

NHS BLOOD AND TRANSPLANT
MULTI-VISCERAL AND COMPOSITE TISSUE ADVISORY GROUP
POTENTIAL BOWEL DONORS

SUMMARY

BACKGROUND

- 1 Prior to 1 November 2021, potential donors after brain death (DBD) who were aged < 56 years and weighed < 80 kg were considered for bowel donation. From 1 November 2021, potential DBD donors aged < 60 years and weighing < 90 kg are considered for bowel donation.
- 2 Potential bowel donors were defined as DBD donors who donated at least one solid organ for the purpose of transplantation, who met the criteria for bowel donation and whose family gave consent for bowel donation. This paper examines the pathway from identification of potential bowel donors to transplantation of the bowel and the points at which potential bowel donors are “lost”.

KEY MESSAGES

- 3 The last financial year, 2022/23, was analysed. In this period there were 772 UK DBD donors, of which 381 (49%) met the criteria for bowel donation. Of these, consent for bowel donation was given in 337 (88%) donors and the bowels of 234 (69%) were offered to intestinal transplant centres. 24 (10%) of those offered were accepted for transplantation.
- 4 The number of DBD donors fell slightly in 2022/23 compared to the previous year. The consent rate increased slightly to 88% but both the offered and transplanted rates decreased in 2022/23 to 69% and 10% respectively, but these rates were higher than in 2020/21.
- 5 Of the 210 bowels that were offered and declined, only 12 (6%) were from donors weighing < 50 kg which were declined for a variety of reasons. Of the 381 donors meeting the potential bowel donor criteria, 5 (1%) weighed less than 30 kg. One was not offered due to no suitable recipients and four were offered and declined.
- 6 There were 22 non-UK donors offered to the UK for bowel donation in 2022/23, with one retrieved and progressing to transplant.

ACTION

- 7 Members are asked to note these results and discuss any actions required. Additionally, members are asked to review the contents of this report and whether any of the content is no longer required.

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November 2023

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BACKGROUND

- 1 Prior to 1 November 2021, potential donors after brain death (DBD) who were aged < 56 years and weighed < 80 kg were considered for bowel donation. From 1 November 2021, potential DBD donors aged < 60 years and weighing < 90 kg are considered for bowel donation.
- 2 This paper examines the pathway from identification of potential bowel donors to transplantation of the bowel and the points at which potential bowel donors are “lost”. Small potential bowel donors (weight < 50 kg) are examined in more detail as these have the greatest potential. The geographical distribution of potential bowel donors is also examined.

DATA AND METHODS

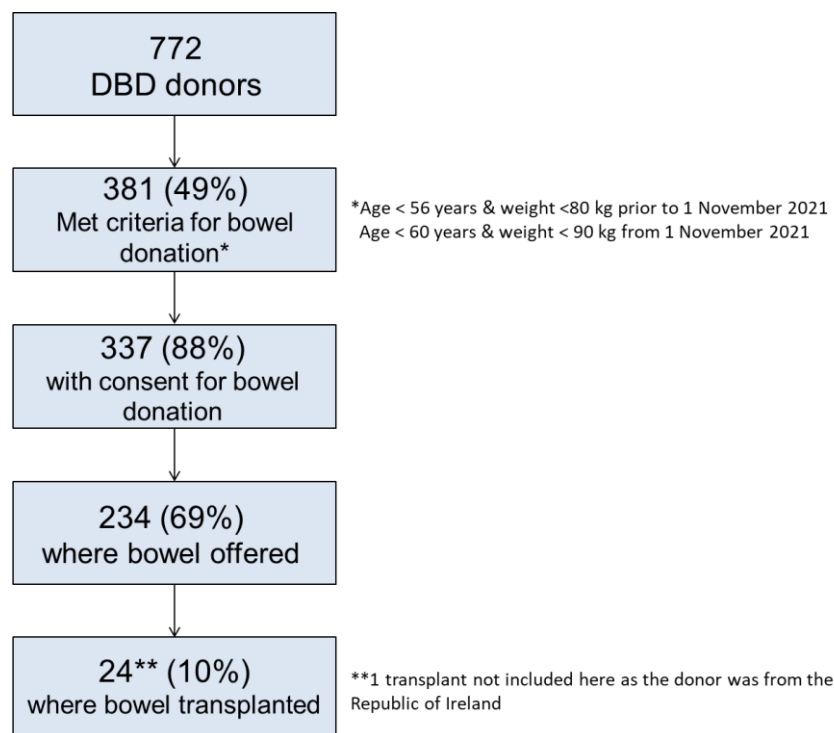
- 3 Potential bowel donors were defined as DBD donors who donated at least one solid organ for the purposes of transplantation, who met the criteria for bowel donation and whose family gave consent for bowel donation.
- 4 Data on 772 DBD donors who died in the UK between 1 April 2022 and 31 March 2023 were extracted from the UK Transplant Registry (UKTR) on 27 October 2023. Data from the previous two years were also extracted for comparison.
- 5 Reasons for the non-use of bowels from potential bowel donors were analysed. The reasons were reported by NHS Blood and Transplant Hub Operations or Specialist Nurses in Organ Donation in cases where no offering took place, and by the centres themselves in cases where offering did take place. Donors were classed as not having consent for bowel donation if the reason recorded for non-use was that the family refused consent or consent was not sought for that organ.
- 6 Data on bowel offers to the UK from non-UK donors between 1 April 2022 and 31 March 2023 were also extracted from the UKTR. The outcome of these offers, along with other organs available are presented.
- 7 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, has impacted on the number of donors and transplants.

