



Blood and Transplant

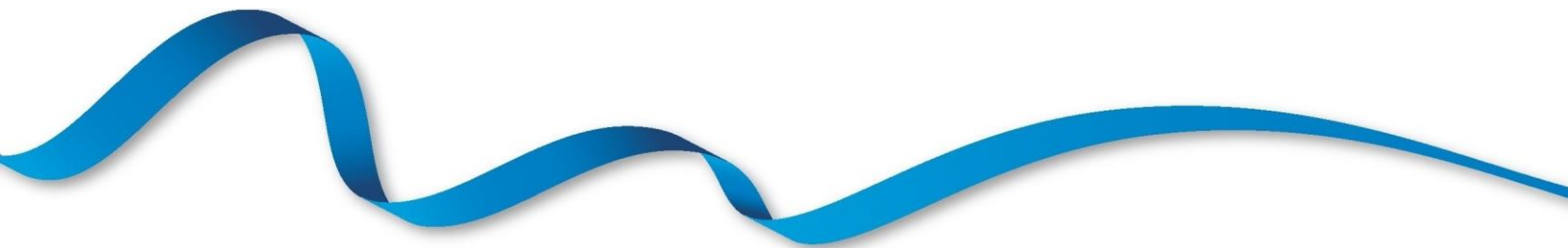
**ANNUAL REPORT ON
THE NATIONAL ORGAN RETRIEVAL SERVICE
(NORS)**

**REPORT FOR 2018/19
(1 April 2018 - 31 March 2019)**

PUBLISHED OCTOBER 2019



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EXECUTIVE SUMMARY



EXECUTIVE SUMMARY

The National Organ Retrieval Service (NORS) was introduced on 1 April 2010, comprised of 16 NORS teams; 10 abdominal and 6 cardiothoracic surgical teams available to retrieve organs for transplantation from deceased donors in the UK.

This report presents organ retrieval data from the most recent financial year, 1 April 2018 to 31 March 2019. Data were extracted from the UK Transplant Registry on 8 August 2019.

Key findings

- From 1 April 2018 to 31 March 2019, 1941 potential organ donors were attended by a retrieval team. 1593 (82%) of these proceeded to abdominal organ donation and 317 (54% of the 589 attended by a cardiothoracic team) proceeded to cardiothoracic organ donation.
- There was a 1.6% increase in the number of donors attended in this financial year compared to the previous year (from 1911 to 1941).
- On average, 5.3 potential donors were attended by a retrieval team per day, which has changed little since the previous year (5.2).
- On average, abdominal teams attended at least one donor on 60% of on-call days in the year (61% the previous year), while cardiothoracic teams attended at least one donor on 40% of on-call days (47% the previous year).
- There were statistically significant differences in the mean number of DBD cardiothoracic organs retrieved and subsequently transplanted across cardiothoracic NORS teams.
- The transplantation rates for retrieved organs were variable across organs, from 43.9% for DCD pancreases, up to 97.4% for DBD hearts. Additionally, 33 DCD hearts were retrieved, 31 of which were transplanted in that period.

Use of the contents of this report should be acknowledged as follows: Annual Report on The National Organ Retrieval Service 2018/19, NHS Blood and Transplant

INTRODUCTION



INTRODUCTION

The National Organ Retrieval Service (NORS) was introduced on 1 April 2010, comprised of 16 NORS teams; 10 abdominal and 6 cardiothoracic surgical teams available to retrieve organs for transplantation from deceased donors in the UK.

This report presents organ retrieval activity from the latest full financial year, 1 April 2018 to 31 March 2019. Data were provided by retrieval teams and Specialist Nurses for Organ Donation (SN-ODs) via the Retrieval Team Information (RTI) and Organ Retrieval Information (ORI) forms. A small proportion (0.6% and 0.8% for RTI and ORI, respectively) of forms were missing at time of data extraction, 8 August 2019.

The abdominal service is made up of four full-time teams (52 weeks on-call per annum) and six part-time teams (varying between 15 and 37 weeks on-call per annum), making seven abdominal teams on-call at any time. Since April 2016, following the NORS review, all six teams in the cardiothoracic service are part-time (26 weeks on-call per annum) making three teams on-call at any time. Prior to the NORS review all six cardiothoracic teams were on-call full-time.

Some potential donors are attended by both an abdominal retrieval team and a cardiothoracic retrieval team, but many are only attended by an abdominal retrieval team. Statistics in this report are often presented separately for abdominal and cardiothoracic organ retrieval teams and also for donors after brain death (DBD) and donors after circulatory death (DCD).

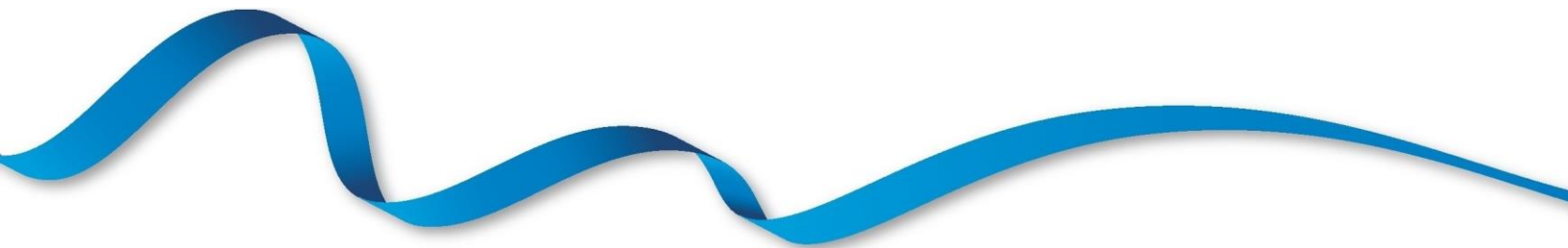
Some potential donors are attended by a retrieval team but do not proceed to donation, i.e. no organs are retrieved. Non-proceeding donors are more common in the pool of potential DCD donors as prolonged time to circulatory arrest and death after treatment withdrawal can cause unsuitability of organs for transplantation. Note that a donor may be a non-proceeding cardiothoracic donor but proceed to abdominal organ donation, or vice-versa. Some of the information presented in this report is not relevant for non-proceeding donors and related only to actual donors. We cannot be sure that we have full reporting on all non-proceeding donors attended by retrieval teams as it is only possible to identify these through receipt of an RTI or ORI form.

Since February 2019 NORS teams have been 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.

From April 2016 to February 2019 teams were mobilised entirely based on the closest available system. The move to the defined sequence model resulted from a Demand and Capacity review in 2018.

ACTIVITY



ACTIVITY

DONOR ATTENDANCES

The number of DBD and DCD donors that were attended by each retrieval team between 1 April 2018 and 31 March 2019 is shown in **Table 1a**. The number of donors attended varies due to the geographical distribution of donors and the on-call arrangements, where on-call arrangements for part-time NORS teams are always in a block of seven consecutive days (Monday to Monday).

Table 1a Number of donor attendances (proceeding and non-proceeding) per retrieval team, 1 April 2018 - 31 March 2019, by donor type (DBD/DCD)							
Attending retrieval team (Weeks on-call per annum)	DBD		DCD		Total	% of all donors attended	(% attended in 2017/18)
	N	%	N	%			
Abdominal							
Birmingham (37w)	130	51	125	49	255	13.2	(12.5)
Cambridge (52w)	129	48.5	137	51.5	266	13.8	(15)
Cardiff (15w)	29	40.3	43	59.7	72	3.7	(4)
Edinburgh (52w)	85	58.6	60	41.4	145	7.5	(7.7)
King's College (52w)	177	50.4	174	49.6	351	18.2	(17.9)
Leeds (26w)	79	46.5	91	53.5	170	8.8	(9.3)
Manchester (26w)	73	44.8	90	55.2	163	8.4	(8.6)
Newcastle (52w)	116	54	99	46	215	11.1	(10.3)
Oxford (26w)	82	50.3	81	49.7	163	8.4	(7.8)
Royal Free (26w)	73	55.7	58	44.3	131	6.8	(7)
Abdominal total	973	50.4	958	49.6	1931	-	(-)
Cardiothoracic							
Birmingham (26w)	76	82.6	16	17.4	92	15.6	(15.1)
Glasgow (26w)	34	85	6	15	40	6.8	(6.9)
Harefield (26w)	76	65	41	35	117	19.9	(21.6)
Manchester (26w)	93	76.9	28	23.1	121	20.5	(18.1)
Newcastle (26w)	58	78.4	16	21.6	74	12.6	(13)
Papworth (26w)	92	63.4	53	36.6	145	24.6	(25.3)
Cardiothoracic total	429	72.8	160	27.2	589	-	(-)
Total no. attendances	1402	55.6	1118	44.4	2520	-	(-)
Total no. donors attended	976	50.3	965	49.7	1941	-	(-)

There were 5 abdominal retrievals and one cardiothoracic retrieval reported as attended by more than one retrieval team. These donors have been allocated to the team which was highest in the attendance sequence.

Included in this table are 21 potential donors attended by an off-duty abdominal NORS team (5 Oxford, 1 Cardiff, 1 Birmingham, 5 Manchester, 4 Leeds, 5 Royal Free) and 37 by an off-duty cardiothoracic NORS team (Glasgow 2, Papworth 19, Newcastle 2, Manchester 4, Harefield 10).

These figures are broken down by whether the donor proceeded to organ donation (actual donors) or not in **Table 1b**.

In total in the last financial year there were 1941 donors attended by a retrieval team. Of these 976 (50%) were potential DBD donors and 965 (50%) were potential DCD donors. Of the potential DBD donors attended by an abdominal retrieval team 957 (98%) proceeded to abdominal organ donation, while 238 (55%) of the potential DBD donors attended by a cardiothoracic team proceeded to cardiothoracic donation. For potential DCD donors, 636 (66%) of those attended by an abdominal team proceeded to abdominal donation, while 79 (49%) of those attended by a cardiothoracic team proceeded to cardiothoracic organ donation.

