 (94-98)	89 (85-92)			
2017-2020	416	98 (96-99)					

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

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, five and ten years in **Table 11.13** and **Table 11.14** respectively. Results are for adult patients only. There has been a significant improvement in one-year graft survival over the time periods shown, $p=0.03$. There has been a significant improvement in two-year patient survival over the time periods shown, $p=0.03$.

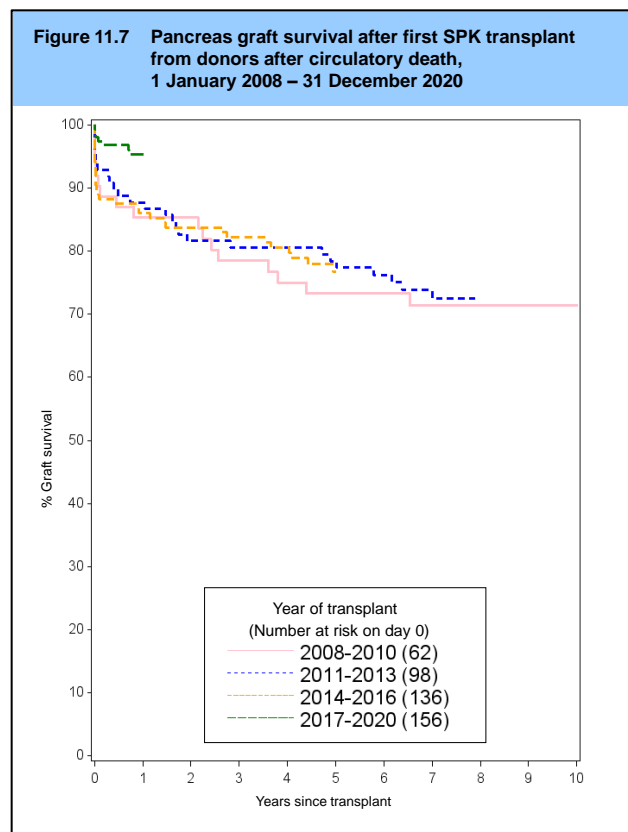


Table 11.13 Graft survival after first SPK transplant from a DCD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	62	85	(74-92)	85	(74-92)	73	(60-83)	71	(58-81)
2011-2013	98	88	(79-93)	82	(72-88)	78	(69-85)		
2014-2016	136	86	(79-91)	84	(76-89)	77	(68-83)		
2017-2020	156	95	(91-98)						

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		Five year		Ten year	
2008-2010	63	97	(88-99)	92	(81-96)	88	(77-94)	78	(64-87)
2011-2013	98	99	(93-100)	99	(93-100)	94	(87-98)		
2014-2016	136	99	(95-100)	98	(93-99)	92	(85-96)		
2017-2020	157	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 is evidence of a change in one-, two- and five-year graft survival over time ($p=0.03$, $p=0.01$ and $p=0.01$ respectively). There were no statistically significant changes in patient survival over time ($p>0.3$).

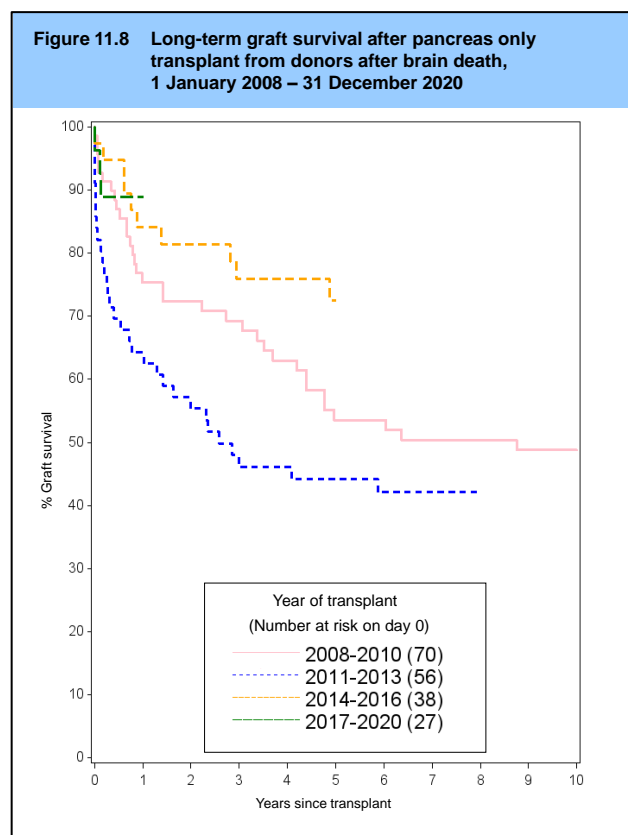


Table 11.15 Graft survival after first pancreas only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	70	75	(63-84)	72	(60-81)	54	(41-65)	49	(36-60)
2011-2013	56	64	(50-75)	55	(41-67)	44	(31-57)		
2014-2016	38	84	(68-93)	81	(65-91)	73	(55-84)		
2017-2020	27	89	(69-96)						

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	
2008-2010	71	94	(85-98)	91	(81-96)	84	(73-91)	76	(63-85)
2011-2013	56	98	(86-100)	98	(86-100)	77	(60-87)		
2014-2016	38	97	(82-100)	94	(79-99)	88	(72-95)		
2017-2020	27	96	(74-99)						

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, five and ten years in **Table 11.17** and **Table 11.18** respectively. Results are for adult patients only and are based on small numbers so should be interpreted with caution.

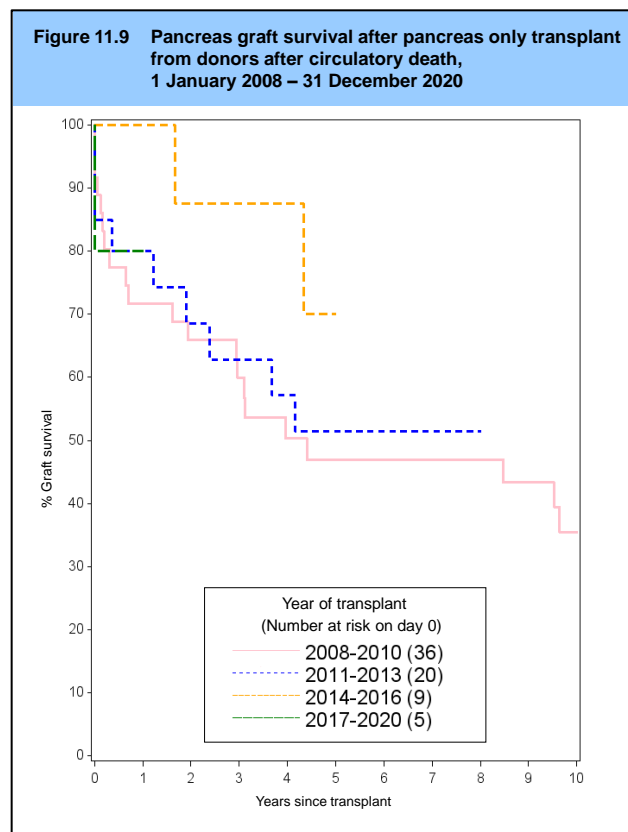


Table 11.17 Graft survival after first pancreas only transplant from a DCD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	36	72	(54-84)	66	(48-79)	47	(29-63)	35	(19-52)
2011-2013	20	80	(55-92)	69	(43-85)	51	(27-71)		
2014-2016	9	100	-	88	(39-98)	70	(22-92)		
2017-2020	5	80	(20-97)						

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

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	36	97	(82-100)	97	(82-100)	79	(59-90)	66	(45-81)
2011-2013	20	95	(68-99)	95	(68-99)	95	(68-99)		
2014-2016	9	100	-	100	-	67	(28-88)		
2017-2020	5	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 across eras ($p > 0.5$).

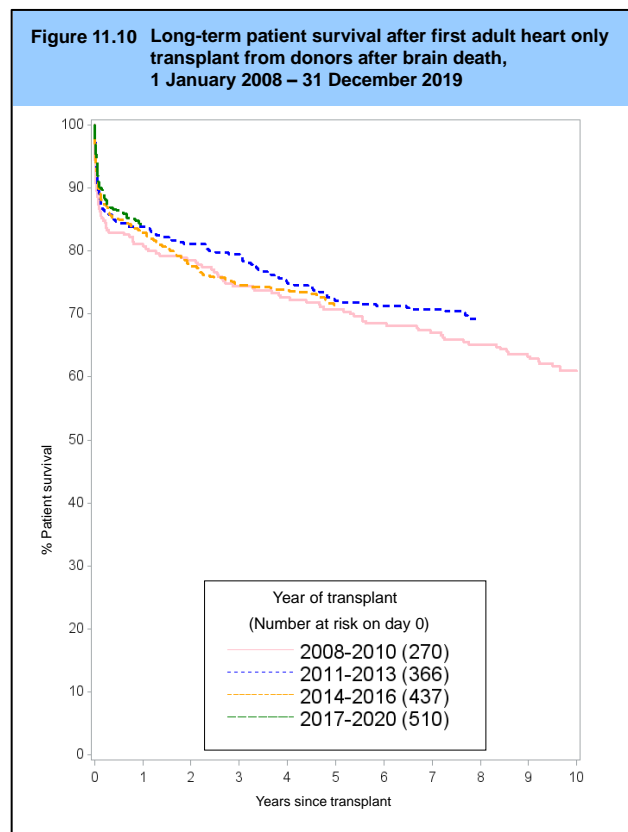


Table 11.19 Patient survival after first adult heart only transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	270	81	(76-85)	79	(73-83)	71	(65-76)	61	(55-66)
2011-2013	366	84	(80-87)	81	(77-85)	72	(67-76)		
2014-2016	437	83	(79-86)	78	(74-81)	71	(67-75)		
2017-2020	510	84	(81-87)						

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 were no statistically significant differences in patient survival across eras ($p>0.1$).

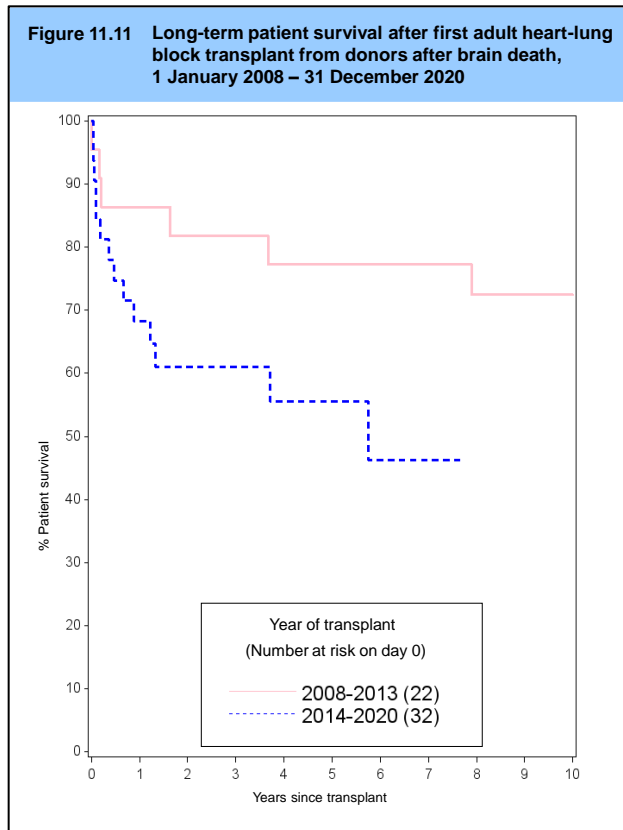


Table 11.20 Patient survival after first adult heart-lung block transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2013	22	86	(63-95)	82	(59-93)	77	(54-90)	72	(49-87)
2014-2020	32	68	(49-82)	61	(42-76)	56	(35-72)		

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 across eras ($p>0.5$).

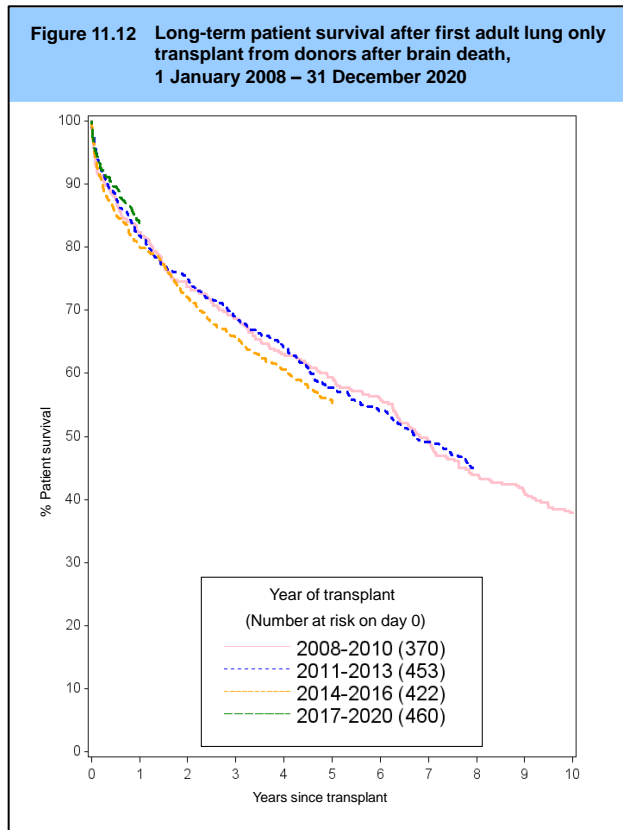


Table 11.21 Patient survival after first adult lung only transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	370	82	(78-86)	74	(69-78)	59	(54-64)	38	(33-43)
2011-2013	453	82	(78-85)	75	(71-79)	58	(53-62)		
2014-2016	422	80	(76-84)	72	(67-76)	55	(50-60)		
2017-2020	460	84	(80-87)						

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

Patient survival for adult recipients after first lung only transplant from donors after circulatory death is shown in **Figure 11.13**, by era, with survival estimates and confidence intervals shown in **Table 11.22**. Super-urgent, urgent, and non-urgent patients are included.

Figure 11.13 Patient survival after first adult lung only transplant from donors after circulatory death, 1 January 2008 – 31 December 2020

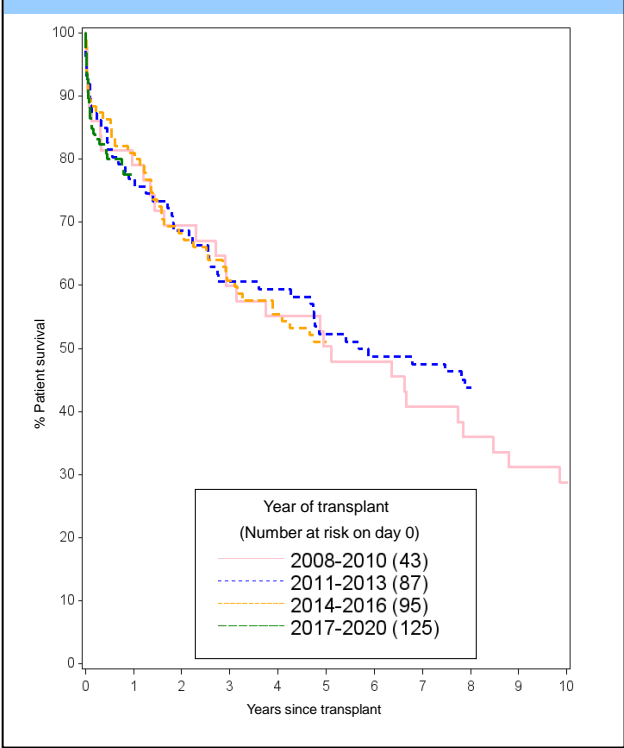


Table 11.22 Patient survival after first adult lung only transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)			
		One year	Two year	Three year	
2008-2010	43	79 (64-89)	69 (53-81)	50 (35-64)	
2011-2013	87	77 (66-84)	69 (58-77)	52 (41-62)	
2014-2016	95	81 (72-88)	68 (58-77)	51 (41-61)	
2017-2020	125	78 (69-84)			

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**. Super-urgent, 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 were no statistically significant differences in patient survival across eras ($p>0.8$). The number of heart-lung transplant recipients was too small to analyse.