RESULTS

The pathway to bowel donation

- 8 Of the 772 DBD donors in the time period, 381 (49%) met the criteria for bowel donation. Of these, consent for bowel donation was gained from the donor family in 337 cases (88%). Of these 337 potential bowel donors, the bowels of 234 (69%) were offered to intestinal transplant centres and 24 (10%) bowels were transplanted. The bowel from a Republic of Ireland donor was also transplanted in 2022/23 but is not included in the numbers below. A flow diagram of this pathway is shown in **Figure 1**. An equivalent figure for donors aged <18 years is shown in **Appendix I**.

Figure 1 Flow diagram of the pathway from DBD donors during 2022/23 to bowel donors



- 9 These rates are compared with the corresponding rates in the previous two financial years and presented in **Figure 2** and **Table 1**. The consent rate has increased slightly from 86% in 2020/21 to 88% in 2022/23. An equivalent figure and table just for donors aged <18 years is shown in **Appendix II** and **Appendix III** respectively.
- 10 The proportion of donors not meeting the potential bowel donor criteria has fallen from 63% in 2020/21 to 51% in 2022/23 and the number meeting the criteria has increased by 34% from 285 in 2020/21 to 381 in 2022/23. Over the time period, the consent rate has increased slightly from 86% to 88%. Both the offering rate and transplanted rate increased from 2020/21 to 2021/22 but have fallen in the most recent year to 69% and 10% respectively.
- 11 In March 2018, a change was implemented to bowel offering meaning recipients would not appear on the matching run for a donor if the donor's weight was greater than the maximum donor weight specified on the recipient's registration form. This has increased the number of occasions where no recipients appeared on the matching run. This has also meant a drop in the number of offers to paediatric patients as they are no longer being offered inappropriately sized donors.

Figure 2 The pathway from DBD donors between 1 April 2020 and 31 March 2023 to bowel donors, by financial year