Table 1b Number of donor attendances per retrieval team, 1 April 2018 - 31 March 2019 by donor type (DBD/DCD) and proceeding/non-proceeding

Attending retrieval team (Weeks on-call per annum)	DBD			DCD		
	Actual	Non-proceeding	% non-proc	Actual	Non-proceeding	% non-proc
Abdominal						
Birmingham (37w)	127	3	2.3	96	29	23.2
Cambridge (52w)	128	1	0.8	90	47	34.3
Cardiff (15w)	29	0	0	30	13	30.2
Edinburgh (52w)	82	3	3.5	35	25	41.7
King's College (52w)	177	0	0	110	64	36.8
Leeds (26w)	79	0	0	59	32	35.2
Manchester (26w)	71	2	2.7	56	34	37.8
Newcastle (52w)	112	4	3.4	62	37	37.4
Oxford (26w)	80	2	2.4	55	26	32.1
Royal Free (26w)	72	1	1.4	43	15	25.9
Abdominal total	957	16	1.6	636	322	33.6
Cardiothoracic						
Birmingham (26w)	33	43	56.6	7	9	56.3
Glasgow (26w)	16	18	52.9	2	4	66.7
Harefield (26w)	50	26	34.2	24	17	41.5
Manchester (26w)	52	41	44.1	8	20	71.4
Newcastle (26w)	32	26	44.8	8	8	50
Papworth (26w)	55	37	40.2	30	23	43.4
Cardiothoracic total	238	191	44.5	79	81	50.6
Total donors (abdominal and/or cardiothoracic)	961	15	1.5	639	326	33.8

There were 5 abdominal retrievals and one cardiothoracic retrieval reported as attended by more than one retrieval team. These donors have been allocated to the team which was highest in the attendance sequence.

Included in this table are 21 potential donors attended by an off-duty abdominal NORS team (5 Oxford, 1 Cardiff, 1 Birmingham, 5 Manchester, 4 Leeds, 5 Royal Free) and 37 by an off-duty cardiothoracic NORS team (Glasgow 2, Papworth 19, Newcastle 2, Manchester 4, Harefield 10).

Figure 1a shows the proportion of donors attended by any abdominal retrieval team. Leeds and Manchester retrieval teams began to work as separate teams from April 2016 onwards and therefore are presented in this figure as joint to allow overall comparison in the time period. This figure shows that in the most recent financial year King's College had the highest share of abdominal donors (18.5%) and Cardiff had the lowest share of abdominal donors (3%).

Figure 1a Proportion of donors attended by an abdominal team between 1 April 2014 - 31 March 2019

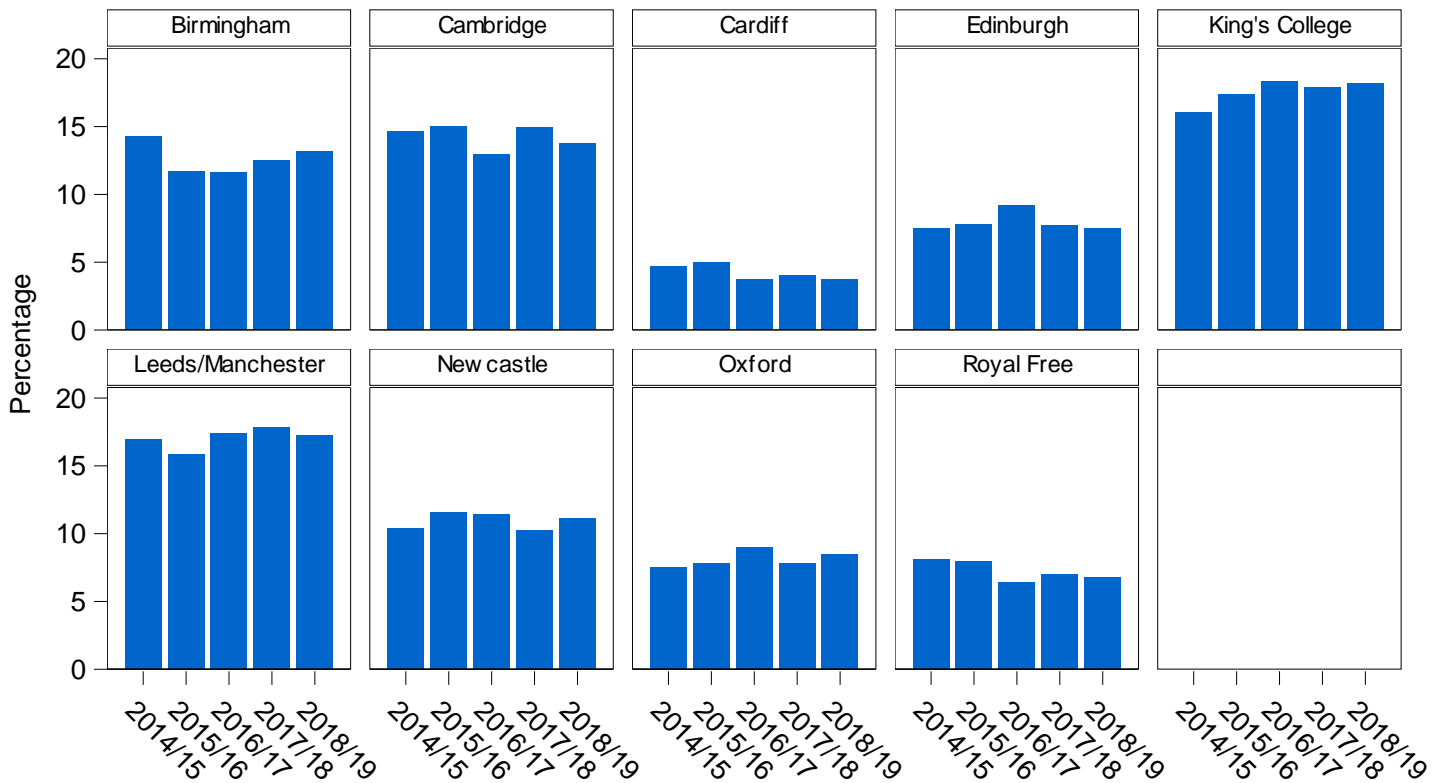


Figure 1b shows the proportion of donors attended by any cardiothoracic retrieval team. In the most recent financial year Papworth attended the highest proportion of cardiothoracic donors (24.6%) and Glasgow attended the lowest proportion (6.8%).

Figure 1b Proportion of donors attended by a cardiothoracic team between 1 April 2014 - 31 March 2019

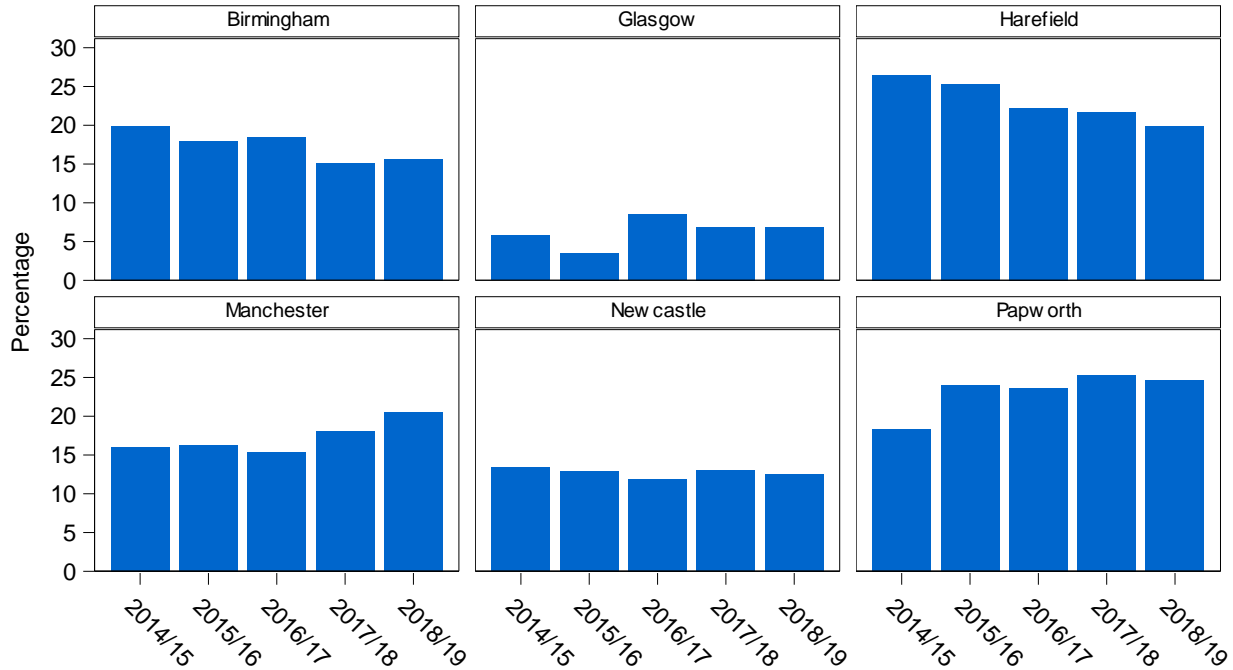


Figure 2 shows the distribution of the number of actual and non-proceeding donors attended by at least one retrieval team, per day in 2018/19. The number of donors per day ranged from 1 (14 days) to 11 (5 days). The mean number of donors per day was 5.3.

Figure 2 Distribution of the number of actual and non-proceeding donors attended by at least one retrieval team on any one day during 1 April 2018 - 31 March 2019

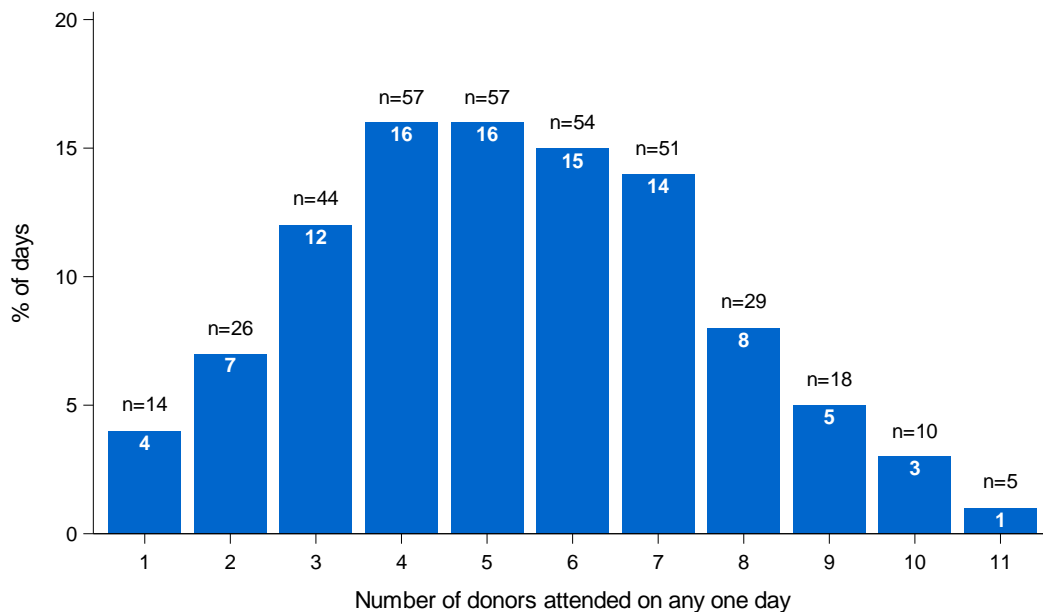


Figure 3a shows the distribution of the number of abdominal teams out on any one day during 2018/19. For example, there were 32 days in the 12-month period (9% of days) where two abdominal teams were out attending donors.