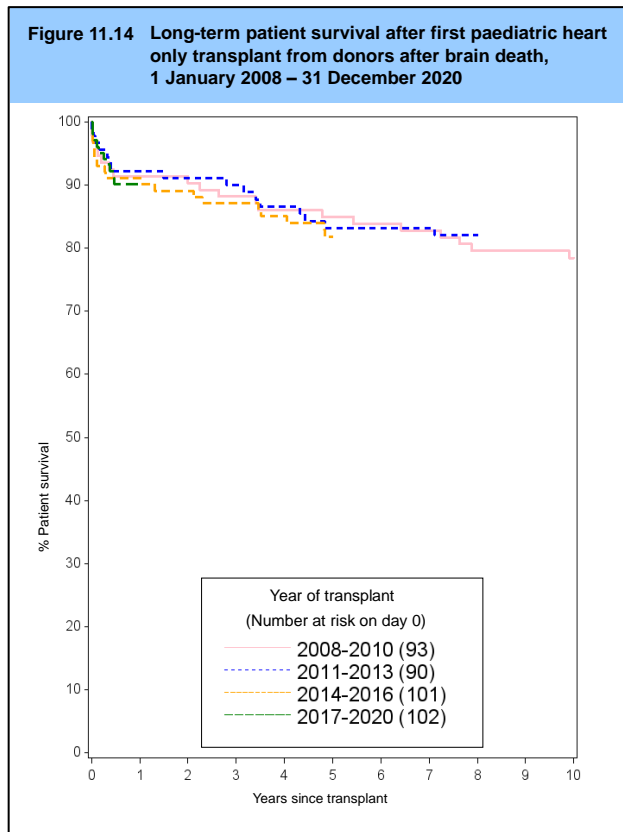


Table 11.23 Patient survival after first paediatric heart only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	93	91	(84-96)	90	(82-95)	85	(76-91)	78	(69-86)
2011-2013	90	92	(84-96)	91	(83-95)	83	(74-90)		
2014-2016	101	91	(84-95)	89	(81-94)	82	(73-88)		
2017-2020	102	90	(82-95)						

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**. Super-urgent, 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 across eras ($p>0.1$).

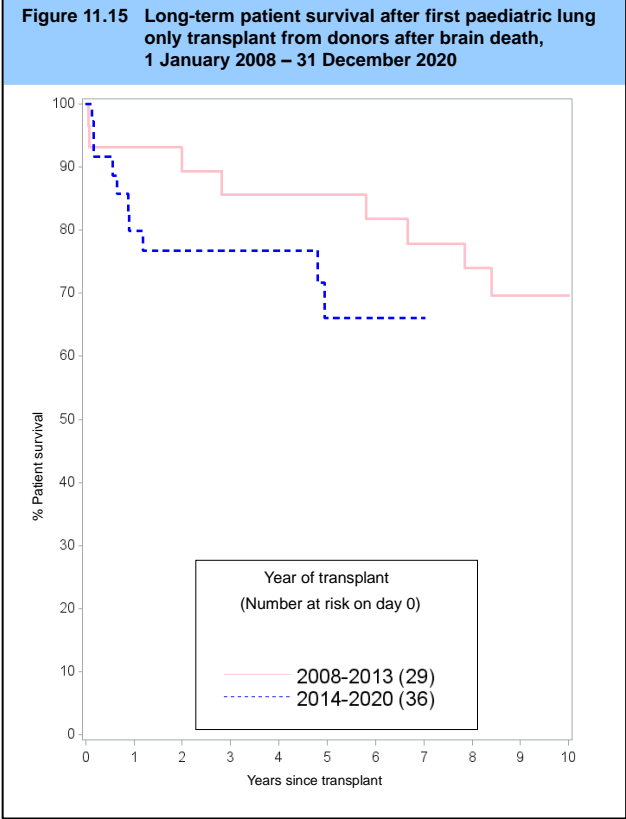


Table 11.24 Patient survival after first paediatric lung only transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2013	29	93	(75-98)	89	(71-96)	86	(66-94)	70	(48-84)
2014-2020	36	80	(62-90)	77	(59-88)	66	(45-81)		

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 is evidence of a change in one-year patient survival over time ($p=0.02$) but no evidence of a change in two and five year patient survival ($p \geq 0.2$). Whole liver transplants are included as well as reduced and split liver transplants.

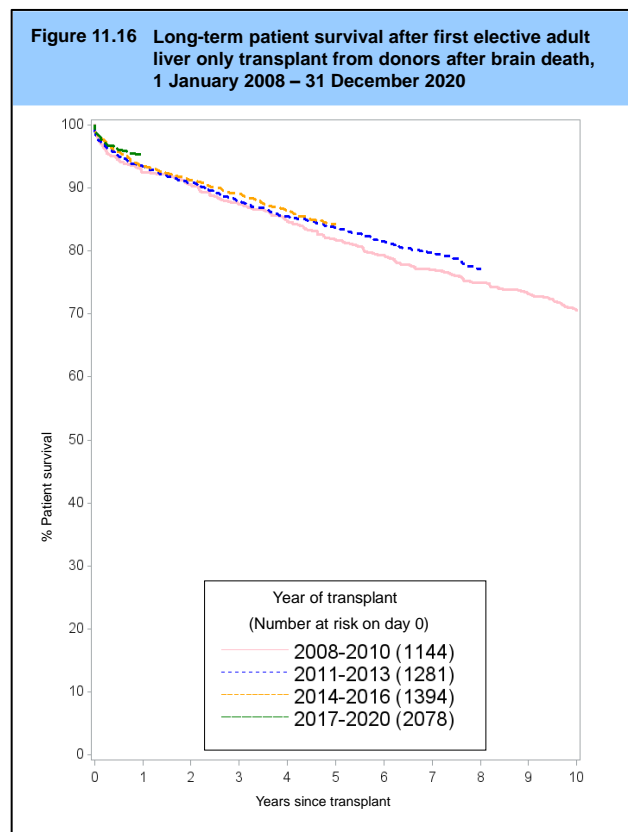


Table 11.25 Patient survival after first elective adult NHS Group 1 liver only transplant from donors after brain death

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2008-2010	1144	93	(91-94)	91	(89-92)	82	(79-84)	71	(68-73)
2011-2013	1281	93	(92-95)	91	(89-92)	84	(82-86)		
2014-2016	1394	93	(92-95)	91	(90-93)	84	(82-86)		
2017-2020	2078	95	(94-96)						

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**. **Table 11.26** shows patient survival estimates at one, two and five years post-transplant. There is evidence of a change in one, two- and five-year patient survival over time ($p<0.001$, $p<0.0001$, and $p=0.02$, respectively).

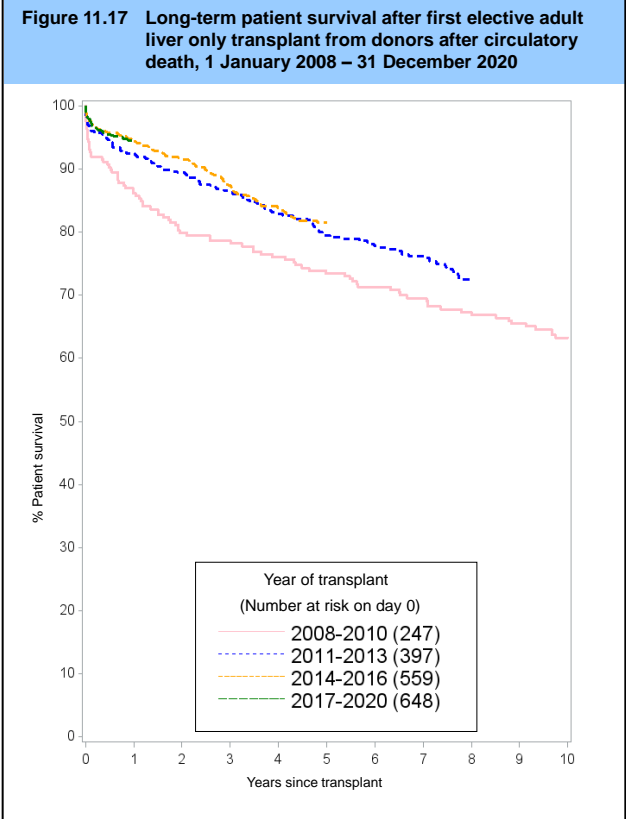


Table 11.26 Patient survival after first elective adult NHS Group 1 liver only transplant from donors after circulatory death

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)				
		One year	Two year	Five year	Ten year	
2008-2010	247	86 (81-90)	80 (74-84)	73 (67-79)	63 (57-69)	
2011-2013	397	92 (89-95)	89 (86-92)	79 (75-83)		
2014-2016	559	94 (92-96)	92 (89-94)	82 (78-85)		
2017-2020	648	94 (92-96)				

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 changes in one, two or five year patient survival over the time period analysed ($p>0.1$). The number of paediatric transplants from donors after circulatory death was too small to estimate meaningful patient survival.

Figure 11.18 Long-term patient survival after first elective paediatric liver only transplant from donors after brain death, 1 January 2008 – 31 December 2020

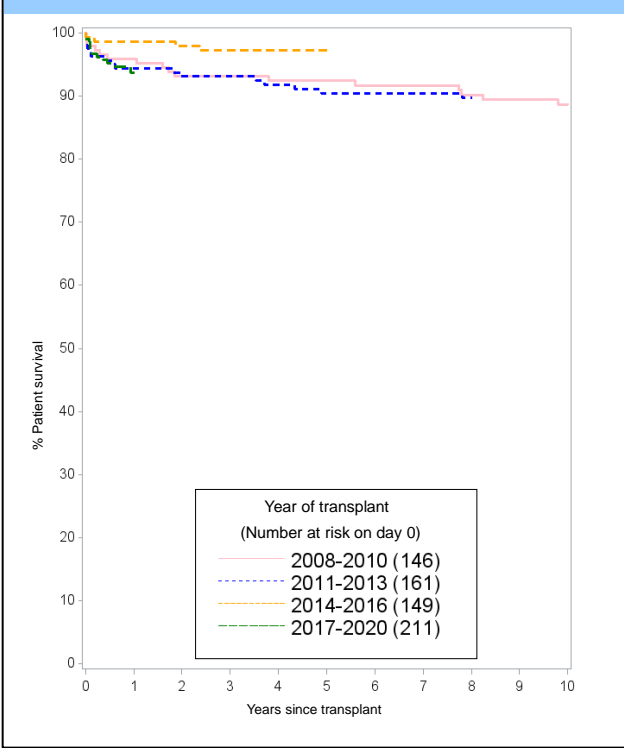


Table 11.27 Patient survival after first elective paediatric liver only transplant from donors after brain death

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)				
		One year	Two year	Five year	Ten year	
2008-2010	146	96 (91-98)	93 (88-96)	92 (87-96)	89 (82-93)	
2011-2013	161	94 (90-97)	93 (88-96)	90 (85-94)		
2014-2016	149	99 (95-100)	98 (94-99)	97 (93-99)		
2017-2020	211	94 (89-96)				

11.5 Intestinal patient survival

Figure 11.19 and **Table 11.28** show patient survival estimates for recipients receiving their first intestinal transplant, by recipient age group (adults aged ≥ 18 years) and transplant era. Results should be interpreted cautiously due to the small cohort and the heterogeneity of transplant types (both transplants that involve and do not involve the liver are being included).

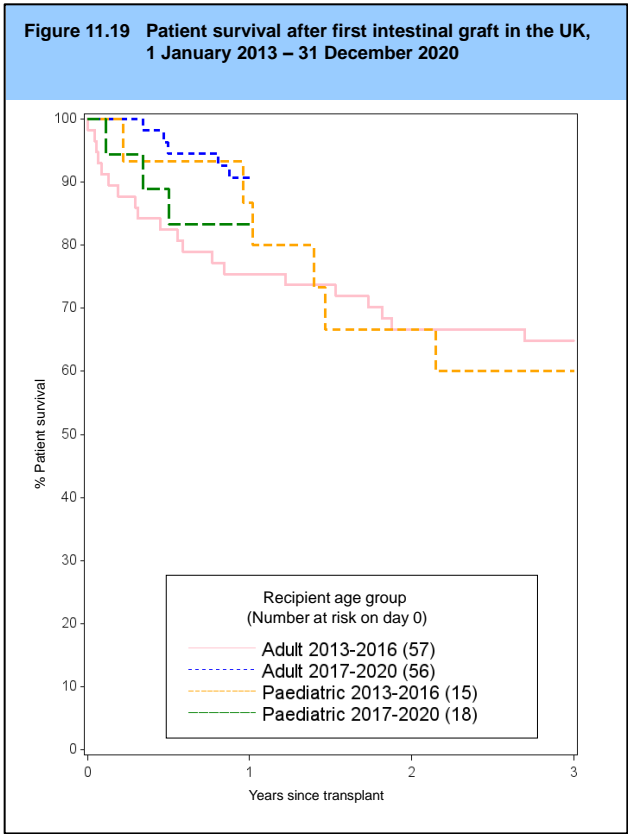


Table 11.28 Patient survival after first intestinal transplant in the UK							
Recipient age group	No. at risk on day 0	% Patient survival (95% confidence interval)					
		One year		Two year		Three year	
Adult							
2013-2016	57	75	(62-85)	67	(53-77)	65	(51-76)
2017-2020	56	91	(79-96)				
Paediatric							
2013-2016	15	87	(56-96)	67	(38-85)	60	(32-80)
2017-2020	18	83	(57-94)				

11.6 Corneal graft survival

11.6.1 Cornea grafts for keratoconus

Figure 11.20 shows graft survival estimates for first corneal transplant for keratoconus (KC) for grafts in 2008-2010, 2011-2013, 2014-2016 and 2017-2020. Graft survival estimates and confidence intervals are shown by transplant year at one, two and five years in **Table 11.29**.

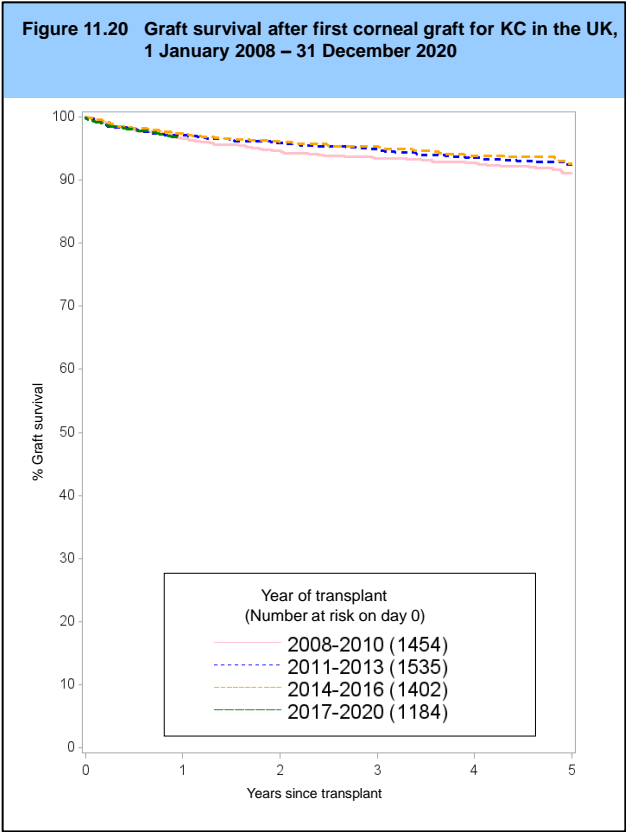


Table 11.29 Graft survival after first corneal graft for KC in the UK							
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)					
		One year		Two year		Five year	
2008-2010	1454	97	(96-97)	95	(93-96)	91	(89-93)
2011-2013	1535	97	(96-98)	96	(95-97)	92	(91-94)
2014-2016	1402	97	(96-98)	96	(95-97)	93	(91-94)
2017-2020	1184	97	(96-98)				

11.6.2 Cornea grafts for Fuchs endothelial dystrophy

Figure 11.21 shows graft survival estimates for first corneal transplant for Fuchs endothelial dystrophy (FED) for grafts in 2008-2010, 2011-2013, 2014-2016 and 2017-2020. Graft survival estimates and confidence intervals are shown by transplant year at one, two and five years in **Table 11.30**.