Figure 3a Distribution of the number of abdominal retrieval teams out on any one day, between 1 April 2018 - 31 March 2019

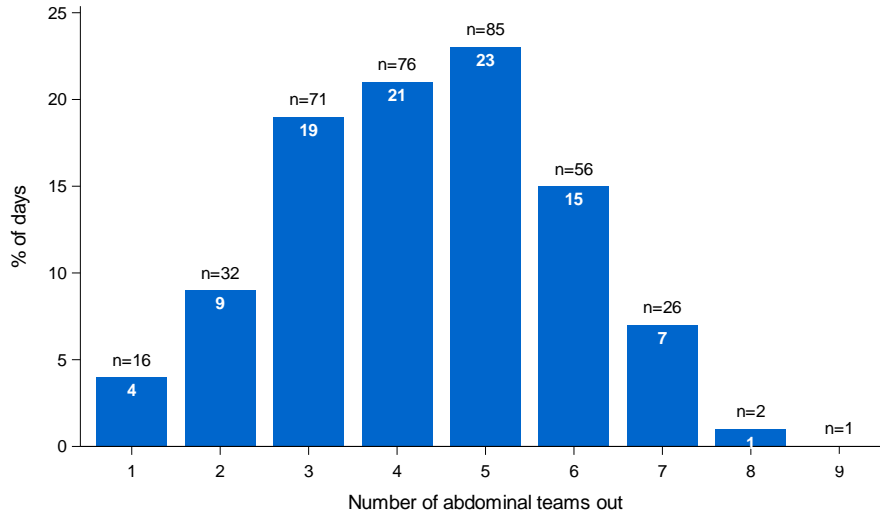


Figure 3b shows the distribution of the number of donors (actual and non-proceeding) attended by each abdominal team on any one day (that they were on call) during the year. On average abdominal teams did not attend any donors on 41% of the days in the year, attended one donor 46% of days, attended two donors 12% of days, and attended three donors 1% of days. Only King’s College and Manchester attended four donors on one day each. The 'busiest' team in 2018/19 in terms of days active was Birmingham (when on call).

Figure 3b Distribution of the number of actual and non-proceeding donors attended by each abdominal team on any one day, between 1 April 2018 - 31 March 2019

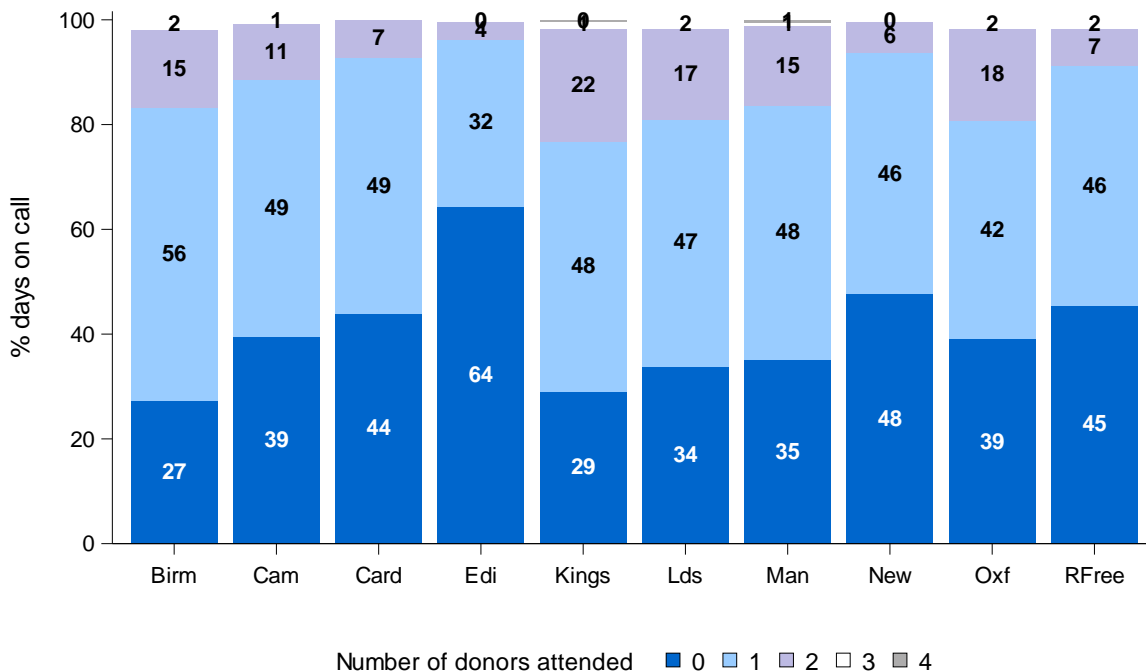


Figure 4a shows the distribution of the number of cardiothoracic teams out on any one day during 2018/19. It is most common for one cardiothoracic team to be out on any given day.

Figure 4a Distribution of the number of cardiothoracic retrieval teams out on any one day, between 1 April 2018 - 31 March 2019

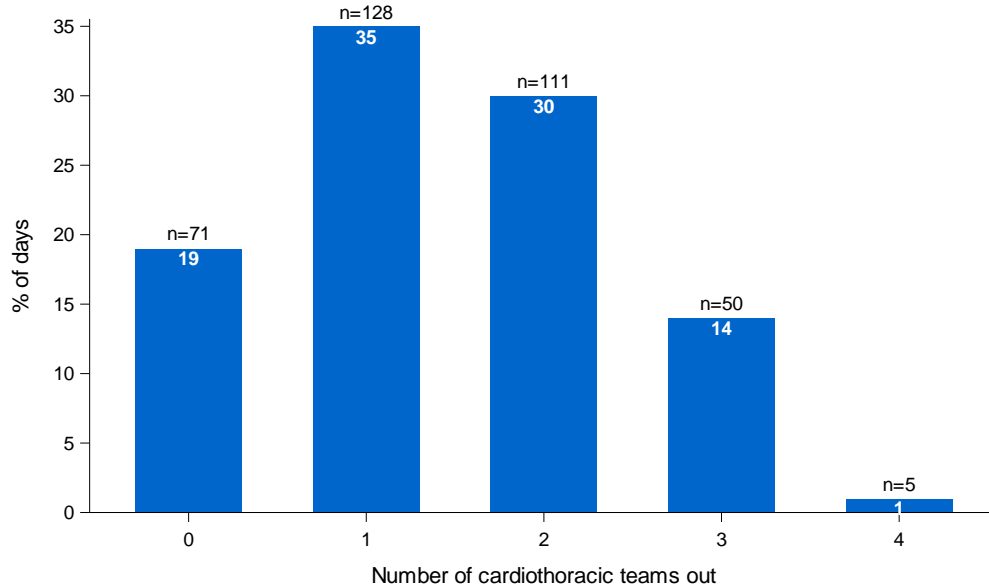


Figure 4b shows the distribution of the number of donors (actual and non-proceeding) attended by each cardiothoracic team on any one day (that they were on call) during the year. On average cardiothoracic teams did not attend any donors on 60% of the days in the year, attended one donor 35% of days, attended two donors 6% of days, and attended three donors 1% of days. The 'busiest' team in 2018/19 in terms of days active was Papworth (when on call).

Figure 4b Distribution of the number of actual and non-proceeding donors attended by each cardiothoracic team on any one day, between 1 April 2018 - 31 March 2019

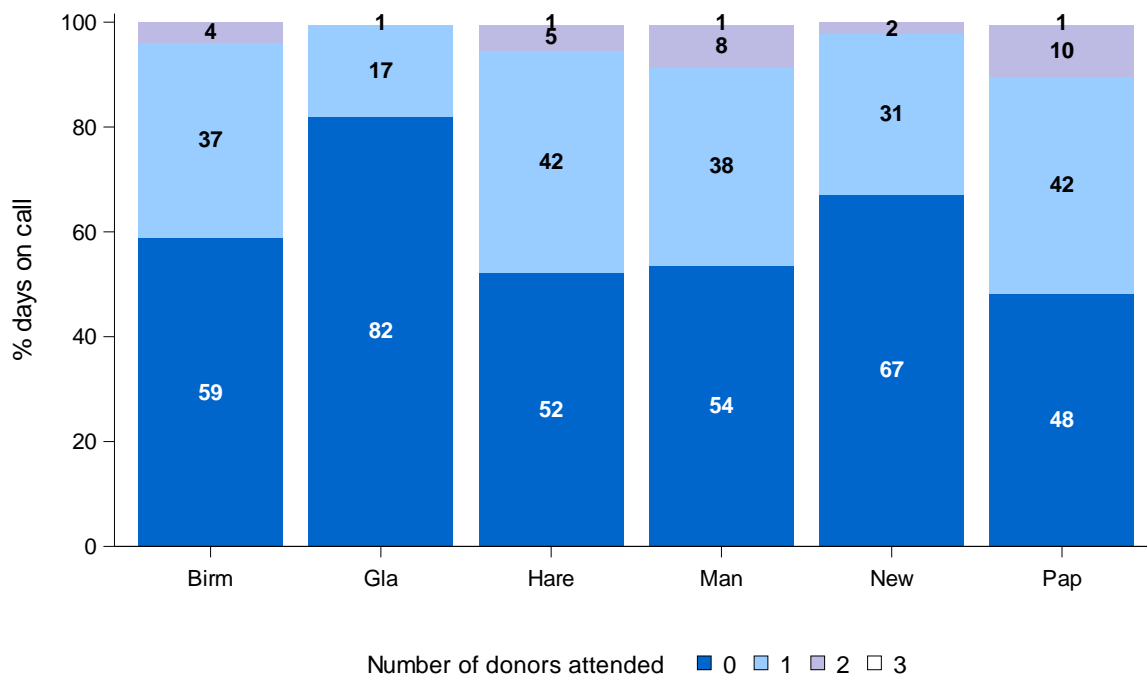


Table 2 shows the position of the retrieval team in the retrieval team attendance sequence for each of the actual and non-proceeding donors that were attended during the financial year. The way in which teams are mobilised to attend donors changed during 2018/19; from April to February this was entirely based on a closest available system however from February onwards mobilisation was based on a defined first and second sequence. This table takes into account this change and presents an overall summary.