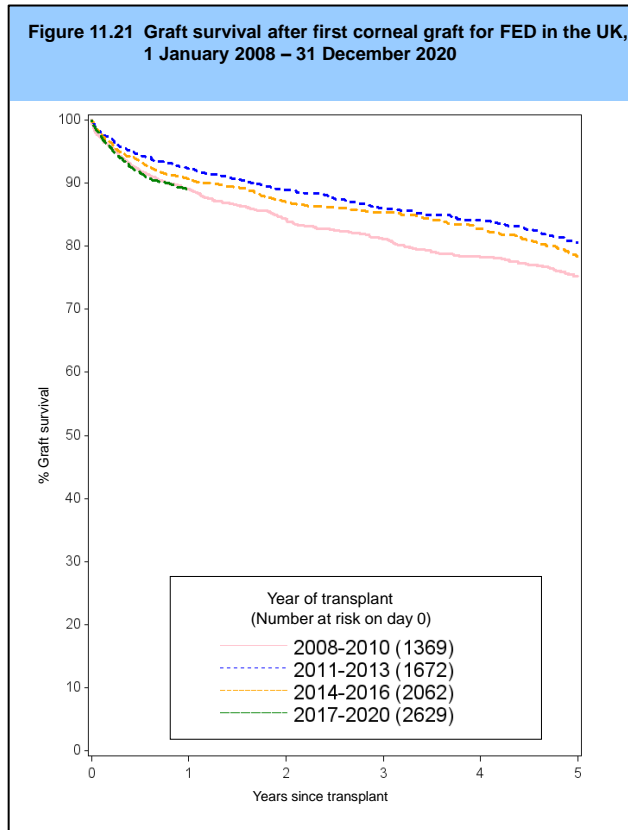


Table 11.30 Graft survival after first corneal graft for FED in the UK

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)					
		One year		Two year		Five year	
2008-2010	1369	89	(87-91)	84	(82-86)	75	(72-78)
2011-2013	1672	92	(91-93)	89	(87-90)	81	(78-83)
2014-2016	2062	91	(89-92)	87	(85-88)	78	(76-81)
2017-2020	2629	89	(88-90)				

11.6.3 Cornea grafts for pseudophakic bullous keratopathy

Figure 11.22 shows graft survival estimates for first corneal transplant for pseudophakic bullous keratopathy (PBK) for in 2008-2010, 2011-2013, 2014-2016 and 2017-2020. Graft survival estimates and confidence intervals are shown by transplant year at one, two and five years in **Table 11.31**.

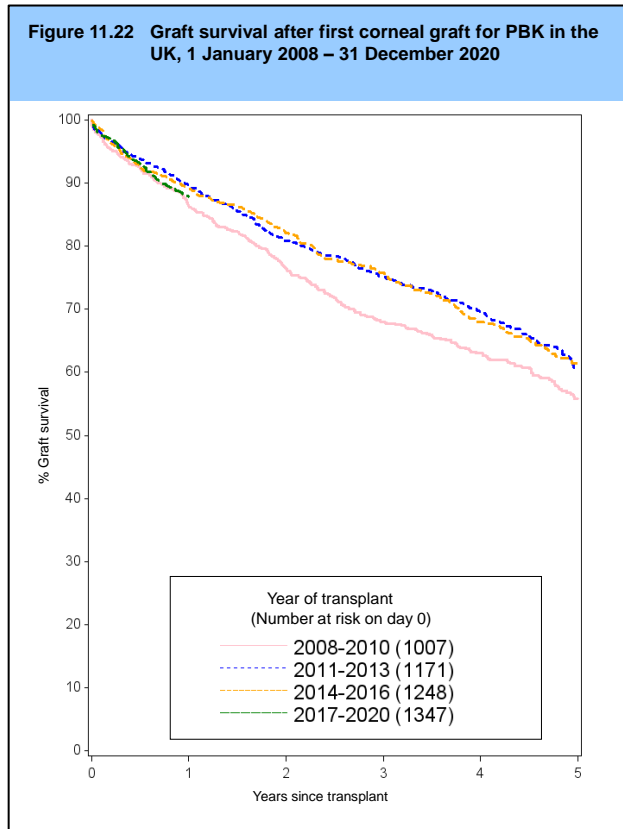


Table 11.31 Graft survival after first corneal graft for PBK in the UK

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)					
		One year		Two year		Five year	
2008-2010	1007	86	(84-88)	77	(74-79)	56	(52-60)
2011-2013	1171	90	(88-91)	81	(78-83)	60	(56-64)
2014-2016	1248	89	(87-91)	82	(80-84)	61	(57-65)
2017-2020	1347	88	(86-90)				

NHS Organ Donor Register

Key messages

- Opt-Out legislation was introduced in England in May 2020 and in Scotland in March 2021
- 27.7 million people were on the opt-in ODR at March 2022 (41% of the population)
- 2.3 million people were on the opt-out ODR at March 2022
- 187 people were appointed representative registrations on the ODR at March 2022
- 52% of the 1,397 deceased organ donors last year were on the opt-in ODR
- 13% of registrations last year were through the NHS App

By the end of March 2022, the NHS Organ Donor Register (ODR) held just over 27.7 million opt-in registrations. A summary of the number of registrations at the end of each financial year from 31 March 2013 to 31 March 2022 is shown in **Figure 12.1**. Opt-in registrations have seen a 3.7% increase this year, compared to a 2.7% increase in the previous year.

By the end of March 2022, the NHS Organ Donor Register (ODR) held just over 2.3 million opt-out registrations. A summary of the number of opt-out registrations at the end of each financial year from 31 March 2016 to 31 March 2022 is shown in **Figure 12.2**.

Of the 1,397 deceased organ donors in 2021-2022, 52% were registered on the ODR the same proportion as in 2020-2021.

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

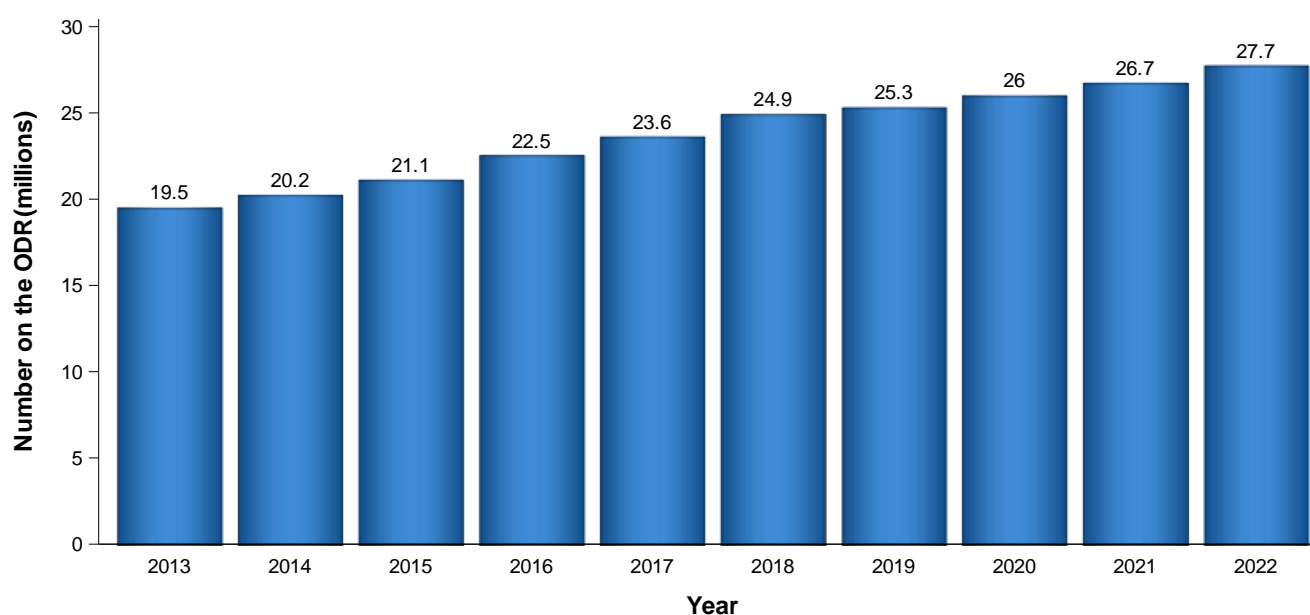
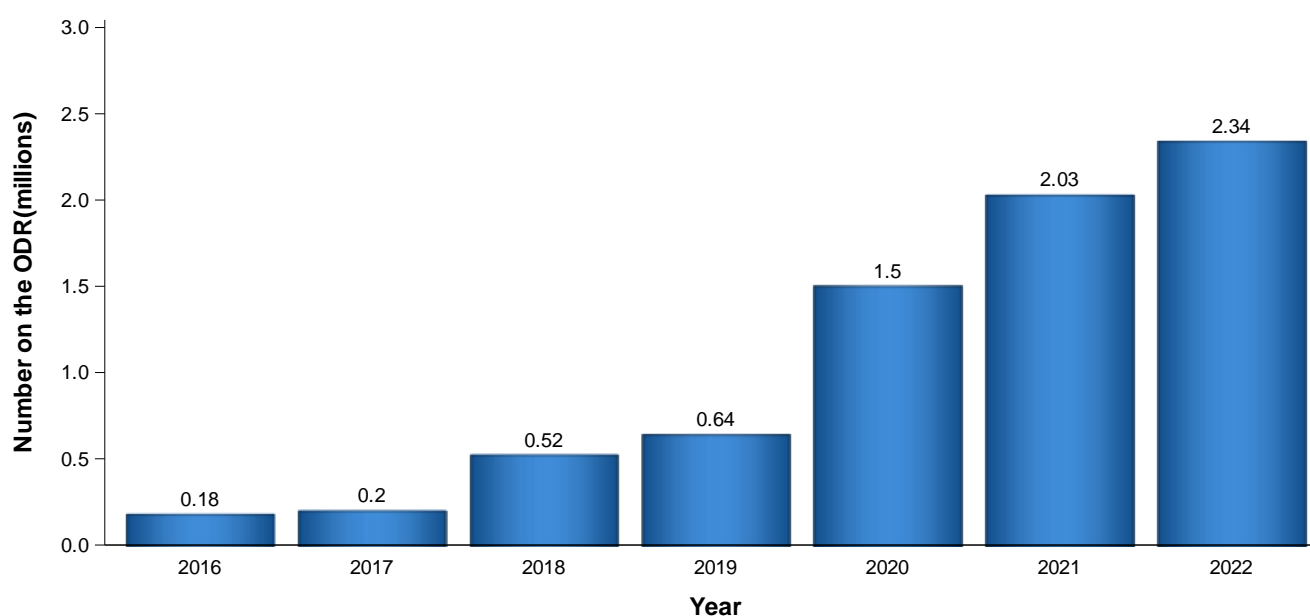


Figure 12.2 Number opted-out on the NHS Organ Donor Register at 31 March



Those registered on the ODR come from all parts of the UK. **Table 12.1** shows the percentage of the population registered (opt-in) in each country/NHS region at 31 March 2022, and the number of opt-in registrants. 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/NHS region at 31 March 2022. The proportion of the population that registered opt-out was 6.2% in Wales, and less for other countries and NHS regions. In the time period, Wales, England and Scotland have opt-out legislation, but it is possible for people elsewhere in the UK to opt-out. There has been an increase in opt-out registrations from across the UK ahead of the implementation of opt-out. In addition, there have been 187 appointed representative registrations.

Table 12.1. Opt-in registrations on the NHS Organ Donor Register by 31 March 2022, by country/ NHS region

Country/ NHS region of residence	N	Registrants pmp	Proportion registered
North East and Yorkshire	3,472,560	401,917	40%
North West	2,628,819	370,778	37%
Midlands	3,850,903	361,248	36%
East of England	2,763,579	421,277	42%
London	2,790,243	310,027	31%
South East	4,070,628	455,837	46%
South West	2,831,885	499,451	50%
England	27,747,679	490,675	49%
Isle of Man	56,673	708,413	71%
Channel Islands	29,422	173,071	17%
Wales	1,364,490	430,438	43%
Scotland	2,859,637	522,786	52%
Northern Ireland	971,771	511,458	51%
TOTAL¹	27,747,679	413,651	41%

¹ Includes 57,069 registrants where the postcode was unknown

Table 12.2. Opt-out registrations on the NHS Organ Donor Register by 31 March 2022, by country/ NHS region

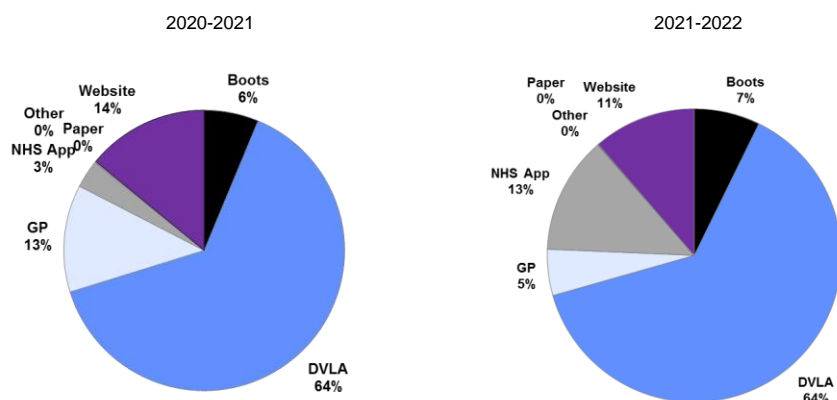
Country/ NHS region of residence	N	Registrants pmp	Proportion registered
North East and Yorkshire	272,278	31,514	3.2%
North West	256,628	36,196	3.6%
Midlands	409,709	38,434	3.8%
East of England	178,601	27,226	2.7%
London	559,808	62,201	6.2%
South East	194,026	21,727	2.2%
South West	97,817	17,252	1.7%
England	2,335,442	41,299	4.1%
Isle of Man	542	6,775	0.7%
Channel Islands	1,781	10,476	1.0%
Wales	198,053	62,477	6.2%
Scotland	161,590	29,541	3.0%
Northern Ireland	4,370	2,300	0.2%
TOTAL¹	2,335,442	34,816	3.5%

¹ Includes 239 registrants where the postcode was unknown

There are a number of registration routes to opt-in on the ODR: when registering as a patient with a General Practitioner (via the GMS1 paper form); with driving licence applications and other driving services (via the Driver and Vehicle Licensing Agency (DVLA)); the NHS App, when applying for a Boots Advantage Card; online registrations via the NHSBT Organ Donation website (www.organdonation.nhs.uk); Wales and Scotland organ donation websites, NHSBT paper forms and by telephone. There are also various external links delivering traffic to the NHSBT Organ Donation website (such as in newspapers and radio).

The source of applications for opt-in registration on the ODR is illustrated in **Figure 12.3**. This figure shows that 5% of registrations in 2021-2022 arrived by means of registering through a GP, 64% from driving licence applications and reminders through the DVLA and 11% online through the Organ Donation website. There has been an increase in applications for opt-in registrations through the NHS App, 13% in 2021-2022 compared with 3% in 2020-2021.

Figure 12.3 Source of applications for opt-in registration on the NHS Organ Donor Register, 1 April 2020 - 31 March 2022



At the end of March 2022, 8% 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 (62%) 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 2022 to donate different organs¹

Registrants prepared to donate all organs 81%

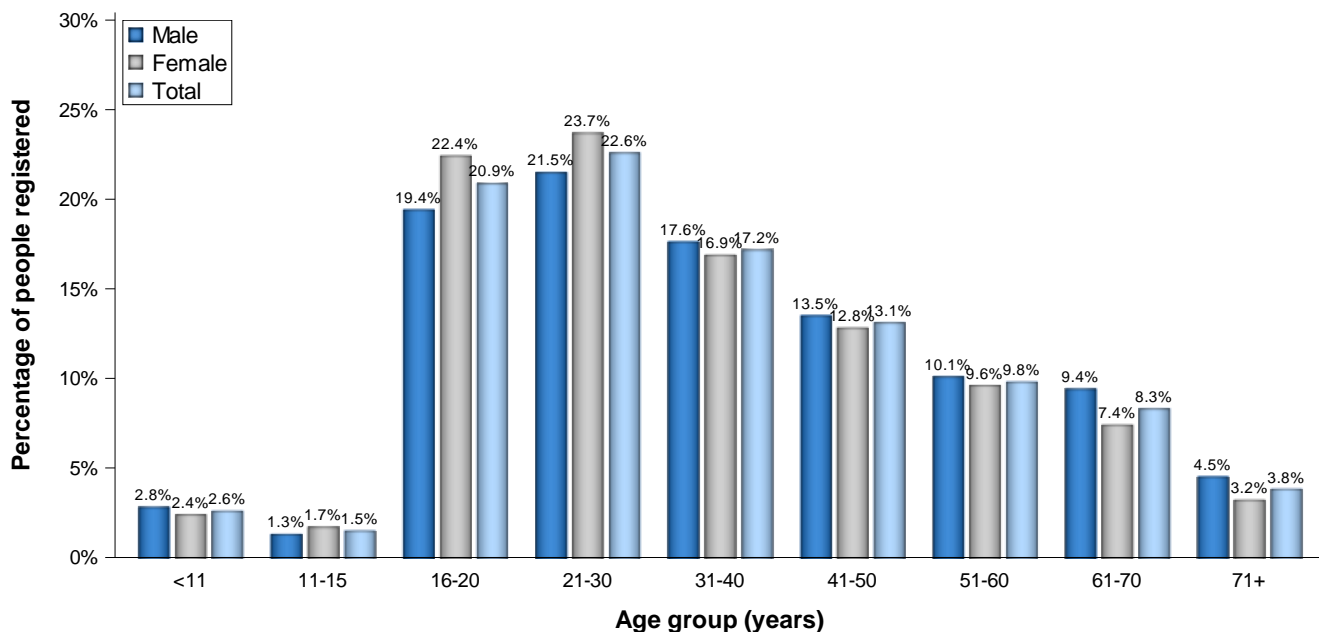
Of those not prepared to donate all organs ('restricted donors'):

Not prepared to donate:	% of 'Restricted donors'	% of all registrants
Kidney	5	0.8
Pancreas	15	2.3
Heart	15	2.3
Lungs	14	2.2
Liver	9	1.4
Corneas	62	9.5

¹ Complete information was not available for approximately 6% of the total register

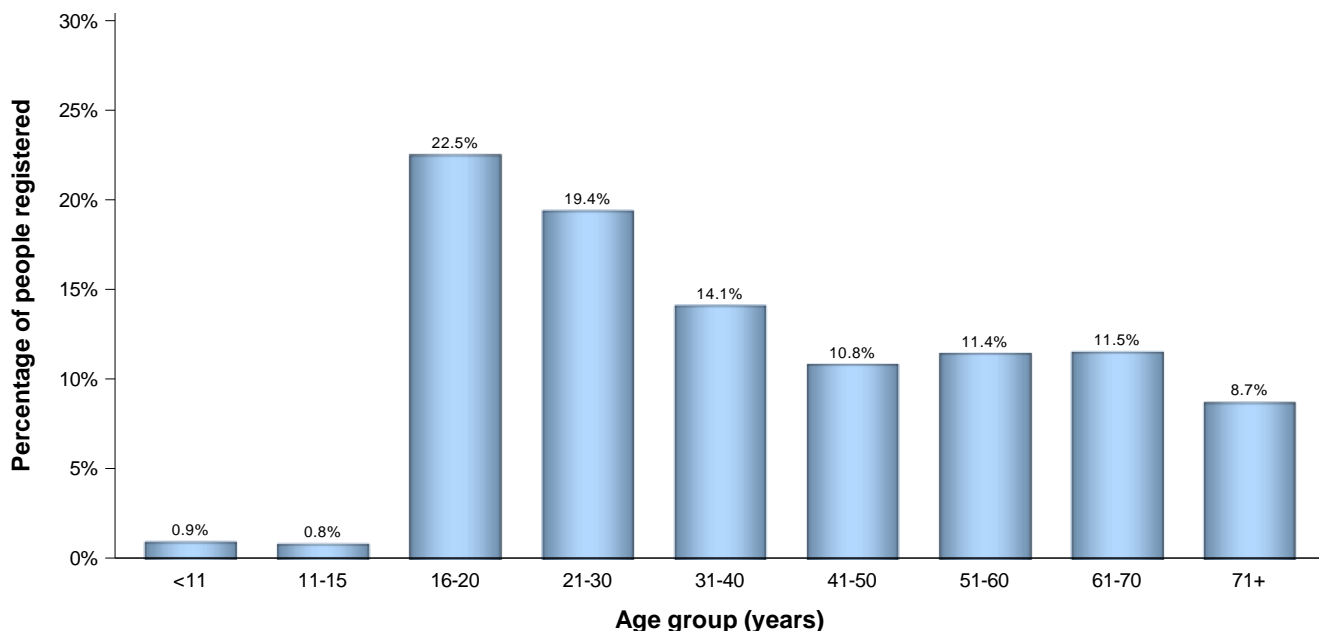
People of all ages are eligible for organ donor registration: the distribution of age by sex at time of opt-in registration is shown in **Figure 12.4**. The highest proportion of registrations (21.5% of males and 23.7% of females) are in the 21-30 years age group. The lowest proportions are in the under 11 and 11-15 age groups. Of all people registered on the NHS Organ Donor Register, 47% are male and 52% are female (1% unknown).

Figure 12.4 Age and gender at registration of total people registered as opt-in on the NHS Organ Donor Register by 31 March 2022

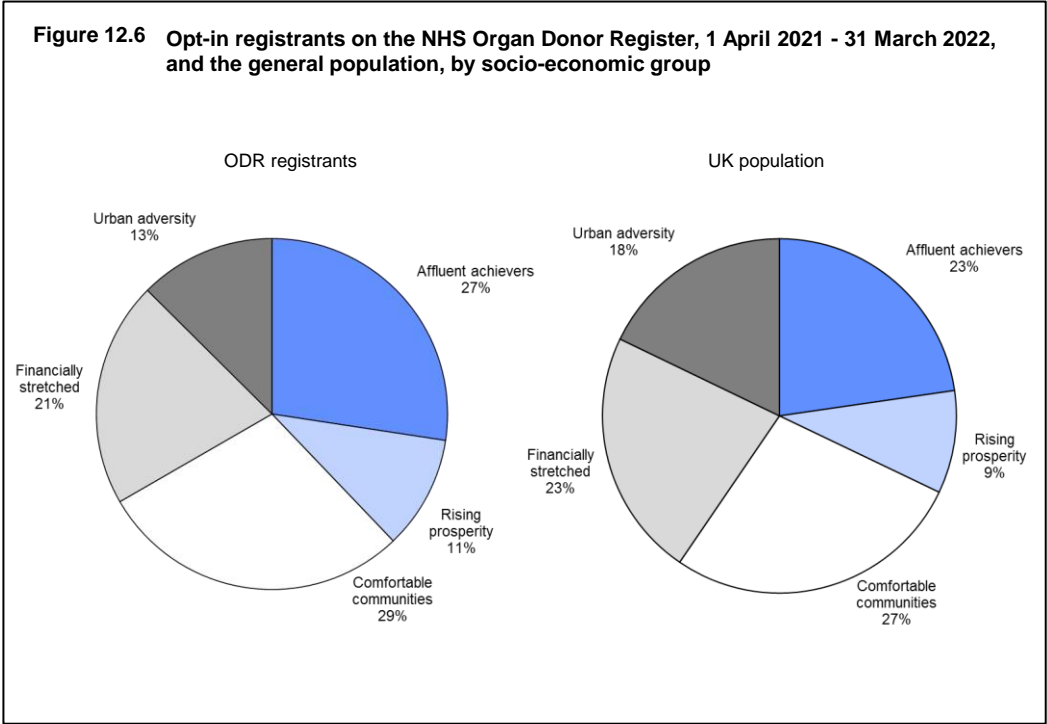


Additionally, the distribution of age of people registering opt-in on the ODR during the latest financial year, 2021-2022, is shown in **Figure 12.5**. The highest proportion of registrations in this year were in the 21-30 years age group. Of the registrants in 2021-2022, 49% were male and 51% were female.

Figure 12.5 Age of people registering as opt-in on the NHS Organ Donor Register between 1 April 2021 and 31 March 2022



The breakdown of opt-in registrants on the ODR during 2021-2022 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 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 37,588 audited deaths reported through the Potential Donor Audit in the financial year to 31 March 2022, including 1,389 (99.4%) of the 1,397 deceased organ donors.
- Compared to the previous financial year, improvements have been observed in the overall referral rate of potential donors, from 84% in 2020/21 to 93% in 2021/22. The proportion of approaches where a Specialist Nurse – Organ Donation was present has remained the same at 93%, however the overall consent/authorisation rate has decreased in 2021/22, from 69% to 66%.
- The consent/authorisation rate was 92% when a patient had expressed an opt in decision, but 92 families overruled their loved one's decision to be an organ donor.
- A significant difference is still apparent in the consent/authorisation rates for white patients and patients from Black, Asian and minority ethnic communities (70% and 38% respectively).

13.1 Introduction

In this chapter, summary data from the National Potential Donor Audit (PDA) are shown for 1 April 2021 to 31 March 2022 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 2022. **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, 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 invasive ventilation, a clinical decision to withdraw treatment has been made and a controlled death is anticipated within a time frame to allow donation to occur.

Neurological death suspected patients who meet all of the following criteria: invasive ventilation, Glasgow Coma Scale 3 not explained by sedation, no respiratory effort, fixed pupils, no cough or gag reflex. Excluding those not tested as cardiac arrest occurred despite resuscitation, brain stem reflexes returned, or neonates less than 2 months post term.

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

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

The proportion of approaches where a SN-OD was present is the percentage of eligible donor donation decision conversations where a SN-OD was present (includes telephone and video call conversations).

Deemed consent applies if a person who died in Wales, England or Jersey meets deemed consent criteria: aged 18 or over, has not expressed an organ donation decision either to opt in, opt out or appoint a representative, has lived in the country in which they died for longer than 12 months and is ordinarily resident there, and had the capacity to understand the notion of deemed consent for a significant period before their death. Note that where a patient has verbally expressed an opt out or opt in decision deemed consent does not apply.

Deemed authorisation applies if a person, who died in Scotland, meets deemed authorisation criteria: aged 16 or over, has not registered or expressed, in writing, an organ donation decision either to opt in or opt out, has lived in Scotland for longer than 12 months and is ordinarily resident there, and had the capacity to understand the notion of deemed authorisation for a significant period before their death. Note that, in Scotland, a patient who has verbally expressed an opt in decision is included as a deemed authorisation, whereas a patient who has verbally expressed an opt out decision is not included.

The consent/authorisation rate is the percentage of eligible donor donation decision conversations where consent/authorisation was ascertained. Note that consent/authorisation rates have not been provided where the number of families approached is less than ten.

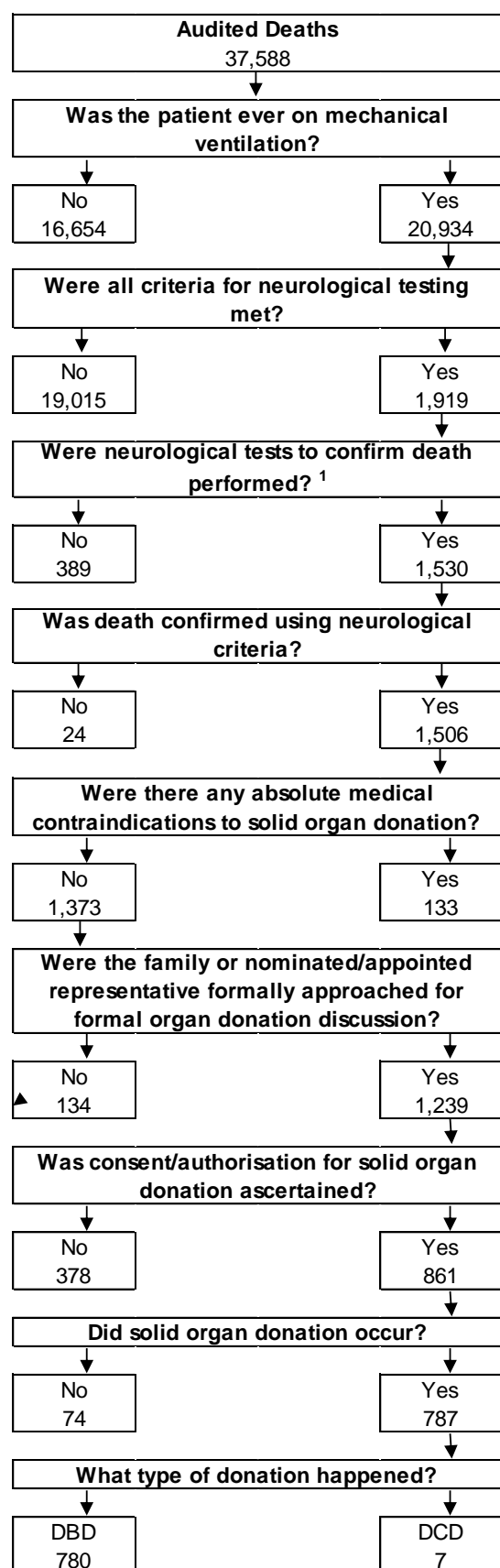
13.3 Breakdown of audited deaths in ICUs and emergency departments, 1 April 2021 – 31 March 2022

In the 12-month period there were a total of 37,588 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 1,389 solid organ donors reported through the PDA, 99.4% of the total 1,397 deceased solid organ donors.

Table 13.1 shows the key percentages calculated from the flow chart information and **Table 13.2** provides a breakdown by Organ Donation Services Team (ODST). Consent/authorisation rates have also been provided, in **Table 13.1**, for cases where the SN-OD was/was not present for the donation decision conversation with the family and by whether there was an expressed opt in decision or consent/authorisation was deemed. Details of expressed opt in decision and deemed consent/authorisation overrides are included in the footnote of the table.

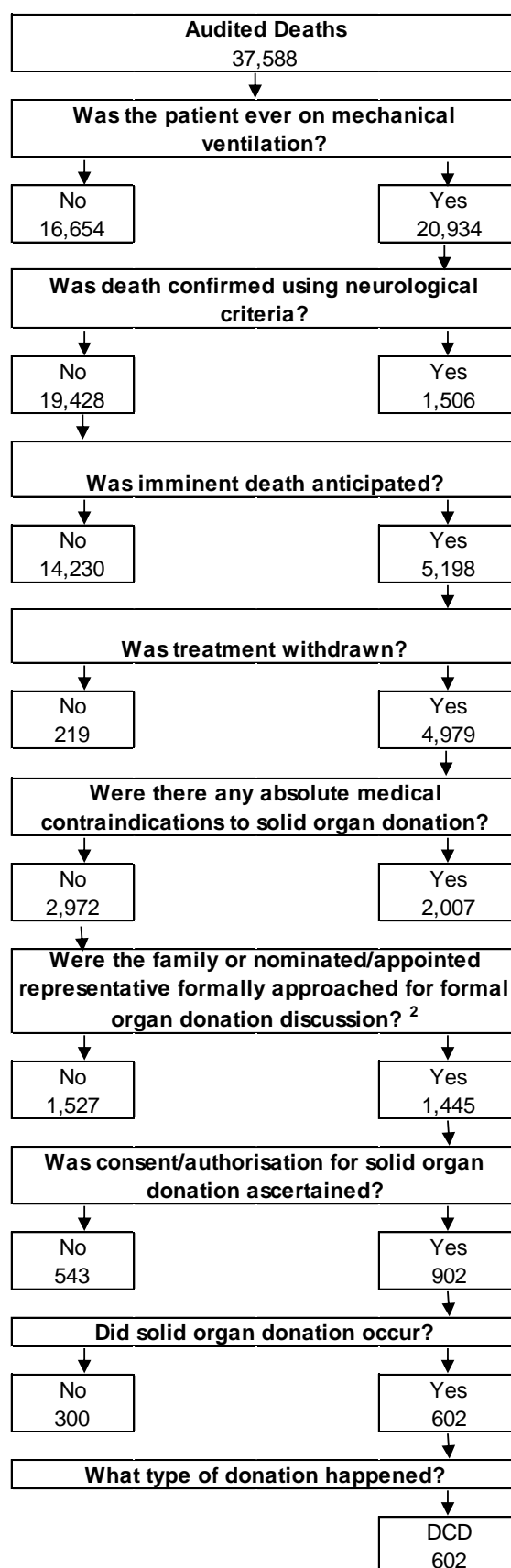
An expressed opt in decision override is a case where the family overruled their loved one's known decision to donate and includes decisions registered on the ODR, those expressed verbally (with the exception of verbal expressions in Scotland which are reported as a deemed authorisation), or those expressed via an appointed/nominated representative. A deemed consent/authorisation override is a case where the family did not support deemed consent/authorisation.