The amount of times teams went out when they were not first in the sequence varies. For abdominal teams this ranges from 18.9% to 65.8% for Leeds and Oxford respectively. For cardiothoracic teams this ranges from 20.5% to 50% for Manchester and Glasgow respectively.

Table 2 Number of actual and non-proceeding donors attended by each retrieval team, 1 April 2018 - 31 March 2019, by position of team in on-call sequence									
Attending retrieval team (Weeks on-call per annum)	First team in seq.	Second team in seq.	Third team in seq.	Forth team in seq.	Fifth team in seq.	Sixth team in seq.	Seventh team in seq.	Total	% not first in seq.
Abdominal									
Birmingham (37w)	156	69	5	21	1	0	0	252	38.1
Cambridge (52w)	152	5	73	29	5	2	0	266	42.9
Cardiff (15w)	53	4	3	10	1	0	0	71	25.4
Edinburgh (52w)	111	13	12	2	0	0	7	145	23.4
King's College (52w)	205	84	43	1	6	3	0	342	40.1
Leeds (26w)	133	13	8	2	8	0	0	164	18.9
Manchester (26w)	112	19	14	4	6	0	0	155	27.7
Newcastle (52w)	123	29	38	8	2	14	0	214	42.5
Oxford (26w)	54	80	13	7	2	2	0	158	65.8
Royal Free (26w)	54	46	16	4	3	1	0	124	56.5
Abdominal total	1153	362	225	88	34	22	7	1891	39
Cardiothoracic									
Birmingham (26w)	61	31	0	-	-	-	-	92	33.7
Glasgow (26w)	19	8	11	-	-	-	-	38	50
Harefield (26w)	78	19	9	-	-	-	-	106	26.4
Manchester (26w)	93	23	1	-	-	-	-	117	20.5
Newcastle (26w)	52	6	9	-	-	-	-	67	22.4
Papworth (26w)	93	28	2	-	-	-	-	123	24.4
Cardiothoracic total	396	115	32	-	-	-	-	543	27.1
Total	1549	477	257	88	34	22	7	2434	36.4

Note that 9 paediatric (<145cm or 40kg) cardiothoracic retrievals and 19 paediatric (<5 years) abdominal retrievals have been excluded from this table due to special arrangements for paediatric retrieval. Attendances where teams were not on-call are also excluded.

The time taken for teams to attend a donor is shown by team for the most recent four financial years in **Figures 5a and 5b**, for abdominal and cardiothoracic respectively. The time shown is the time from the beginning of muster time (one hour prior to departure from base) to return to base, which is estimated from theatre departure times and travel times. The median is the horizontal line in the box, and the box shows the interquartile range. Cases where retrieval took more than 48 hours have been removed along with cases where not all date/time points required were reported.

Leeds and Manchester data are presented as shared in **Figure 5a** to allow for comparison with previous financial years although these teams are now independent.

Figure 5a Median (IQR) time an abdominal team is out attending a donor from departure to return to base, between 1 April 2014 - 31 March 2019

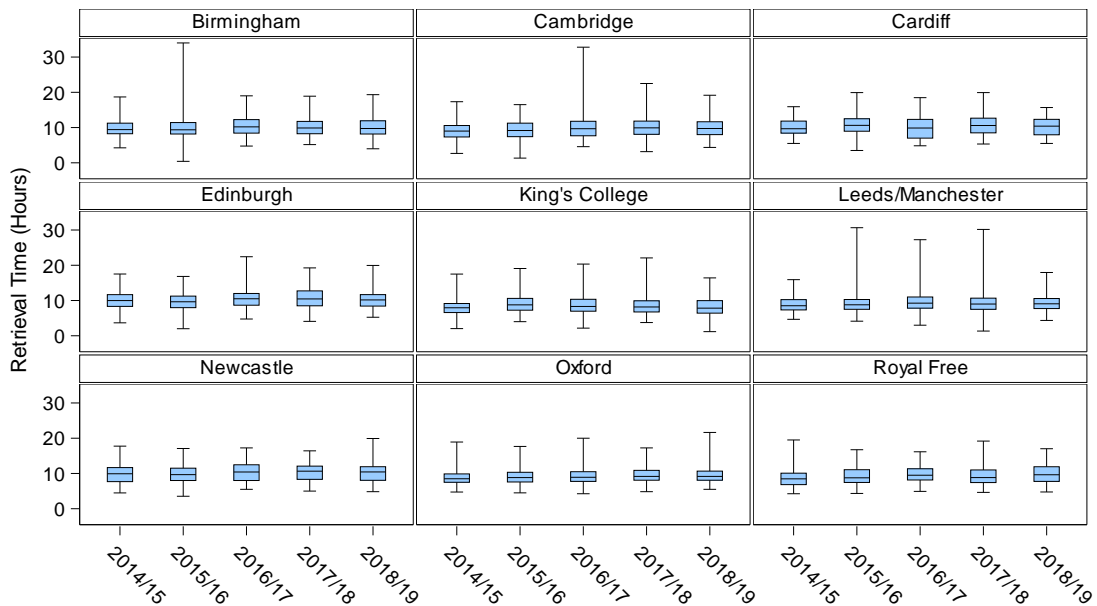
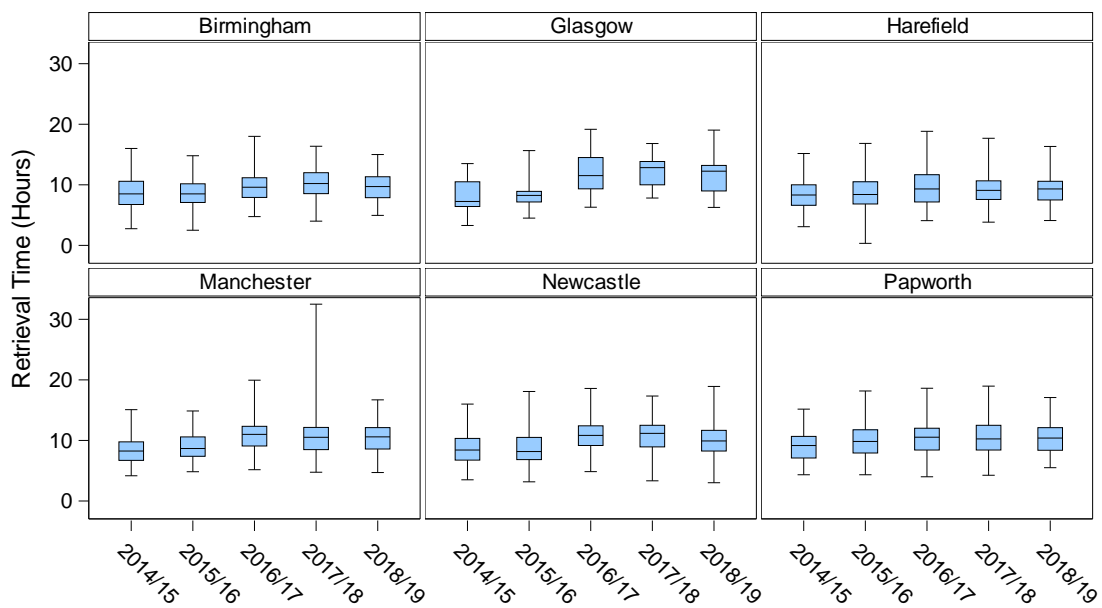


Figure 5b Median (IQR) time a cardiothoracic team is out attending a donor from departure to return to base, between 1 April 2014 - 31 March 2019



The day of week and time of day at which mobilisation of NORS teams occurred throughout the year are presented as heat maps in **Figures 6a and 6b**, for abdominal and cardiothoracic teams, respectively. Mobilisation time is the time that the team actually departed from their base. Heat maps are used here to present the level of activity, darker shades are used to indicate high activity.

**Figure 6a Mobilisation time of abdominal teams
1 April 2018 - 31 March 2019**

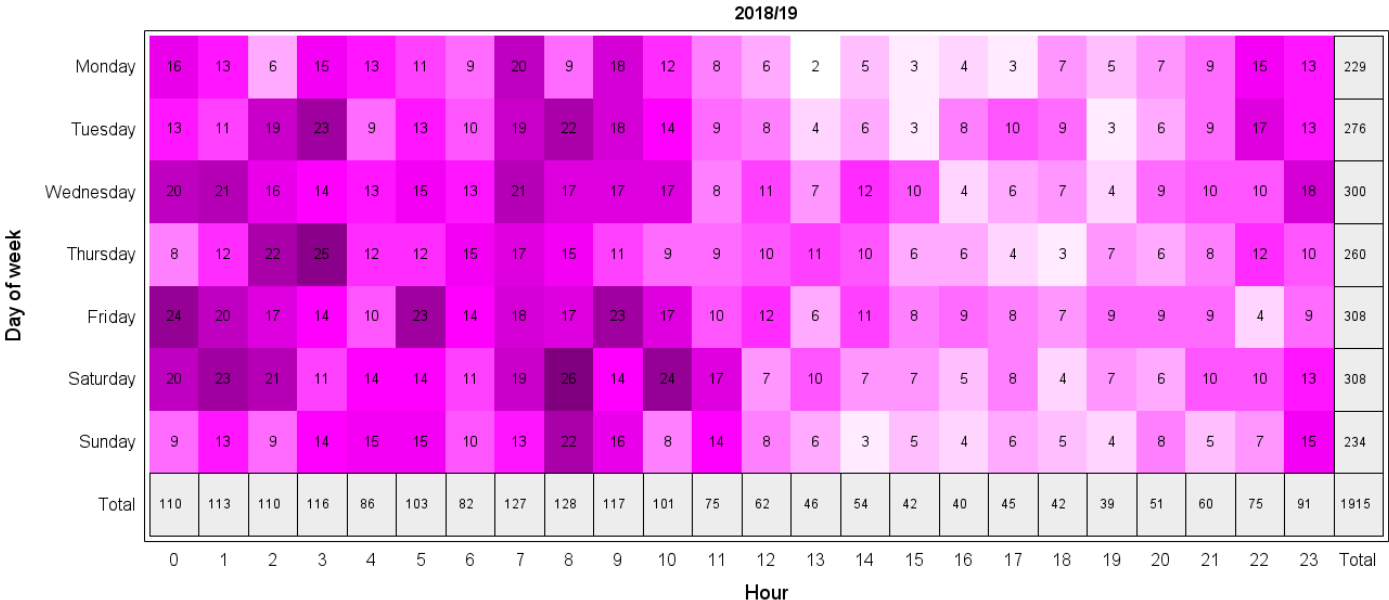
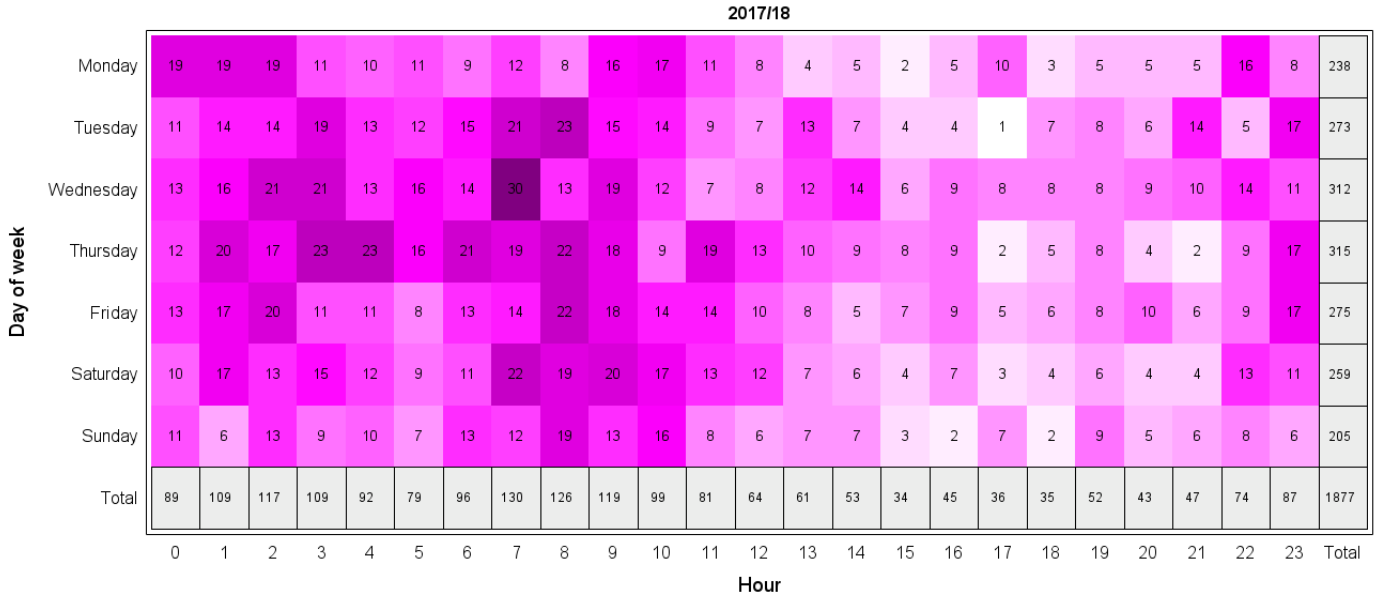
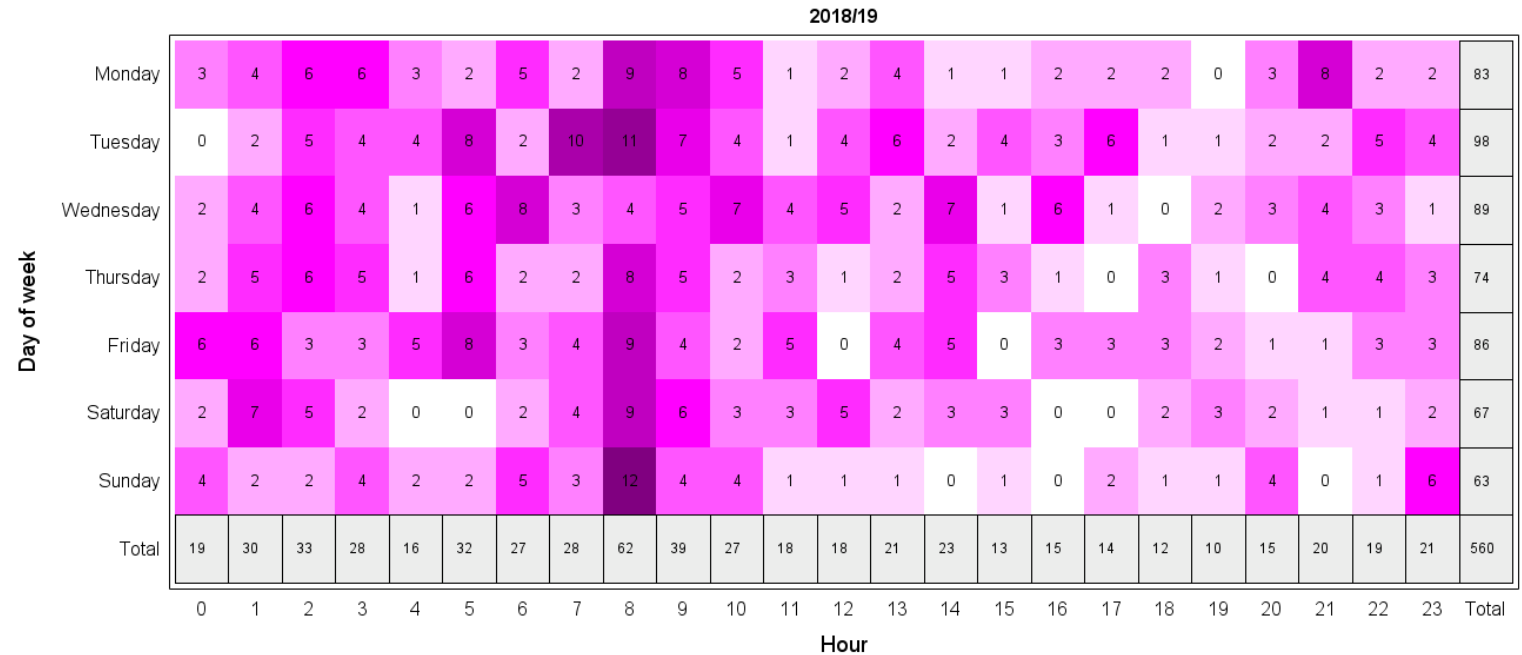
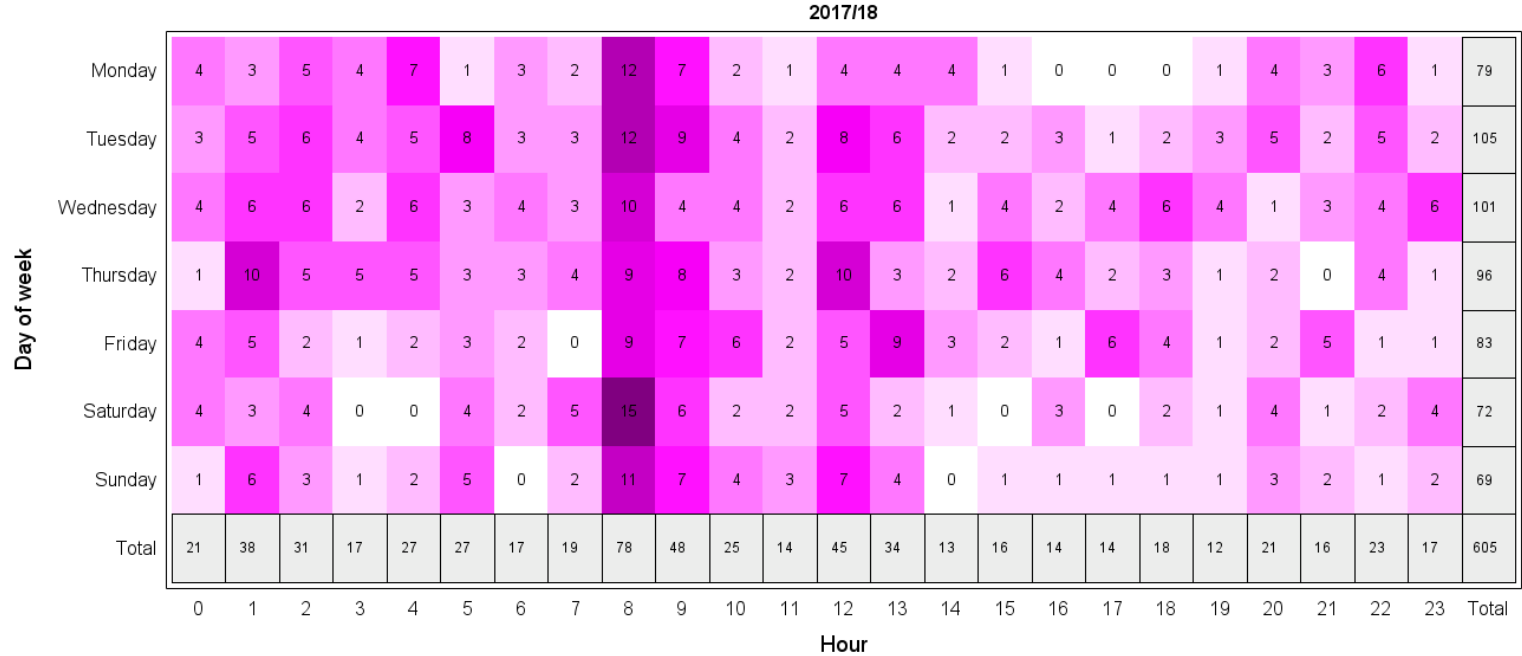


Figure 6b

**Mobilisation time of cardiothoracic teams
1 April 2018 - 31 March 2019**



The proportion of occasions where the travel time to a donor hospital is greater than three hours is shown in **Figures 7a and 7b**, for abdominal and cardiothoracic teams, respectively. Both figures exclude donor attendances where flights were used.