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

Figure 13.2 Donation after circulatory death



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

Table 13.1 Summary of key percentages, 1 April 2021 to 31 March 2022

	DBD	DCD	ALL
Neurological death testing rate	79.7		
Referral rate	98.7	90.4	92.5
Proportion of approaches where a SN-OD was present	95.9	90.4	92.9
Consent/authorisation rate	69.5	62.4	65.7
- SN-OD present for approach	71.0	67.0	68.9
- SN-OD not present for approach	35.3	19.4	23.7
- Expressed opt in*	94.6	89.9	92.1
- Deemed consent/authorisation**	63.1	56.0	59.3
- Other***	65.5	47.2	54.6

* 92 families overruled their loved one's expressed opt in decision to be an organ donor

** There were 889 cases where deemed consent/authorisation applied and in 362 cases the family did not support deemed consent/authorisation

*** Includes patients where nation specific deemed criteria are not met and the patient has not expressed a donation decision in accordance with relevant legislation

Table 13.2 Summary of all deceased donor key percentages by Organ Donation Services Team (ODST), 1 April 2021 to 31 March 2022

ODST	Testing rate	Referral rate	SN-OD presence rate	Consent/authorisation rate
Eastern	77.2	88.6	93.3	64.3
London	80.1	90.4	95.8	59.0
Midlands	77.8	93.8	90.1	58.9
North West	72.2	87.5	94.7	64.6
Northern	85.7	97.0	92.5	69.4
Northern Ireland	73.3	99.2	98.8	76.8
Scotland	86.1	97.9	89.2	66.5
South Central	83.7	96.0	90.4	67.1
South East	83.6	90.1	92.2	68.3
South Wales	90.6	97.2	85.2	62.5
South West	81.0	97.0	93.5	76.8
Yorkshire	78.7	97.3	96.6	71.2
TOTAL	79.7	92.5	92.9	65.7

13.4 Eligible donors

The number of eligible donors (as defined earlier) and rates per million population (pmp) are shown in **Table 13.3**, by NHS region. The number of actual donors pmp can be found in Table 3.2 of Chapter 3. Within NHS regions, eligible DBD ranged from 16.2 pmp in the South West to 32.8 pmp in London. Eligible DCD ranged from 37.6 pmp in the South West to 71.8 pmp in the North West.

Across the countries, there was a range of 39.7 eligible donors pmp in Scotland to 67.8 eligible donors pmp in Wales. Overall, there were 1,373 eligible DBD (20.5 pmp) and 2,972 eligible DCD (44.3 pmp) in the UK, resulting in a total of 64.8 eligible donors per million population. **Tables 13.4** and **13.5** show more detailed information by country/NHS region for DBD and DCD data, respectively.

Table 13.3 Eligible donor rates per million population (pmp), in the UK, 1 April 2021 to 31 March 2022, by country and NHS region						
Country/ NHS region of donation	Eligible DBD		Eligible DCD		TOTAL	
	N	(pmp)	N	(pmp)	N	(pmp)
North East and Yorkshire	175	(20.3)	438	(50.7)	613	(70.9)
North West	134	(18.9)	509	(71.8)	643	(90.7)
Midlands	193	(18.1)	426	(40.0)	619	(58.1)
East of England	114	(17.4)	353	(53.8)	467	(71.2)
London	295	(32.8)	348	(38.7)	643	(71.4)
South East	162	(18.1)	362	(40.5)	524	(58.7)
South West	92	(16.2)	213	(37.6)	305	(53.8)
England	1165	(20.6)	2649	(46.8)	3814	(67.4)
Isle of Man	1	(12.5)	0	(0.0)	1	(12.5)
Channel Islands	2	(11.8)	0	(0.0)	2	(11.8)
Wales	67	(21.1)	148	(46.7)	215	(67.8)
Scotland	85	(15.5)	132	(24.1)	217	(39.7)
Northern Ireland	53	(27.9)	43	(22.6)	96	(50.5)
TOTAL	1373	(20.5)	2972	(44.3)	4345	(64.8)

Table 13.4 DBD key metrics from the Potential Donor Audit, 1 April 2021 to 31 March 2022, by country and NHS region							
Country/ NHS region 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 and Yorkshire	240	82.5	99.6	175	156	98.7	79.5
North West	214	71.5	98.1	134	116	98.3	62.1
Midlands	275	77.8	98.2	193	168	93.5	67.9
East of England	160	75.0	96.3	114	105	94.3	66.7
London	423	80.9	99.3	295	271	97.4	59.8
South East	212	83.5	98.6	162	146	95.2	76.0
South West	121	81.8	99.2	92	89	93.3	80.9
England	1645	79.2	98.6	1165	1051	96.1	69.0
Isle of Man	1	100.0	100.0	1	1	100.0	100.0
Channel Islands	2	100.0	100.0	2	2	100.0	100.0
Wales	88	86.4	97.7	67	60	95.0	73.3
Scotland	108	86.1	100.0	85	75	90.7	66.7
Northern Ireland	75	73.3	100.0	53	50	100.0	78.0
TOTAL	1919	79.7	98.7	1373	1239	95.9	69.5

Table 13.5 DCD key metrics from the Potential Donor Audit, 1 April 2021 to 31 March 2022, by country and NHS region

Country/ NHS region 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 and Yorkshire	808	96.3	438	200	92.0	64.0
North West	910	85.1	509	177	92.7	65.5
Midlands	644	92.7	426	242	88.8	54.1
East of England	755	86.1	353	172	90.1	64.0
London	623	86.2	348	192	92.7	56.8
South East	680	90.7	362	195	89.2	67.2
South West	305	96.4	213	104	91.3	70.2
England	4725	89.9	2649	1282	90.9	62.2
Isle of Man	1	100.0	0	0		
Channel Islands	3	66.7	0	0		
Wales	207	94.2	148	48	77.1	52.1
Scotland	193	96.9	132	83	88.0	66.3
Northern Ireland	69	98.6	43	32	96.9	75.0
TOTAL	5198	90.4	2972	1445	90.4	62.4

Tables 13.6 and **13.7** 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 13.6**, the neurological death testing rate was highest for the South Wales team and the DBD referral rate was 100% for 3 teams. The proportion of DBD approaches where a SN-OD was present was highest for the Northern Ireland team, where a SN-OD was present for 100% of DBD approaches.

Table 13.6 DBD key metrics from the Potential Donor Audit, 1 April 2021 to 31 March 2022, 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	202	77.2	97.0	142	131	95.4	65.6
London	311	80.1	99.0	219	203	97.5	60.6
Midlands	239	77.8	97.9	166	145	92.4	66.9
North West	241	72.2	98.3	152	132	98.5	65.2
Northern	98	85.7	100.0	73	64	98.4	78.1
Northern Ireland	75	73.3	100.0	53	50	100.0	78.0
Scotland	108	86.1	100.0	85	75	90.7	66.7
South Central	129	83.7	99.2	101	93	93.5	74.2
South East	183	83.6	98.9	134	118	96.6	70.3
South Wales	64	90.6	96.9	52	47	93.6	70.2
South West	105	81.0	99.0	79	77	93.5	81.8
Yorkshire	164	78.7	99.4	117	104	99.0	78.8
TOTAL	1919	79.7	98.7	1373	1239	95.9	69.5

Table 13.7 indicates that for DCD patients, the highest referral rate and the highest proportion of DCD approaches for which a SN-OD was present was for the Northern Ireland team. No account has been taken of the demographics of the populations within the teams which may impact on the rates presented.

Table 13.7 DCD key metrics from the Potential Donor Audit, 1 April 2021 to 31 March 2022, 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	863	86.8	394	197	91.9	63.5
London	432	85.0	255	129	93.0	56.6
Midlands	531	92.1	365	210	88.6	53.3
North West	1013	85.5	586	187	92.0	64.2
Northern	342	96.2	195	83	88.0	62.7
Northern Ireland	69	98.6	43	32	96.9	75.0
Scotland	193	96.9	132	83	88.0	66.3
South Central	467	95.3	266	135	88.1	62.2
South East	438	86.5	210	125	88.0	66.4
South Wales	119	97.5	81	41	75.6	53.7
South West	236	95.8	173	91	93.4	72.5
Yorkshire	495	96.8	272	132	94.7	65.2
TOTAL	5198	90.4	2972	1445	90.4	62.4

Table 13.8 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 13.8 is based on the subset of patients who were referred to the ODST.

Table 13.9 shows key metrics separately for adult and paediatric patients, for DBD and DCD, respectively. Note that of the 74 paediatric patients for whom neurological death was suspected, tests were not performed on 28 patients.

Table 13.8 DBD and DCD key metrics from the Potential Donor Audit, 1 April 2021 to 31 March 2022, 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	1838	80.6	1329	1201	96.2	69.6	762
	Emergency dept.	43	72.1	29	29	93.1	72.4	21
	Other	13	92.3	10	7	85.7	57.1	4
	TOTAL	1894	80.5	1368	1237	96.0	69.6	787
DCD	Critical care	4592		2696	1398	91.3	63.5	594
	Emergency dept.	87		56	31	71.0	32.3	5
	Other	21		12	8	87.5	50.0	3
	TOTAL	4700		2764	1437	90.9	62.8	602

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 7 DCD donors referred from critical care

Table 13.9 DBD and DCD key metrics from the Potential Donor Audit, 1 April 2021 to 31 March 2022, 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)	1845	80.4	98.8	1329	1204	95.9	69.6	764
	Paediatric (<18)	74	62.2	97.3	44	35	94.3	65.7	23
	TOTAL	1919	79.7	98.7	1373	1239	95.9	69.5	787
DCD	Adult (>=18)	4998		90.5	2815	1384	91.0	63.2	585
	Paediatric (<18)	200		89.0	157	61	75.4	44.3	17
	TOTAL	5198		90.4	2972	1445	90.4	62.4	602

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

² Actual donors resulting from eligible DBD donors includes 5 DCD donors aged 18 and over and 2 donors aged under 18

13.5 Consent/ authorisation rates

The overall DBD consent/authorisation rate was 70% and the 95% confidence limits for this percentage are 67% - 72%. For DCD, the overall rate was 62% and the 95% confidence limits are 60% - 65%.

Across the country/NHS region, the DBD consent/authorisation rates range from 60% in London to 81% in the South West. DCD consent/authorisation rates range from 54% in the Midlands to 70% in the South West (**Tables 13.4 and 13.5**).

The overall consent/authorisation rates (combining DBD and DCD) for England, Wales, Scotland and Northern Ireland were 65%, 64%, 67% and 77%, respectively.

Consent/authorisation rates by Organ Donation Services Team are illustrated in **Figure 13.3** 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, prior opt in decision and ethnicity.

Across the Organ Donation Services Teams, the DBD consent/authorisation rates range from 61% in the London team to 82% in the South West team. DCD consent/authorisation rates range from 53% in the Midlands team to 75% in the Northern Ireland team.

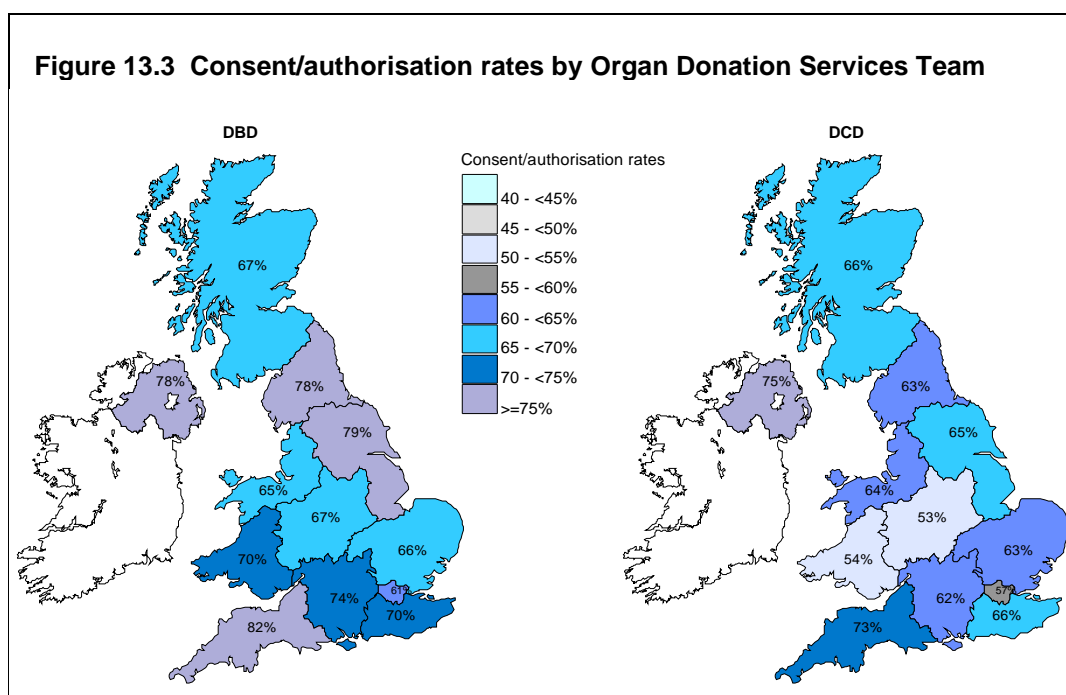


Table 13.10 shows the consent/authorisation rate separately for white patients and patients from Black, Asian and minority ethnic (BAME) communities. The national DBD consent/authorisation rates for white patients and patients from BAME communities were 75% and 42%, respectively. A smaller, but still significant, difference was observed for DCD consent/authorisation rates: 66% and 32%, respectively. Note that there were an additional 12 DBD and 18 DCD families approached where the ethnicity was not known or not reported.

The Northern, Northern Ireland, Scotland and South West teams each accounted for only 2% or less where patients from BAME communities' families were approached for a decision about organ donation, whereas London accounted for 37%. Most teams had a very small proportion, therefore accounting for some of the variation observed in overall consent/authorisation rates between teams. Note that consent/authorisation rates have not been provided where the number of families approached is less than ten.

Table 13.10 DBD and DCD consent/authorisation rates from the Potential Donor Audit, 1 April 2021 to 31 March 2022, by Organ Donation Services Team (ODST) and ethnicity											
ODST	White eligible donors					Eligible donors from BAME¹ 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 (%)²
Eastern	109	69.7	182	67.0	68.0	20	50.0	13	23.1	39.4	64.3
London	123	74.8	82	73.2	74.1	79	38.0	45	28.9	34.7	59.0
Midlands	114	73.7	184	57.1	63.4	31	41.9	26	26.9	35.1	58.9
North West	114	69.3	179	65.4	66.9	17	35.3	7	-	37.5	64.6
Northern	61	80.3	78	64.1	71.2	3	-	5	-	37.5	69.4
Northern Ireland	48	77.1	32	75.0	76.3	2	-	0	-	100.0	76.8
Scotland	72	66.7	76	69.7	68.2	1	-	2	-	33.3	66.5
South Central	85	75.3	125	63.2	68.1	7	-	9	-	56.3	67.1
South East	93	78.5	113	70.8	74.3	25	40.0	11	27.3	36.1	68.3
South Wales	39	79.5	33	60.6	70.8	5	-	5	-	30.0	62.5
South West	75	82.7	85	74.1	78.1	1	-	3	-	75.0	76.8
Yorkshire	94	80.9	125	67.2	73.1	9	-	7	-	43.8	71.2
TOTAL	1027	75.1	1294	66.2	70.1	200	41.5	133	32.3	37.8	65.7

¹BAME = Black, Asian and minority ethnic

²Includes 30 families approached where the ethnicity was not known or not reported

Table 13.11 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 decision not to donate. Overall, this reason was reported in 30% of cases.