Figure 7a Proportion of donor attendances (actual and non-proceeding) outside of 3 hours travel time for each abdominal team, between 1 April 2018 - 31 March 2019

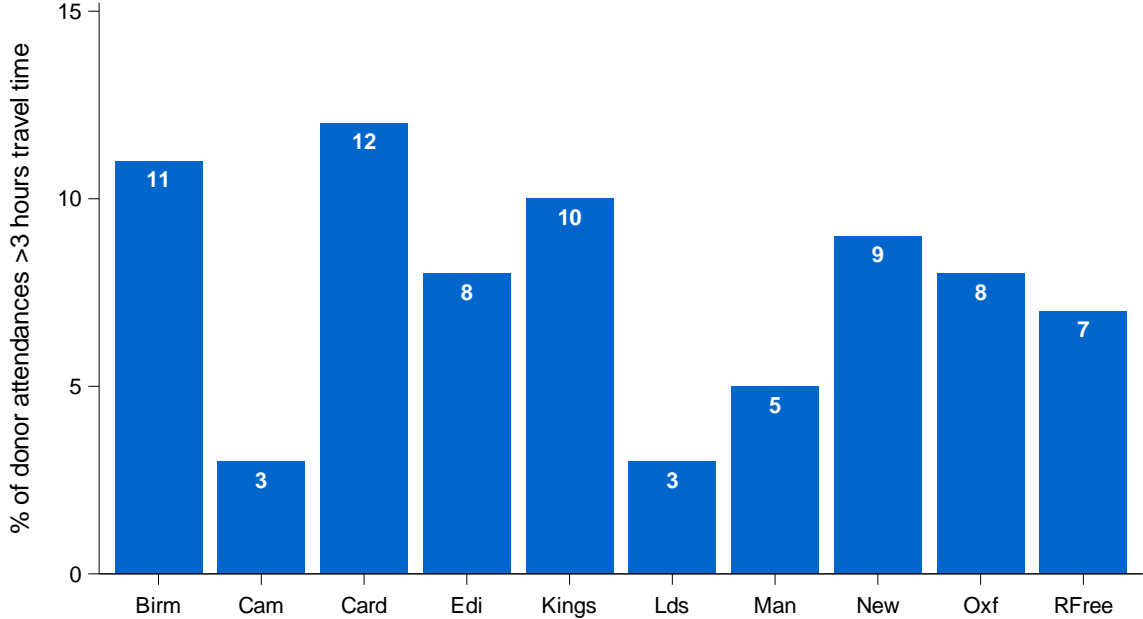
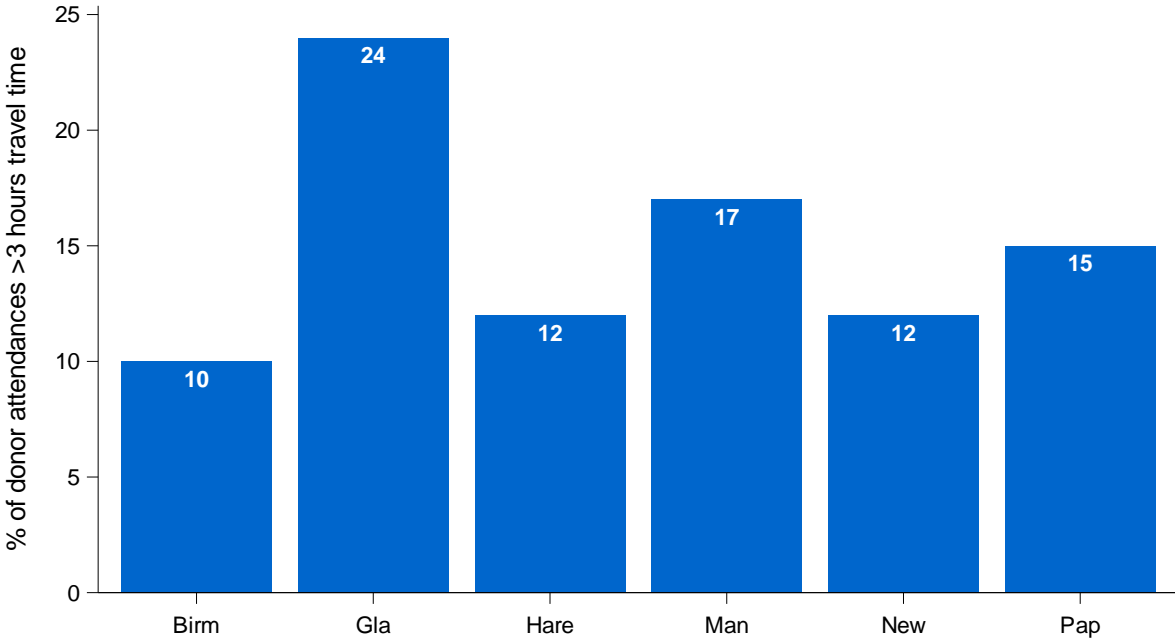


Figure 7b Proportion of donor attendances (actual and non-proceeding) outside of 3 hours travel time for each cardiothoracic team, between 1 April 2018 - 31 March 2019



ORGANS RETRIEVED

Table 3a shows the percentage of actual abdominal donors donating their kidneys, livers, pancreases and bowels by the team that attended and the donor type. Overall, 92.1% of actual DBD donors (donating at least one abdominal organ) donated their kidneys, 89.3% donated their liver, 37.8% donated their pancreas and 2.2% donated their bowel. The overall donation rates for actual DCD donors are lower for livers and pancreases and higher for kidneys, DCD donors cannot donate their small bowel.

Attending retrieval team	No. of abdo. donors		% donors donating							
			Kidneys		Livers		Pancreases		Bowel	
	DBD	DCD	DBD	DCD	DBD	DCD	DBD	DCD	DBD	DCD
Birmingham	127	96	91.3	96.9	90.6	47.9	45.7	20.8	1.6	-
Cambridge	128	90	92.2	98.9	89.1	48.9	39.8	20	7	-
Cardiff	29	30	93.1	96.7	82.8	40	34.5	20	3.4	-
Edinburgh	82	35	93.9	100	92.7	31.4	40.2	11.4	0	-
King's College	177	110	91	97.3	89.8	39.1	32.8	11.8	1.1	-
Leeds	79	59	96.2	100	83.5	28.8	45.6	16.9	1.3	-
Manchester	71	56	93	96.4	88.7	41.1	31	23.2	0	-
Newcastle	112	62	90.2	100	88.4	27.4	37.5	11.3	0	-
Oxford	80	55	93.8	98.2	90	45.5	37.5	16.4	7.5	-
Royal Free	72	43	88.9	100	93.1	46.5	30.6	11.6	0	-
Total	957	636	92.1	98.3	89.3	40.6	37.8	16.5	2.2	-

Table 3b shows the number of abdominal organs retrieved and the percentage that were transplanted, this is broken down by organ type and the attending retrieval team.

Table 3b Abdominal organs retrieved and percentage that went on to be transplanted, 1 April 2018 - 31 March 2019, by attending retrieval team								
Attending retrieval team	Kidneys		Livers		Pancreases		Bowel	
	Retrieved	% txd	Retrieved	% txd	Retrieved	% txd	Retrieved	% txd
DBD								
Birmingham	232	91.4	115	88.7	58	31	2	100
Cambridge	234	89.7	114	87.7	51	54.9	9	88.9
Cardiff	54	85.2	24	87.5	10	50	1	100
Edinburgh	153	91.5	76	94.7	33	51.5	0	-
King's College	316	88.9	159	92.5	58	48.3	2	100
Leeds	148	91.2	66	89.4	36	47.2	1	0
Manchester	131	90.1	63	90.5	22	36.4	0	-
Newcastle	201	88.6	99	80.8	42	45.2	0	-
Oxford	150	94	72	84.7	30	43.3	6	100
Royal Free	128	89.8	67	92.5	22	27.3	0	-
Total	1747	90.2	855	89	362	43.9	21	90.5
DCD								
Birmingham	183	86.9	46	80.4	20	35	-	-
Cambridge	177	85.9	44	75	18	66.7	-	-
Cardiff	58	87.9	12	58.3	6	66.7	-	-
Edinburgh	69	85.5	11	63.6	4	75	-	-
King's College	211	83.9	43	67.4	13	53.8	-	-
Leeds	116	87.9	17	82.4	10	50	-	-
Manchester	106	78.3	23	65.2	13	46.2	-	-
Newcastle	124	79	17	82.4	7	42.9	-	-
Oxford	108	84.3	25	60	9	77.8	-	-
Royal Free	86	84.9	20	80	5	20	-	-
Total	1238	84.4	258	72.5	105	52.4	-	-
Total	2985	87.8	1113	85.2	467	45.8	21	90.5

Note: there was 1 patient attended by a local or overseas retrieval team, this attendance is not included in this table.

Figures 8a and 8b show the number of organs retrieved, by attending retrieval team, for DBD and DCD donors, respectively.

Figure 8a DBD abdominal organs retrieved, 1 April 2018 - 31 March 2019 by attending retrieval team

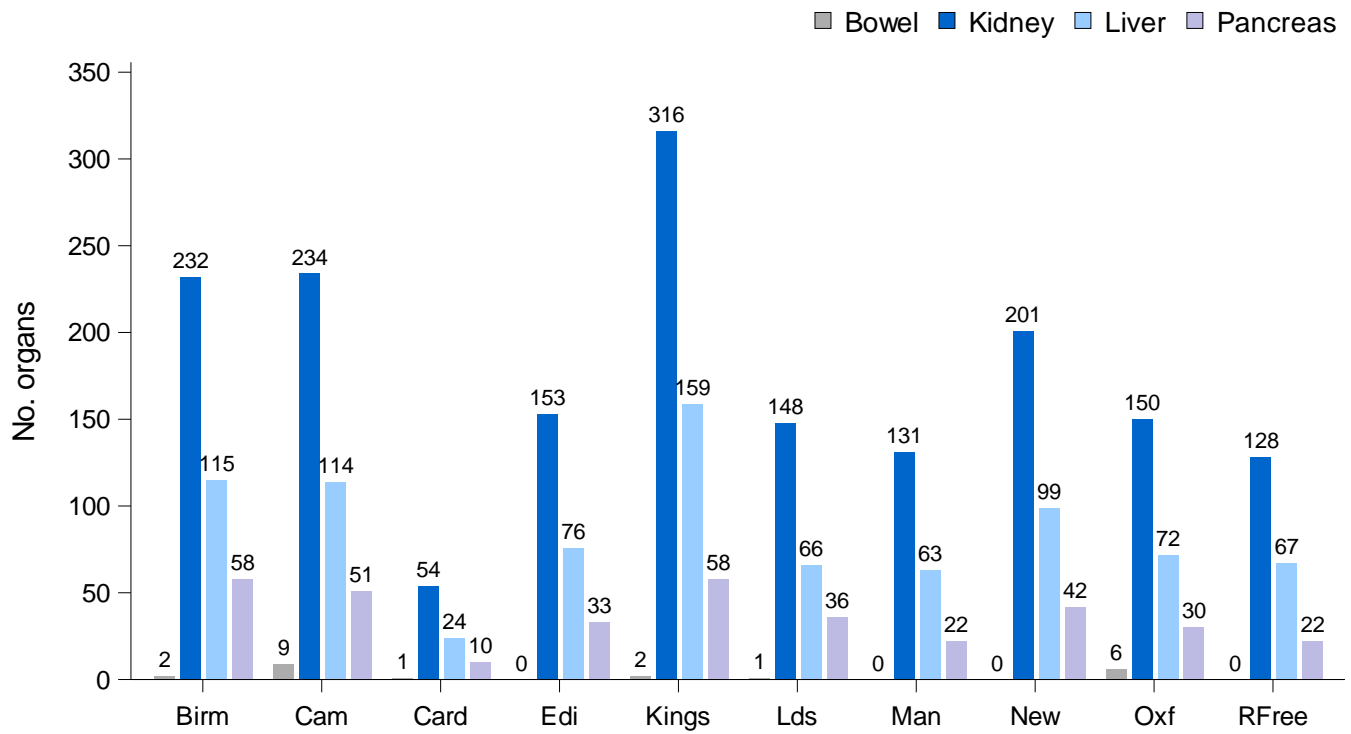


Figure 8b DCD abdominal organs retrieved, 1 April 2018 - 31 March 2019 by attending retrieval team