Table 13.11 Reasons why the family did not support organ donation, 1 April 2021 to 31 March 2022, by donor type						
Primary reason why family did not support organ donation	Donor type				Total	
	DBD		DCD			
	N	%	N	%	N	%
Patient had registered a decision to Opt Out	23	6.1	20	3.7	43	4.7
Patient had previously expressed a wish not to donate	125	33.1	148	27.3	273	29.6
Family were not sure whether the patient would have agreed to donation	35	9.3	64	11.8	99	10.7
Family did not believe in donation	10	2.6	13	2.4	23	2.5
Family felt it was against their religious/cultural beliefs	39	10.3	24	4.4	63	6.8
Family divided over the decision	13	3.4	11	2.0	24	2.6
Family felt patient had suffered enough	26	6.9	42	7.7	68	7.4
Family did not want surgery to the body	35	9.3	46	8.5	81	8.8
Family wanted to stay with the patient after death	2	0.5	5	0.9	7	0.8
Family had difficulty understanding/accepting neurological testing	2	0.5	0	-	2	0.2
Family felt the length of time for the donation process was too long	15	4.0	85	15.7	100	10.9
Family concerned other people may disapprove/be offended	3	0.8	1	0.2	4	0.4
Family felt that the body should be buried whole (unrelated to religious/cultural reasons)	16	4.2	9	1.7	25	2.7
Family concerned that organs may not be transplantable	1	0.3	4	0.7	5	0.5
Family concerned donation may delay the funeral	0	-	2	0.4	2	0.2
Strong refusal - probing not appropriate	13	3.4	23	4.2	36	3.9
Other	20	5.3	46	8.5	66	7.2
TOTAL	378	100	543	100	921	100

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

Table 13.12 shows the proportion of family approaches where a SN-OD was present, for DBD and DCD separately, and overall. Nationally, 96% of DBD and 90% 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 13.12 Percentage of family approaches for which a Specialist Nurse - Organ Donation (SN-OD) was present from the Potential Donor Audit, 1 April 2021 to 31 March 2022, 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	131	125	95.4	197	181	91.9	93.3
London	203	198	97.5	129	120	93.0	95.8
Midlands	145	134	92.4	210	186	88.6	90.1
North West	132	130	98.5	187	172	92.0	94.7
Northern	64	63	98.4	83	73	88.0	92.5
Northern Ireland	50	50	100.0	32	31	96.9	98.8
Scotland	75	68	90.7	83	73	88.0	89.2
South Central	93	87	93.5	135	119	88.1	90.4
South East	118	114	96.6	125	110	88.0	92.2
South Wales	47	44	93.6	41	31	75.6	85.2
South West	77	72	93.5	91	85	93.4	93.5
Yorkshire	104	103	99.0	132	125	94.7	96.6
TOTAL	1239	1188	95.9	1445	1306	90.4	92.9

Table 13.13 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 numbers of approaches are very small where a SN-OD is not present and no account has been taken of approaches initiated by the family, a patient's prior opt in decision or ethnicity.

Table 13.13 DBD and DCD consent/authorisation rates with/without a SN-OD present from the Potential Donor Audit, 1 April 2021 to 31 March 2022, 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	125	65.6	181	65.7	65.7	6	66.7	16	37.5	45.5	64.3
London	198	61.1	120	60.0	60.7	5	40.0	9	11.1	21.4	59.0
Midlands	134	70.1	186	57.0	62.5	11	27.3	24	25.0	25.7	58.9
North West	130	66.2	172	69.2	67.9	2	0.0	15	6.7	5.9	64.6
Northern	63	79.4	73	71.2	75.0	1	0.0	10	0.0	0.0	69.4
Northern Ireland	50	78.0	31	77.4	77.8	0		1	0.0	0.0	76.8
Scotland	68	70.6	73	74.0	72.3	7	28.6	10	10.0	17.6	66.5
South Central	87	77.0	119	68.9	72.3	6	33.3	16	12.5	18.2	67.1
South East	114	71.1	110	70.9	71.0	4	50.0	15	33.3	36.8	68.3
South Wales	44	75.0	31	64.5	70.7	3	0.0	10	20.0	15.4	62.5
South West	72	83.3	85	76.5	79.6	5	60.0	6	16.7	36.4	76.8
Yorkshire	103	79.6	125	67.2	72.8	1	0.0	7	28.6	25.0	71.2
TOTAL	1188	71.0	1306	67.0	68.9	51	35.3	139	19.4	23.7	65.7

13.7 Comparison with previous years

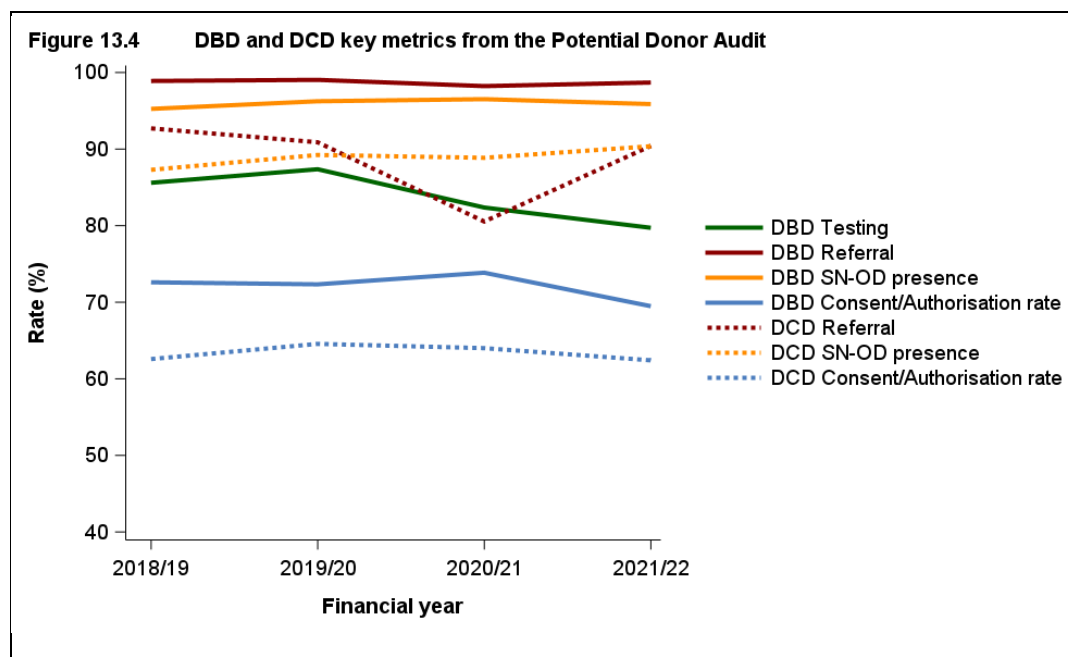
Table 13.14 and **Figure 13.4** show the key metrics from the Potential Donor Audit (PDA) for the last four financial years.

Table 13.14 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	2018-2019	2008	85.6	98.9	1639	1497	95.3	1087	72.6	976
	2019-2020	1996	87.4	99.0	1658	1468	96.3	1062	72.3	946
	2020-2021	1810	82.4	98.2	1353	1209	96.5	893	73.9	779
	2021-2022	1919	79.7	98.7	1373	1239	95.9	861	69.5	787
DCD	2018-2019	5982		92.7	4186	1756	87.3	1099	62.6	612
	2019-2020	6296		90.9	4349	1812	89.2	1170	64.6	621
	2020-2021	5938		80.5	2851	1042	88.9	667	64.0	402
	2021-2022	5198		90.4	2972	1445	90.4	902	62.4	602
TOTAL	2018-2019	7739		94.3	5825	3253	91.0	2186	67.2	1588
	2019-2020	8079		92.8	6007	3280	92.4	2232	68.0	1568
	2020-2021	7465		84.4	4204	2251	93.0	1560	69.3	1182
	2021-2022	6767		92.5	4345	2684	92.9	1763	65.7	1389

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

² Actual donors resulting from eligible DBD donors includes 24 DCD donors in 2018-2019, 10 DCD donors in 2019-2020, 12 DCD donors in 2020-2021 and 7 DCD donors in 2021/22

DBD referral rates have remained unchanged, with DCD referral rates falling slightly in 2019/20 and 2020/21. The DCD referral rate has increased in 2021/22. Increases have been observed in the proportion of approaches where a SN-OD was present. The consent/authorisation rate for DCD has remained unchanged whereas the DBD rate has fallen slightly.



13.8 Consented/authorised cases not proceeding to solid organ donation

Consent/authorisation for donation was ascertained for 861 eligible DBD donors and 902 eligible DCD donors; 787 (91%) and 602 (67%) of these cases proceeded to donate at least one solid organ, respectively. **Table 13.15** shows the reasons why donation did not proceed for the 74 eligible DBD and 300 eligible DCD cases where consent/authorisation was ascertained. The main reason reported for consented/authorised eligible DBD donors not proceeding to donate was that the organs were deemed to be medically unsuitable by transplant centres. The main reason for consented/authorised DCD donors was prolonged time to asystole, meaning that the donor did not die in a timeframe suitable for organ donation.

Table 13.15 Reasons why consented/authorised eligible donors did not proceed to donate, 1 April 2021 to 31 March 2022, by donor type

Primary reason why donation did not proceed	Donor type					
	DBD		DCD		Total	
	N	%	N	%	N	%
Clinical - Absolute contraindication to organ donation	4	5.4	6	2.0	10	2.7
Clinical - No transplantable organ	5	6.8	21	7.0	26	7.0
Clinical - Patient's general medical condition	0	-	6	2.0	6	1.6
Clinical - Patient actively dying	6	8.1	14	4.7	20	5.3
Clinical - Considered high risk donor	3	4.1	5	1.7	8	2.1
Clinical - PTA post WLST	0	-	135	45.0	135	36.1
Clinical - Organs deemed medically unsuitable by recipient centres	25	33.8	70	23.3	95	25.4
Clinical - Organs deemed medically unsuitable on surgical inspection	8	10.8	4	1.3	12	3.2
Clinical - Positive virology	3	4.1	5	1.7	8	2.1
Clinical - Other	3	4.1	10	3.3	13	3.5
Consent / Auth - Coroner/Procurator fiscal refusal	11	14.9	11	3.7	22	5.9
Consent / Auth - Known wish not to donate	1	1.4	1	0.3	2	0.5
Consent / Auth - NOK withdraw consent / authorisation	5	6.8	8	2.7	13	3.5
Consent / Auth - Other	0	-	2	0.7	2	0.5
Logistical - No critical care bed available	0	-	1	0.3	1	0.3
Logistical - Other	0	-	1	0.3	1	0.3
TOTAL	74	100	300	100	374	100



Appendices

Appendix I provides details of the 1397 deceased solid organ donors reported in 2021-2022. Details are given for each donating hospital and the hospitals have been grouped by NHS Region and country.

The number of donors by donor country/ NHS Region 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 / NHS Region per million population are given in **Appendix III** these populations are mid-2020 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 2021 - 31 March 2022 (2020-2021), by donating hospital														
Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Pancreas	Liver	Bowel	Heart	Lung
South West														
Barnstaple, North Devon District Hospital	2	(4)	0	(1)	2	(5)	1	(5)	2	0	1	0	0	0
Bath, Royal United Hospital	5	(5)	2	(1)	7	(6)	5	(10)	7	1	5	0	1	0
Bournemouth, Royal Bournemouth General Hospital	5	(6)	4	(3)	9	(9)	6	(12)	8	1	7	0	0	0
Bristol, Bristol Royal Hospital For Children	3	(1)	1	(2)	4	(3)	4	(6)	4	4	3	2	3	0
Bristol, Bristol Royal Infirmary	8	(5)	8	(4)	16	(9)	10	(14)	16	3	10	0	1	2
Bristol, Southmead Hospital	10	(25)	12	(5)	22	(30)	17	(43)	22	3	14	2	2	1
Cheltenham, Cheltenham General Hospital	1	(1)	1	(2)	2	(3)	1	(3)	1	1	2	0	0	0
Dorchester, Dorset County Hospital	2	(2)	1	(1)	3	(3)	2	(3)	3	0	2	0	0	0
Exeter, Royal Devon And Exeter Hospital (Wonford)	4	(1)	3	(3)	7	(4)	4	(6)	6	2	5	0	1	1
Gloucester, Gloucestershire Royal Hospital	4	(6)	3	(0)	7	(6)	4	(9)	7	0	3	0	0	1
Plymouth, Derriford Hospital	11	(9)	8	(5)	19	(14)	16	(28)	19	6	14	0	2	1
Poole, Poole General Hospital	3	(1)	1	(1)	4	(2)	4	(5)	4	0	4	0	1	0
Salisbury, Salisbury District Hospital	2	(2)	0	(0)	2	(2)	0	(1)	0	0	2	0	0	0
Swindon, Great Western Hospital	2	(2)	3	(1)	5	(3)	5	(8)	5	0	5	0	0	0
Taunton, Taunton And Somerset Hospital (Musgrove Park)	1	(2)	4	(1)	5	(3)	3	(6)	5	2	3	0	1	0
Torquay, Torbay Hospital	2	(1)	2	(0)	4	(1)	4	(4)	4	2	4	1	0	1
Truro, Royal Cornwall Hospital (Treliske)	3	(6)	4	(2)	7	(8)	4	(9)	7	1	4	0	0	0
Weston-Super-Mare, Weston General Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0	0
Yeovil, Yeovil District Hospital	1	(2)	0	(1)	1	(3)	1	(3)	1	1	1	0	1	0
TOTAL	69	(81)	57	(34)	126	(115)	91	(176)	121	27	89	5	13	7
South East														
Ashford, William Harvey Hospital	7	(3)	2	(4)	9	(7)	8	(11)	8	0	9	0	2	0
Aylesbury, Stoke Mandeville Hospital	0	(5)	1	(0)	1	(5)	1	(4)	1	0	1	0	0	0
Basingstoke, North Hampshire Hospital	2	(2)	4	(0)	6	(2)	3	(5)	6	0	3	0	0	0
Brighton, Royal Sussex County Hospital	10	(7)	11	(8)	21	(15)	14	(25)	20	8	12	0	6	3
Camberley, Frimley Park Hospital	6	(6)	2	(1)	8	(7)	7	(13)	8	3	7	1	3	0
Chertsey, St Peter's Hospital	1	(4)	3	(3)	4	(7)	3	(8)	4	1	3	0	0	1
Chichester, St Richard's Hospital	4	(1)	3	(3)	7	(4)	5	(7)	7	1	5	0	1	1
Dartford, Darent Valley Hospital	3	(2)	0	(0)	3	(2)	2	(4)	2	1	3	0	0	0
Eastbourne, Eastbourne District General Hospital	1	(1)	4	(2)	5	(3)	4	(5)	5	2	4	0	2	1
Epsom, Epsom District Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0	0
Gillingham, Medway Hospital	7	(3)	4	(1)	11	(4)	8	(11)	10	5	8	0	0	1
Guildford, Royal Surrey County Hospital	1	(3)	1	(0)	2	(3)	2	(5)	2	0	2	0	1	0
Hastings, Conquest Hospital	0	(1)	1	(0)	1	(1)	1	(2)	1	1	1	0	0	0
Haywards Heath, Princess Royal Hospital	1	(1)	1	(1)	2	(2)	1	(3)	2	1	1	0	0	0
Maidstone, Maidstone Hospital	1	(1)	0	(0)	1	(1)	1	(2)	1	0	1	0	0	0