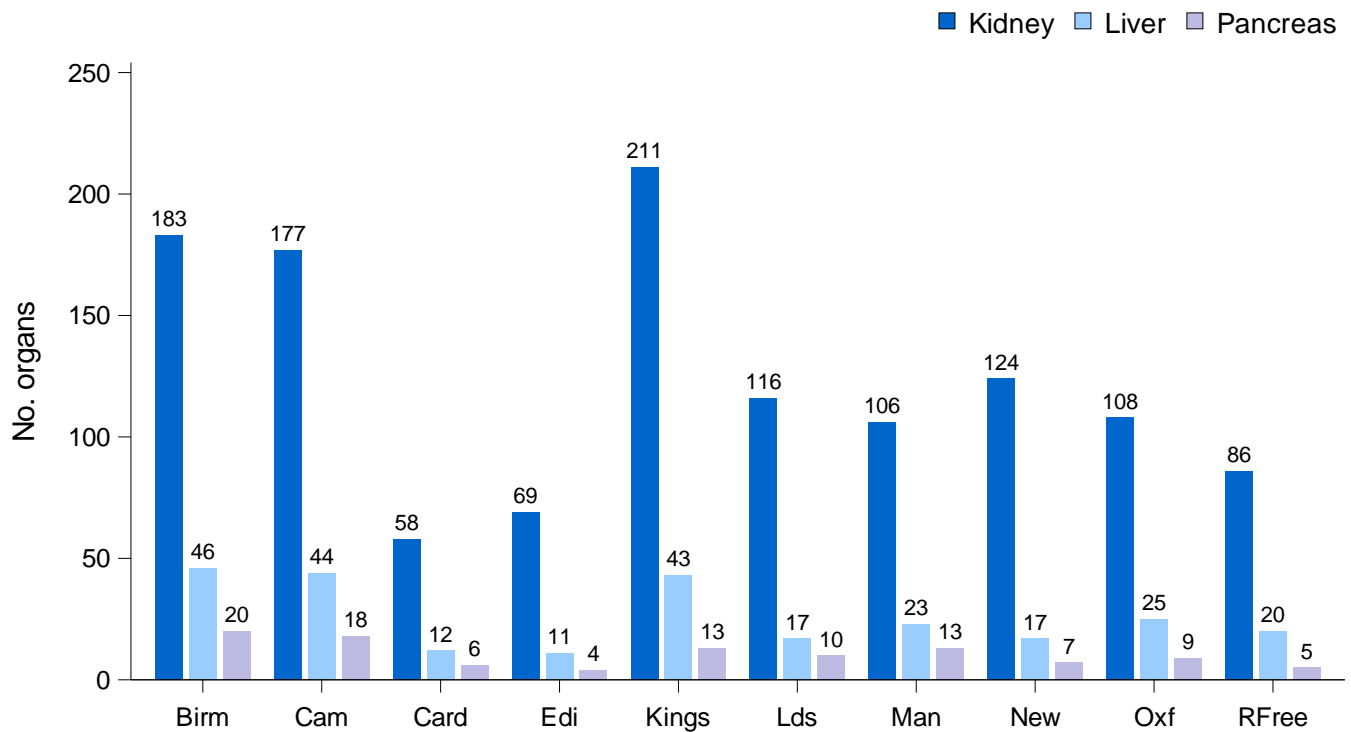


Table 3c shows the mean number of abdominal organs retrieved and transplanted for each proceeding abdominal donor, by attending retrieval team and donor type. Mean donor age is also reported.

- The mean number of organs retrieved per DBD donor ranged from 3 to 3.2 across teams, analysis of variance indicated that the differences were not statistically significant (p=0.5265).
- The mean number of organs transplanted per DBD donor ranged from 2.5 to 2.8 across teams, analysis of variance indicated that the differences were not statistically significant (p=0.4942).
- The mean number of organs retrieved per DCD donor ranged from 2.4 to 2.7 across teams, analysis of variance indicated that the differences were not statistically significant (p=0.3277).
- The mean number of organs transplanted per DCD donor ranged from 1.9 to 2.2 across teams, analysis of variance indicated that the differences were not statistically significant (p=0.4622).

Table 3c Mean donor age, organs retrieved, and organs transplanted, per proceeding abdominal donor, 1 April 2018 - 31 March 2019, by attending retrieval team

Attending retrieval team	Actual abdo. donors	Donor age		DBD Orgs. retrieved		Orgs. txd		Actual abdo. donors	Donor age		DCD Orgs. retrieved		Orgs. txd	
		Mean	(SD.)	Mean	(SD.)	Mean	(SD.)		Mean	(SD.)	Mean	(SD.)	Mean	(SD.)
Birmingham	127	49.7	(17.7)	3.2	(0.9)	2.6	(1)	96	53.6	(16.3)	2.6	(0.8)	2.1	(0.9)
Cambridge	128	49.5	(16.6)	3.2	(1)	2.7	(1.2)	90	52.6	(16.5)	2.7	(0.7)	2.2	(1)
Cardiff	29	51.4	(14.8)	3.1	(0.8)	2.5	(1)	30	54.2	(15.4)	2.5	(0.7)	2.1	(0.8)
Edinburgh	82	49.7	(16.2)	3.2	(0.8)	2.8	(0.8)	35	51.7	(17.1)	2.4	(0.7)	2	(1)
King's College	177	51.7	(18.1)	3	(0.9)	2.6	(1)	110	56.8	(15.3)	2.4	(0.7)	1.9	(1)
Leeds	79	50.2	(17.8)	3.2	(0.9)	2.7	(1)	59	51.1	(17)	2.4	(0.7)	2.1	(0.8)
Manchester	71	50.1	(17.8)	3	(0.8)	2.6	(1)	56	54.8	(17.9)	2.5	(0.9)	1.9	(1.1)
Newcastle	112	52.5	(15.6)	3.1	(1)	2.5	(1)	62	56	(16)	2.4	(0.6)	1.9	(0.8)
Oxford	80	52.3	(17)	3.2	(0.9)	2.8	(0.9)	55	52.1	(17.2)	2.6	(0.7)	2.1	(1)
Royal Free	72	53	(14.8)	3	(0.9)	2.5	(0.9)	43	53.8	(17.7)	2.6	(0.7)	2.1	(0.9)
Total	957	51	(16.9)	3.1	(0.9)	2.6	(1)	636	53.9	(16.5)	2.5	(0.7)	2	(0.9)

Table 4a shows the number of cardiothoracic organs retrieved and the percentage that were transplanted, this is broken down by organ type and the attending retrieval team. Overall, 42.4% of DBD donors (donating at least one cardiothoracic organ) donated their heart only, 35.3% donated their lung(s) only, and 22.3% donated their heart and lung(s). Additionally, 31.6% of actual DCD donors donated their heart only, 58.2% donated their lung(s) only, and 10.1% donated their heart and lung(s).

Table 4a Organs retrieved from actual cardiothoracic donors, 1 April 2018 - 31 March 2019, by attending retrieval team								
Attending retrieval team	DBD donors donating				DCD donors donating			
	N	Heart only (%)	Lung only (%)	Heart & lung (%)	N	Heart only (%)	Lung only (%)	Heart & lung (%)
Birmingham	33	39.4	42.4	18.2	7	0	100	0
Glasgow	16	37.5	43.8	18.8	2	0	100	0
Harefield	50	32	38	30	24	37.5	58.3	4.2
Manchester	52	53.8	34.6	11.5	8	12.5	87.5	0
Newcastle	32	56.3	21.9	21.9	8	0	87.5	12.5
Papworth	55	36.4	34.5	29.1	30	50	30	20
Total	238	42.4	35.3	22.3	79	31.6	58.2	10.1

There was one cardiothoracic retrieval reported as attended by more than one retrieval team. This donor has been allocated to the team which was highest in the attendance sequence.

Table 4b shows the number of cardiothoracic organs retrieved and the percentage that were transplanted, this is broken down by organ type and the attending retrieval team. For example, there were 269 DBD lungs retrieved and of these 90.3% were transplanted.

Table 4b Cardiothoracic organs retrieved and percentage that went on to be transplanted, 1 April 2018 - 31 March 2019, by attending retrieval team				
Attending retrieval team	Hearts		Lungs	
	Retrieved	% txd	Retrieved	% txd
DBD				
Birmingham	19	100	40	95
Glasgow	9	100	20	55
Harefield	31	93.5	68	94.1
Manchester	34	94.1	45	86.7
Newcastle	25	100	27	92.6
Papworth	36	100	69	95.7
Total	154	97.4	269	90.3
DCD				
Birmingham	0	-	13	100
Glasgow	0	-	3	100
Harefield	10	90	30	66.7
Manchester	1	100	14	71.4
Newcastle	1	100	16	56.3
Papworth	21	95.2	29	62.1
Total	33	93.9	105	69.5
Total	187	96.8	374	84.5

Figures 9a and 9b show the number of organs retrieved, by attending retrieval team, for DBD and DCD donors, respectively.