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2021 - 31 March 2022 (2020-2021), by donating hospital														
Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Pancreas	Liver	Bowel	Heart	Lung
Margate, The Queen Elizabeth The Queen Mother Hospital	1	(2)	1	(0)	2	(2)	1	(3)	2	0	1	0	0	0
Newport, St Mary's Hospital	1	(1)	0	(0)	1	(1)	0	(1)	0	0	1	0	0	0
Oxford, John Radcliffe Hospital	11	(11)	15	(7)	26	(18)	22	(36)	24	7	22	0	3	2
Portsmouth, Queen Alexandra Hospital	5	(5)	4	(2)	9	(7)	5	(9)	8	1	6	0	0	1
Reading, Royal Berkshire Hospital	4	(4)	7	(3)	11	(7)	7	(11)	11	4	7	1	2	1
Redhill, East Surrey Hospital	1	(5)	2	(0)	3	(5)	3	(8)	3	1	2	0	1	2
Slough, Wexham Park Hospital	1	(3)	2	(2)	3	(5)	2	(5)	3	1	2	0	1	0
Southampton, Southampton University Hospitals	23	(22)	23	(11)	46	(33)	38	(62)	44	16	37	1	10	9
Tunbridge Wells, Tunbridge Wells Hospital	3	(3)	1	(0)	4	(3)	3	(4)	4	1	3	0	0	0
Winchester, Royal Hampshire County Hospital	2	(0)	1	(1)	3	(1)	3	(3)	3	1	3	0	1	0
Worthing, Worthing Hospital	0	(4)	4	(4)	4	(8)	1	(8)	4	1	1	0	0	1
Wycombe, Wycombe General Hospital	3	(2)	1	(0)	4	(2)	4	(5)	4	1	4	0	0	0
TOTAL	99	(102)	98	(54)	197	(156)	149	(261)	187	57	149	3	33	23
London														
Barnet, Barnet General Hospital	2	(1)	0	(1)	2	(2)	2	(3)	2	1	2	0	1	0
Carshalton, St Helier Hospital	0	(3)	0	(0)	0	(3)	0	(2)	0	0	0	0	0	0
Croydon, Croydon University Hospital	1	(2)	1	(0)	2	(2)	0	(2)	1	0	1	0	0	0
Evelina Childrens Hospital	0	(0)	1	(0)	1	(0)	1	(1)	1	0	1	0	0	0
Harefield, Harefield Hospital	0	(0)	3	(0)	3	(0)	1	(1)	3	0	1	0	0	0
Harrow, Northwick Park Hospital	7	(2)	2	(2)	9	(4)	7	(10)	7	2	9	0	2	2
Ilford, King George Hospital	1	(0)	0	(0)	1	(0)	0	(0)	0	0	1	0	0	0
Isleworth, West Middlesex University Hospital	2	(4)	2	(0)	4	(4)	1	(4)	3	0	2	0	0	0
Kingston, Kingston Hospital	1	(1)	2	(0)	3	(1)	3	(4)	3	1	3	0	0	1
London, Charing Cross Hospital	10	(13)	6	(2)	16	(15)	10	(25)	15	3	10	1	2	1
London, Great Ormond Street Hospital For Children	2	(0)	1	(1)	3	(1)	3	(4)	3	2	2	0	2	0
London, Hammersmith Hospital	1	(0)	2	(2)	3	(2)	2	(3)	3	0	2	0	0	0
London, Homerton Hospital	2	(0)	0	(0)	2	(0)	1	(1)	1	1	2	0	0	0
London, King's College Hospital	32	(28)	16	(11)	48	(39)	39	(69)	46	15	40	4	3	3
London, National Hospital For Neurology And Neurosurgery	8	(3)	1	(2)	9	(5)	7	(10)	9	4	7	0	0	0
London, Newham General Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0	0
London, North Middlesex Hospital	2	(2)	0	(0)	2	(2)	2	(3)	2	0	1	0	1	0
London, Royal Brompton Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0	0
London, St Bartholomew's Hospital	0	(1)	1	(2)	1	(3)	0	(3)	1	0	0	0	0	0
London, St George's Hospital	20	(22)	13	(7)	33	(29)	20	(43)	31	7	22	0	1	4
London, St Mary's Hospital	3	(5)	5	(3)	8	(8)	6	(11)	8	2	4	0	3	1
London, St Thomas' Hospital	3	(2)	2	(3)	5	(5)	3	(6)	5	1	3	0	0	0
London, The Queen Elizabeth Hospital	1	(3)	0	(0)	1	(3)	1	(3)	1	1	0	0	0	0

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Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Pancreas	Liver	Bowel	Heart	Lung
London, The Royal Free Hospital	4	(1)	0	(0)	4	(1)	4	(4)	4	1	4	0	0	0
London, The Royal London Hospital (Whitechapel)	15	(9)	5	(3)	20	(12)	17	(25)	19	6	17	0	8	5
London, University College Hospital	1	(1)	1	(1)	2	(2)	1	(2)	2	0	1	0	0	0
London, University Hospital Lewisham	1	(2)	0	(0)	1	(2)	1	(3)	1	0	1	0	0	1
London, Whipps Cross Hospital	1	(0)	0	(0)	1	(0)	1	(1)	1	1	1	0	0	0
London, Whittington Hospital	2	(2)	1	(0)	3	(2)	2	(4)	3	0	2	0	0	0
Orpington, Princess Royal University Hospital	5	(2)	0	(0)	5	(2)	5	(7)	4	1	5	0	1	1
Romford, Queens Hospital	11	(6)	8	(3)	19	(9)	17	(23)	19	5	17	0	1	1
Southall, Ealing Hospital	2	(0)	1	(0)	3	(0)	2	(2)	3	0	2	0	1	0
Uxbridge, Hillingdon Hospital	1	(0)	2	(0)	3	(0)	1	(1)	3	1	1	0	1	1
TOTAL	141	(115)	76	(45)	217	(160)	160	(280)	204	55	164	5	27	21
East of England														
Basildon, Basildon Hospital	7	(5)	4	(6)	11	(11)	8	(15)	9	3	9	0	1	1
Bedford, Bedford Hospital	3	(1)	0	(1)	3	(2)	3	(5)	3	1	3	0	1	0
Bury St Edmunds, West Suffolk Hospital	1	(1)	4	(2)	5	(3)	4	(6)	5	2	4	0	0	0
Cambridge, Addenbrooke's Hospital	18	(11)	23	(21)	41	(32)	29	(49)	39	7	26	2	7	6
Chelmsford, Broomfield Hospital	1	(3)	0	(0)	1	(3)	1	(2)	1	1	1	0	0	0
Colchester, Colchester General Hospital	2	(1)	0	(1)	2	(2)	2	(3)	2	1	2	1	1	1
Great Yarmouth, The James Paget Hospital	3	(2)	2	(0)	5	(2)	3	(5)	5	1	3	0	0	1
Harlow, Princess Alexandra Hospital	1	(2)	0	(0)	1	(2)	0	(1)	0	0	1	0	0	0
Huntingdon, Hinchingsbrooke Hospital	1	(1)	0	(0)	1	(1)	1	(2)	1	1	1	0	0	0
Ipswich, Ipswich Hospital	2	(1)	7	(0)	9	(1)	5	(6)	8	2	6	0	1	1
Kings Lynn, Queen Elizabeth Hospital	3	(2)	2	(1)	5	(3)	5	(6)	5	4	5	0	2	1
Luton, Luton And Dunstable Hospital	3	(2)	1	(2)	4	(4)	4	(7)	4	1	4	0	0	0
Milton Keynes, Milton Keynes General Hospital	1	(0)	1	(0)	2	(0)	1	(1)	2	1	1	0	0	1
Norwich, Norfolk And Norwich University Hospital	4	(8)	13	(11)	17	(19)	9	(24)	17	2	9	0	1	0
Papworth, Papworth Hospital	5	(1)	3	(2)	8	(3)	7	(9)	8	1	7	0	0	0
Peterborough, Peterborough City Hospital	2	(7)	5	(0)	7	(7)	5	(10)	7	0	5	0	0	0
Stevenage, Lister Hospital	2	(7)	4	(0)	6	(7)	3	(8)	6	0	2	0	1	0
Watford, Watford General Hospital	3	(5)	1	(0)	4	(5)	1	(3)	4	0	1	0	0	0
Westcliff On Sea, Southend Hospital	0	(1)	2	(2)	2	(3)	2	(4)	2	0	2	0	0	0
TOTAL	62	(61)	72	(49)	134	(110)	93	(166)	128	28	92	3	15	12
Midlands														
Birmingham, Birmingham Children's Hospital	2	(1)	0	(0)	2	(1)	2	(3)	2	1	2	1	2	0
Birmingham, Birmingham Heartlands Hospital	2	(3)	0	(3)	2	(6)	1	(6)	1	0	2	0	0	0
Birmingham, City Hospital	1	(2)	4	(2)	5	(4)	3	(6)	5	0	3	0	1	0

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Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Pancreas	Liver	Bowel	Heart	Lung
Birmingham, Queen Elizabeth Hospital Birmingham	8	(12)	5	(3)	13	(15)	11	(24)	11	2	12	0	2	1
Boston, Pilgrim Hospital	1	(0)	1	(1)	2	(1)	2	(2)	2	1	2	0	1	1
Burton-On-Trent, Queen's Hospital	0	(0)	0	(2)	0	(2)	0	(0)	0	0	0	0	0	0
Chesterfield, Chesterfield And N Derbyshire Royal Hospital	5	(3)	1	(0)	6	(3)	6	(9)	6	2	6	0	0	0
Coventry, University Hospital (Walsgrave)	15	(8)	14	(4)	29	(12)	21	(31)	29	8	21	1	3	1
Derby, Royal Derby Hospital	6	(2)	6	(3)	12	(5)	9	(11)	12	2	9	0	0	3
Dudley, Russells Hall Hospital	1	(3)	1	(0)	2	(3)	2	(5)	2	2	2	0	1	0
Hereford, The County Hospital	1	(0)	0	(0)	1	(0)	1	(1)	1	0	1	0	0	0
Kettering, Kettering General Hospital	1	(0)	4	(1)	5	(1)	3	(4)	4	1	3	0	1	0
Leicester, Glenfield General Hospital	1	(0)	4	(0)	5	(0)	1	(1)	4	0	2	0	0	0
Leicester, Leicester Royal Infirmary	10	(2)	2	(1)	12	(3)	10	(12)	12	4	10	0	3	0
Lincoln, Lincoln County Hospital	1	(1)	5	(3)	6	(4)	1	(3)	5	0	2	0	0	0
Northampton, Northampton General Hospital	4	(2)	2	(2)	6	(4)	4	(8)	5	2	5	0	0	0
Nottingham, Nottingham University Hospitals City Campus	1	(0)	3	(2)	4	(2)	3	(4)	4	1	3	0	0	1
Nottingham, Nottingham University Hospitals Qmc Campus	17	(25)	17	(19)	34	(44)	26	(62)	33	7	23	0	8	5
Nuneaton, George Eliot Hospital	0	(1)	1	(0)	1	(1)	1	(2)	1	1	1	0	1	0
Redditch, Alexandra Hospital	1	(1)	0	(0)	1	(1)	1	(2)	1	1	1	0	0	0
Shrewsbury, Royal Shrewsbury Hospital	0	(1)	1	(0)	1	(1)	0	(1)	1	0	0	0	0	0
Stoke-On-Trent, Royal Stoke University Hospital	11	(7)	19	(8)	30	(15)	22	(36)	29	9	21	1	6	6
Sutton Coldfield, Good Hope District General Hosp.	1	(2)	2	(2)	3	(4)	1	(5)	3	1	1	0	0	0
Sutton-In-Ashfield, King's Mill Hospital	2	(0)	1	(0)	3	(0)	3	(3)	3	0	2	0	0	1
Telford, Princess Royal Hospital	2	(1)	0	(1)	2	(2)	2	(4)	2	0	2	0	0	0
Walsall, Walsall Manor Hospital	1	(3)	0	(0)	1	(3)	1	(3)	1	1	1	0	0	0
Warwick, Warwick Hospital	1	(2)	2	(0)	3	(2)	3	(5)	3	1	3	0	0	0
West Bromwich, Sandwell District General Hospital	4	(1)	1	(0)	5	(1)	4	(5)	5	1	3	0	2	1
Wolverhampton, New Cross Hospital	2	(1)	4	(5)	6	(6)	5	(8)	6	1	5	0	0	0
Worcester, Worcestershire Royal Hospital	4	(1)	4	(3)	8	(4)	6	(8)	8	4	6	0	1	0
TOTAL	106	(85)	104	(65)	210	(150)	155	(274)	201	53	154	3	32	20
North West														
Ashton-Under-Lyne, Tameside General Hospital	1	(0)	0	(0)	1	(0)	1	(1)	1	0	1	0	0	0
Blackburn, Royal Blackburn Hospital	2	(2)	4	(1)	6	(3)	2	(2)	6	1	2	0	1	0
Blackpool, Blackpool Victoria Hospital	5	(1)	3	(1)	8	(2)	6	(8)	8	1	6	0	0	0
Bolton, Royal Bolton Hospital	2	(1)	1	(1)	3	(2)	3	(5)	3	1	3	0	1	1
Bury, Fairfield General Hospital	1	(5)	1	(0)	2	(5)	1	(4)	2	0	1	0	0	0
Chester, Countess Of Chester Hospital	4	(1)	4	(2)	8	(3)	3	(4)	7	0	4	0	0	0
Crewe, Leighton Hospital	1	(2)	0	(0)	1	(2)	1	(3)	1	0	1	0	1	0
Lancaster, Royal Lancaster Infirmary	2	(3)	0	(1)	2	(4)	1	(4)	2	1	1	0	0	0

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Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Pancreas	Liver	Bowel	Heart	Lung
Liverpool, Alder Hey Children's Hospital	1	(2)	0	(1)	1	(3)	1	(4)	1	1	1	1	1	1
Liverpool, Liverpool Heart And Chest Hospital	3	(0)	4	(1)	7	(1)	4	(4)	6	1	5	1	0	0
Liverpool, Royal Liverpool University Hospital	2	(1)	2	(0)	4	(1)	4	(4)	4	1	4	1	2	1
Liverpool, University Hospital Aintree	3	(5)	3	(5)	6	(10)	5	(10)	6	2	5	0	1	0
Liverpool, Walton Centre For Neurology And Neurosurgery	4	(10)	3	(7)	7	(17)	2	(15)	6	0	3	0	0	0
Macclesfield, Macclesfield District General Hospital	0	(1)	0	(1)	0	(2)	0	(1)	0	0	0	0	0	0
Manchester, Manchester Royal Infirmary	6	(4)	3	(0)	9	(4)	8	(10)	9	2	8	0	1	0
Manchester, North Manchester General Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0	0
Manchester, Royal Manchester Children's Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0	0
Manchester, Wythenshawe Hospital	3	(1)	3	(2)	6	(3)	5	(7)	6	1	4	0	0	2
Oldham, Royal Oldham Hospital(Rochdale Road)	0	(0)	2	(1)	2	(1)	1	(1)	2	0	1	0	0	0
Prescot, Whiston Hospital	3	(7)	2	(0)	5	(7)	4	(10)	5	1	4	0	1	0
Preston, Royal Preston Hospital	6	(8)	10	(9)	16	(17)	10	(23)	16	1	9	0	1	0
Salford, Salford Royal	11	(13)	5	(7)	16	(20)	11	(24)	16	6	10	0	0	1
Southport, Southport District General Hospital	1	(4)	4	(0)	5	(4)	3	(6)	5	0	3	0	0	1
Stockport, Stepping Hill Hospital	1	(3)	0	(1)	1	(4)	1	(3)	1	0	1	0	0	0
Warrington, Warrington Hospital	3	(0)	3	(2)	6	(2)	5	(5)	6	2	4	0	1	0
Wigan, Royal Albert Edward Infirmary	1	(2)	2	(0)	3	(2)	1	(3)	3	1	1	0	0	1
Wirral, Arrowe Park Hospital	2	(4)	2	(0)	4	(4)	4	(7)	4	1	4	0	0	0
TOTAL	68	(82)	61	(44)	129	(126)	87	(171)	126	24	86	3	11	8
North East and Yorkshire														
Barnsley, Barnsley District General Hospital	0	(1)	2	(0)	2	(1)	1	(2)	2	0	1	0	0	0
Barrow-In-Furness, Furness General Hospital	0	(2)	1	(1)	1	(3)	1	(3)	1	0	1	0	0	0
Bradford, Bradford Royal Infirmary	3	(2)	0	(1)	3	(3)	3	(5)	3	0	3	0	0	0
Carlisle, Cumberland Infirmary	2	(3)	1	(2)	3	(5)	3	(4)	3	1	3	0	0	1
Darlington, Darlington Memorial Hospital	0	(4)	3	(0)	3	(4)	2	(6)	3	1	2	0	1	0
Doncaster, Doncaster Royal Infirmary	2	(3)	0	(1)	2	(4)	1	(2)	2	1	1	0	0	0
Durham, University Hospital Of North Durham	2	(3)	1	(0)	3	(3)	2	(5)	3	0	2	0	0	1
Gateshead, Queen Elizabeth Hospital	3	(1)	2	(1)	5	(2)	3	(4)	4	2	4	0	2	0
Grimsby, Diana Princess Of Wales Hospital	2	(1)	1	(3)	3	(4)	3	(4)	3	2	3	0	1	0
Halifax, Calderdale Royal Hospital	2	(4)	1	(4)	3	(8)	2	(6)	3	0	2	0	0	0
Harrogate, Harrogate District Hospital	1	(4)	5	(1)	6	(5)	4	(7)	6	1	4	0	0	0
Huddersfield, Huddersfield Royal Infirmary	1	(2)	1	(1)	2	(3)	2	(4)	2	2	2	0	0	1
Hull, The Hull Royal Infirmary	6	(6)	4	(5)	10	(11)	7	(14)	10	1	7	0	1	1
Keighley, Airedale General Hospital	1	(0)	0	(2)	1	(2)	1	(1)	1	0	1	0	0	0
Leeds, Leeds General Infirmary	16	(5)	8	(13)	24	(18)	19	(31)	23	8	20	1	5	2
Leeds, St James's University Hospital	1	(0)	0	(3)	1	(3)	1	(1)	1	1	1	0	0	0