Figure 9a DBD cardiothoracic organs retrieved, 1 April 2018 - 31 March 2019 by attending retrieval team

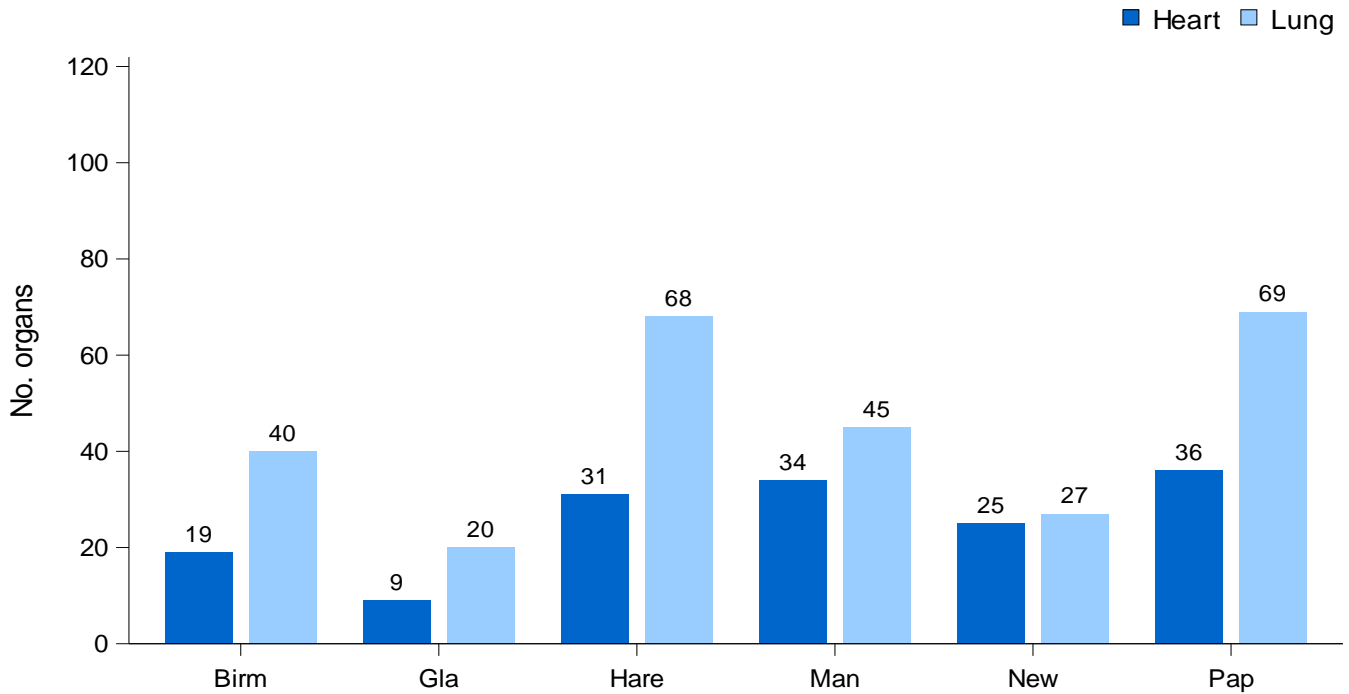


Figure 9b DCD cardiothoracic organs retrieved, 1 April 2018 - 31 March 2019 by attending retrieval team

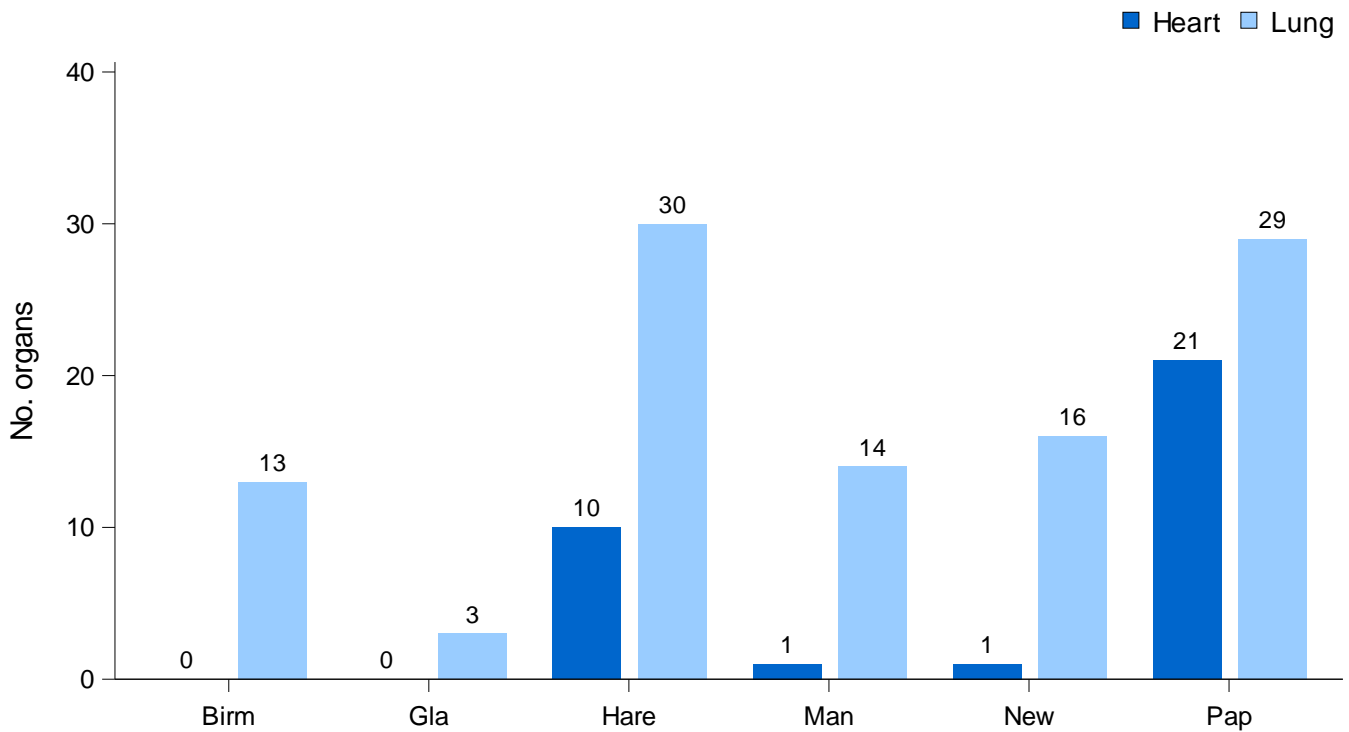


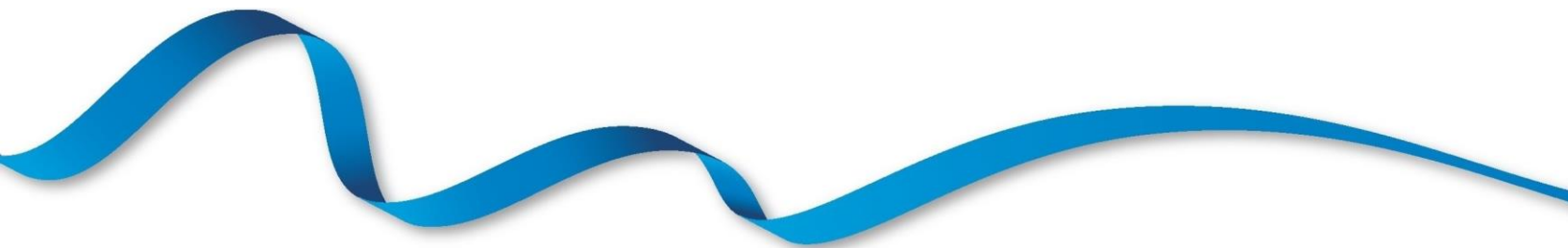
Table 4c shows the mean number of cardiothoracic organs retrieved and transplanted for each proceeding cardiothoracic donor, by attending retrieval team and donor type. Mean donor age is also reported.

- The mean number of organs retrieved per DBD donor ranged from 1.5 to 2 across teams, analysis of variance indicated that the differences were statistically significant ($p=0.0356$)
- The mean number of organs transplanted per DBD donor ranged from 1.3 to 1.9 across teams, analysis of variance indicated that the differences were statistically significant ($p=0.0043$).
- The mean number of organs retrieved per DCD donor ranged from 1.5 to 2.1 across teams, analysis of variance indicated that the differences were not statistically significant ($p=0.4745$).
- The mean number of organs transplanted per DCD donor ranged from 1.2 to 1.9 across teams, analysis of variance indicated that the differences were not statistically significant ($p=0.6228$).

Table 4c Mean donor age, organs retrieved, and organs transplanted, per proceeding cardiothoracic donor, 1 April 2018 - 31 March 2019, by attending retrieval team

Attending retrieval team	Actual cardio. donors	Donor age		DBD Orgs. retrieved		Orgs. txd		Actual cardio. donors	Donor age		DCD Orgs. retrieved		Orgs. txd	
		Mean	(SD.)	Mean	(SD.)	Mean	(SD.)		Mean	(SD.)	Mean	(SD.)	Mean	(SD.)
Birmingham	33	36.7	(14.6)	1.8	(0.7)	1.7	(0.7)	7	49	(16.7)	1.9	(0.4)	1.9	(0.4)
Glasgow	16	38.4	(15.7)	1.8	(0.8)	1.3	(0.9)	2	39.5	(20.5)	1.5	(0.7)	1.5	(0.7)
Harefield	50	40.2	(14.4)	2	(0.8)	1.9	(0.8)	24	39.2	(15.2)	1.7	(0.6)	1.2	(0.8)
Manchester	52	40.4	(15.1)	1.5	(0.7)	1.4	(0.8)	8	54.4	(10.7)	1.9	(0.4)	1.4	(0.9)
Newcastle	32	30.9	(19.6)	1.6	(0.8)	1.6	(0.8)	8	43.5	(16)	2.1	(0.4)	1.3	(1.2)
Papworth	55	38.9	(16.5)	1.9	(0.8)	1.9	(0.9)	30	39.7	(13.2)	1.7	(0.8)	1.3	(0.9)
Total	238	38.1	(16.1)	1.8	(0.8)	1.7	(0.8)	79	42.2	(14.8)	1.7	(0.6)	1.3	(0.8)

APPENDIX



APPENDIX

Appendix 1 Retrieval data missing form rates, 1 April 2018 - 31 March 2019					
Attending retrieval team	Number of forms due	Retrieval team forms missing		SNOD forms missing	
		N	%	N	%
Abdominal					
Birmingham	255	1	0.4	3	1.2
Cambridge	266	0	0	3	1.1
Cardiff	72	0	0	0	0
Edinburgh	145	0	0	2	1.4
King's College	351	0	0	4	1.1
Leeds	170	0	0	0	0
Manchester	163	0	0	0	0
Newcastle	215	0	0	2	0.9
Oxford	163	0	0	3	1.8
Royal Free	131	0	0	1	0.8
Cardiothoracic					
Birmingham	92	0	0	1	1.1
Glasgow	40	9	22.5	0	0
Harefield	117	0	0	1	0.9
Manchester	121	2	1.7	0	0
Newcastle	74	4	5.4	0	0
Papworth	145	0	0	0	0
Total	2520	16	0.6	20	0.8

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