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Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Pancreas	Liver	Bowel	Heart	Lung
Middlesbrough, The James Cook University Hospital	8	(14)	7	(5)	15	(19)	11	(26)	14	4	8	0	2	2
Newcastle, Freeman Hospital	0	(1)	2	(4)	2	(5)	0	(2)	2	0	0	0	0	0
Newcastle, Royal Victoria Infirmary	14	(15)	12	(6)	26	(21)	19	(33)	26	11	19	1	9	5
Northumbria, Nsech	6	(3)	1	(1)	7	(4)	6	(8)	7	2	6	0	1	1
Rotherham, Rotherham District General Hospital	5	(2)	1	(1)	6	(3)	4	(5)	5	1	4	0	1	0
Scarborough, Scarborough Hospital	4	(1)	1	(0)	5	(1)	4	(4)	5	0	4	0	1	0
Scunthorpe, Scunthorpe General Hospital	2	(1)	0	(1)	2	(2)	2	(4)	2	1	1	0	1	2
Sheffield, Northern General Hospital	4	(3)	9	(1)	13	(4)	8	(10)	13	3	7	0	3	1
Sheffield, Royal Hallamshire Hospital	8	(9)	6	(1)	14	(10)	11	(21)	14	6	11	0	1	3
Sheffield, Sheffield Children's Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
South Shields, South Tyneside Dist. Gen. Hospital	1	(1)	0	(1)	1	(2)	1	(2)	1	0	1	0	0	0
Stockton-On-Tees, University Hospital Of North Tees	4	(3)	0	(0)	4	(3)	1	(3)	3	0	2	0	0	1
Sunderland, Sunderland Royal Hospital	5	(2)	2	(2)	7	(4)	6	(10)	6	1	6	0	2	0
Wakefield, Pinderfields General Hospital	6	(2)	4	(1)	10	(3)	5	(8)	8	2	6	0	2	1
Whitehaven, West Cumberland Hospital	1	(1)	0	(1)	1	(2)	1	(3)	1	1	1	0	0	0
Worksop, Bassetlaw District General Hospital	0	(1)	0	(0)	0	(1)	0	(0)	0	0	0	0	0	0
York, York District Hospital	4	(2)	2	(1)	6	(3)	2	(5)	6	0	1	0	1	0
TOTAL	114	(103)	77	(64)	191	(167)	136	(244)	183	52	134	2	34	22
Isle of Man														
Douglas, Nobles I-O-M Hospital	1	(0)	0	(0)	1	(0)	1	(1)	1	0	1	0	0	0
TOTAL	1	(0)	0	(0)	1	(0)	1	(1)	1	0	1	0	0	0
Channel Islands														
Guernsey, Princess Elizabeth Hospital	1	(0)	0	(0)	1	(0)	0	(0)	0	0	1	0	0	0
St Helier, Jersey General Hospital	1	(1)	0	(0)	1	(1)	1	(2)	1	0	1	0	0	0
TOTAL	2	(1)	0	(0)	2	(1)	1	(2)	1	0	2	0	0	0
England	659	(629)	545	(355)	1204	(984)	871	(1572)	1150	296	868	24	165	113
Wales														
Bangor, Ysbyty Gwynedd District General Hospital	6	(3)	0	(1)	6	(4)	6	(8)	5	4	6	0	0	1
Bodelwyddan, Glan Clwyd District General Hospital	4	(2)	2	(2)	6	(4)	6	(9)	6	3	5	0	0	0
Bridgend, Princess Of Wales Hospital	0	(0)	1	(2)	1	(2)	1	(2)	1	0	1	0	0	0
Cardiff, University Of Wales Hospital	12	(12)	7	(3)	19	(15)	17	(30)	19	3	15	2	3	2
Carmarthen, Glangwili General Hospital	2	(2)	0	(0)	2	(2)	2	(4)	2	0	2	0	0	0
Haverford West, Wilybush General Hospital	4	(0)	0	(0)	4	(0)	3	(3)	3	1	4	0	1	0

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2021 - 31 March 2022 (2020-2021), by donating hospital														
Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Pancreas	Liver	Bowel	Heart	Lung
Llanfrechfa, The Grange University Hospital	1	(0)	3	(0)	4	(0)	1	(1)	4	0	1	0	0	0
Merthyr Tydfil, Prince Charles Hospital	2	(1)	0	(1)	2	(2)	2	(4)	2	1	2	0	0	0
Newport, Royal Gwent Hospital	0	(3)	0	(0)	0	(3)	0	(3)	0	0	0	0	0	0
Pontypridd, Royal Glamorgan Hospital	0	(1)	1	(1)	1	(2)	1	(2)	1	0	1	0	0	0
Swansea, Morriston Hospital	6	(4)	2	(3)	8	(7)	6	(12)	8	4	6	2	2	1
Wrexham, Maelor General Hospital	1	(8)	0	(0)	1	(8)	0	(6)	1	0	0	0	0	0
TOTAL	38	(36)	16	(13)	54	(49)	45	(84)	52	16	43	4	6	4
Scotland														
Aberdeen, Aberdeen Royal Infirmary	8	(6)	4	(3)	12	(9)	9	(15)	12	2	9	0	2	1
Airdrie, Monklands District General Hospital	3	(1)	0	(0)	3	(1)	1	(2)	2	0	2	0	0	0
Ayr, The Ayr Hospital	1	(1)	1	(0)	2	(1)	1	(2)	2	0	1	0	0	0
Dumfries, Dumfries And Galloway Royal Infirmary	2	(2)	2	(0)	4	(2)	3	(5)	4	1	3	0	0	1
Dundee, Ninewells Hospital	1	(3)	6	(3)	7	(6)	4	(8)	7	1	4	0	0	0
East Kilbride, Hairmyres Hospital	0	(3)	1	(0)	1	(3)	1	(4)	1	1	1	0	0	0
Edinburgh, Royal Hospital For Sick Children	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Edinburgh, Royal Infirmary Of Edinburgh	6	(11)	6	(13)	12	(24)	12	(31)	10	2	11	0	2	0
Glasgow, Glasgow Royal Infirmary	2	(3)	2	(2)	4	(5)	3	(6)	4	0	3	0	2	1
Glasgow, Golden Jubilee National Hospital	0	(0)	1	(3)	1	(3)	1	(2)	1	0	1	0	0	0
Glasgow, Queen Elizabeth University Hospital	8	(8)	1	(1)	9	(9)	9	(17)	9	3	8	0	2	1
Glasgow, The Royal Hospital For Children	0	(0)	1	(0)	1	(0)	1	(1)	1	1	1	0	1	0
Inverness, Raigmore Hospital	1	(6)	1	(1)	2	(7)	2	(8)	2	0	2	0	0	0
Kilmarnock, Crosshouse Hospital	2	(9)	1	(0)	3	(9)	3	(12)	3	0	3	0	0	0
Kirkcaldy, Victoria Hospital	5	(3)	4	(1)	9	(4)	6	(9)	8	0	5	0	0	1
Larbert, Forth Valley Royal Hospital	2	(1)	0	(1)	2	(2)	2	(4)	2	0	2	0	0	1
Livingston, St John's Hospital	0	(2)	2	(0)	2	(2)	2	(4)	2	0	2	0	0	0
Melrose, Borders General Hospital	1	(0)	0	(1)	1	(1)	1	(1)	1	0	1	0	0	0
Paisley, Royal Alexandra Hospital	1	(2)	1	(1)	2	(3)	1	(2)	2	1	1	0	1	0
Wishaw, Wishaw General Hospital	4	(2)	0	(1)	4	(3)	2	(5)	2	0	4	0	0	1
TOTAL	47	(64)	34	(31)	81	(95)	64	(139)	75	12	64	0	10	7
Northern Ireland														
Belfast, Antrim Hospital	3	(3)	1	(0)	4	(3)	4	(7)	4	2	4	0	0	1
Belfast, Belfast City Hospital	0	(0)	1	(1)	1	(1)	1	(2)	1	0	1	0	0	0
Belfast, Royal Belfast Hospital For Sick Children	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Belfast, Royal Victoria Hospital	17	(18)	8	(7)	25	(25)	17	(36)	24	6	17	0	2	0
Belfast, The Ulster Hospital	2	(1)	3	(2)	5	(3)	3	(3)	5	1	3	0	0	0

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2021 - 31 March 2022 (2020-2021), by donating hospital														
Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Pancreas	Liver	Bowel	Heart	Lung
Coleraine, Causeway Hospital	3	(1)	0	(0)	3	(1)	2	(3)	3	0	2	0	0	0
Enniskillen, South West Acute Hospital	3	(5)	1	(0)	4	(5)	2	(7)	3	0	3	0	0	0
Londonderry, Altnagelvin Area Hospital	4	(2)	1	(1)	5	(3)	5	(8)	5	0	5	0	1	0
Portadown, Craigavon Area Hospital	6	(5)	2	(4)	8	(9)	4	(8)	7	1	4	0	1	0
TOTAL	38	(36)	17	(15)	55	(51)	38	(75)	52	10	39	0	4	1
TOTAL	785	(766)	612	(414)	1397	(1180)	1020	(1873)	1331	334	1017	28	185	125

Appendix IIA Numbers of donors after brain death and organs retrieved in the UK, 1 April 2021 - 31 March 2022, by country/ NHS region

Country/ NHS region	Donors				Organs					
	All donors	pmp	Multi-organ donors	pmp	Kidney	Pancreas	Liver	Bowel	Heart	Lung
North East and Yorkshire	114	13.2	96	11.1	106	40	99	2	23	18
North West	68	9.6	56	7.9	65	17	59	3	9	6
Midlands	106	9.9	98	9.2	101	34	100	3	22	12
East of England	62	9.5	50	7.6	57	19	54	3	9	10
London	141	15.7	120	13.3	129	47	126	5	23	17
South East	99	11.1	88	9.9	93	34	91	3	21	16
South West	69	12.2	60	10.6	65	19	62	5	11	6
England	628	11.1	542	9.6	588	200	564	23	111	80
Isle of Man	1	12.5	1	12.5	1	0	1	0	0	0
Channel Islands	2	11.8	1	5.9	1	0	2	0	0	0
Wales	38	12	36	11.4	36	14	37	4	6	3
Scotland	47	8.6	40	7.3	44	8	43	0	9	6
Northern Ireland	38	20	31	16.3	35	9	33	0	4	1
TOTAL	785	11.7	677	10.1	733	241	707	28	137	95

Appendix IIB Numbers of donors after circulatory death and organs retrieved in the UK, 1 April 2021 - 31 March 2022, by country/ NHS region

Country/ NHS region	Donors				Organs					
	All donors	pmp	Multi-organ donors	pmp	Kidney	Pancreas	Liver	Bowel	Heart	Lung
North East and Yorkshire	77	8.9	40	4.6	77	12	35	0	11	4
North West	61	8.6	31	4.4	61	7	27	0	2	2
Midlands	104	9.8	57	5.3	100	19	54	0	10	8
East of England	72	11	43	6.6	71	9	38	0	6	2
London	76	8.4	40	4.4	75	8	38	0	4	4
South East	98	11	61	6.8	94	23	58	0	12	7
South West	57	10.1	31	5.5	56	8	27	0	2	1
England	510	9	284	5	501	78	258	0	45	26
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	16	5	9	2.8	16	2	6	0	0	1
Scotland	34	6.2	24	4.4	31	4	21	0	1	1
Northern Ireland	17	8.9	7	3.7	17	1	6	0	0	0
TOTAL	612	9.1	343	5.1	598	93	310	0	48	30

Appendix III Populations for NHS regions, 2021-2022
Mid-2020 estimates based on ONS 2011 Census figures

Country/ NHS region	Population (millions)
North East and Yorkshire	8.64
North West	7.09
Midlands	10.66
East of England	6.56
London	9.00
South East	8.93
South West	5.67
England	56.55
Isle of Man	0.08
Channel Islands	0.17
Wales	3.17
Scotland	5.47
Northern Ireland	1.90
TOTAL	67.08

Appendix IVA
UK solid organ transplants from deceased UK donors¹ to non-UK residents, 1 April 2019 to 31 March 2022
Transplant type by year

Year	Transplant type	Residency of recipient			Total
		ROI	Other EU	Non-EU	
2019/20	Kidney	0	3	0	3
	Heart	1	0	0	1
	Liver	4	1	1	6
	Bilateral lung	1	0	0	1
	Bowel only	0	0	1	1
	Multivisceral	1	0	0	1
	Modified multivisceral	1	0	0	1
	Other tissue	1	0	0	1
	Total	9	4	2	15
2020/21	Heart	1	0	0	1
	Liver	2	2	1	5
	Bowel only	0	0	1	1
	Total	3	2	2	7
2021/22	Kidney	0	0	1	1
	Heart	1	0	0	1
	Liver	6	3	1	10
	Total	7	3	2	12

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 2019 to 31 March 2022

Transplant type by year

Year	Transplant type	Country of donation			Total
		ROI	Other EU	Non-EU	
2019/20	Kidney	0	2	0	2
	Heart	2	1	0	3
	Liver	2	7	0	9
	Bilateral lung	0	2	0	2
	Total	4	12	0	16
2020/21	Heart	2	0	0	2
	Liver	6	0	0	6
	Bilateral lung	0	1	0	1
	Total	8	1	0	9
2021/22	Kidney	4	0	0	4
	Heart	0	3	0	3
	Liver	7	0	0	7
	Total	11	3	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 2019 to 31 March 2022

Transplant type by year

Year	Transplant type	Residency of recipient			Total
		ROI	Other EU	Non-EU	
2019/20	Heart	0	1	0	1
	Liver	2	0	1	3
	Bilateral lung	0	4	5	9
	Total	2	5	6	13
2020/21	Heart	0	0	1	1
	Liver	2	0	0	2
	Total	2	0	1	3
2021/22	Liver	4	0	0	4
	Bilateral lung	0	2	1	3
	Total	4	2	1	7

ROI = Republic of Ireland

¹ based on country of donor hospital

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