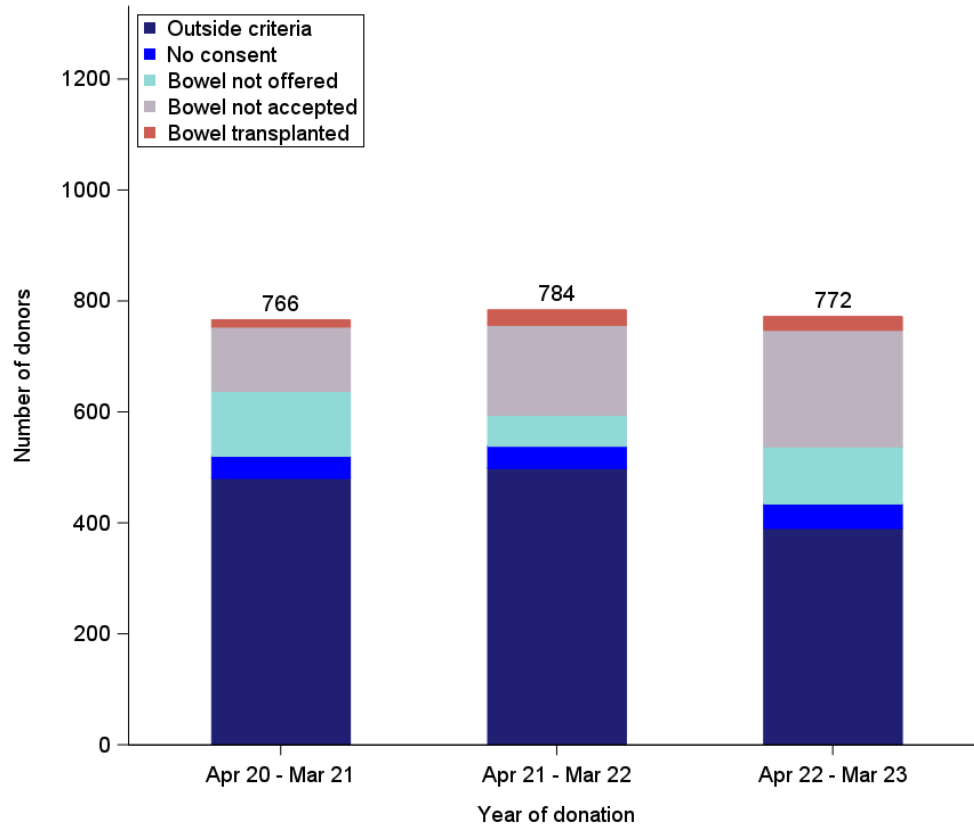


Table 1 The pathway from DBD donors between 1 April 2020 and 31 March 2023 to bowel donors, by financial year

		Financial year		
		2020/21	2021/22	2022/23
DBD donors	N	766	784	772
Met criteria for bowel donation*	N	285	285	381
	% of previous	37	36	49
Consent given for bowel donation	N	245	245	337
	% of previous	86	86	88
Bowel offered	N	128	189	234
	% of previous	52	77	69
Bowel transplanted	N	12	27	24
	% of previous	9	14	10

*Aged < 56 years & weight < 80 kg prior to 1 November 2021
Aged < 60 years & weight < 90 kg from 1 November 2021

Potential bowel donors

- 12 The reasons for not offering the bowels of 103 potential bowel donors between 1 April 2022 and 31 March 2023 are presented in **Table 2**. The most common reasons given were no suitable recipients on the list for that donor (29%) and donor history (27%).

Reasons for not offering	Donor bowels not offered	
	N	%
Donor reasons		
History	28	27
Size	9	9
Poor function	6	6
Age	4	4
Virology	2	2
Logistical reasons		
No suitable recipients ¹	30	29
Other	14	14
Permission refused by coroner	4	4
Other organs required were not available ²	1	1
Recipient did not need transplant	1	1
Organ not present	1	1
Organ damaged	1	1
Unknown	2	2
Total	103	100
¹ Blood group, HLA, or size incompatible		
² For example liver accepted for super-urgent liver recipient and no blood group compatible intestinal recipients not requiring a liver		

- 13 The total number of patient specific offers associated with the 234 donor bowels that were offered was reported to be 552, with adult centres receiving 528 (96%) of the offers and paediatric centres receiving 24 (4%). Adult centres accepted and transplanted 21 donor bowels (4% of offers made to them) and paediatric centres accepted and transplanted 3 donor bowels (13% of offers made to them).

Small potential bowel donors (< 50 kg)

- 14 Of the 210 bowels that were offered and declined, 12 (6%) were from donors weighing < 50 kg. The details of why these bowels were not used are shown in **Table 3**.

Donor	Blood group	Height (cm)	Weight (kg)	Age (years)	Details of the decline of the donor bowel
1	O	162	45.0	13	Declined by Cambridge due to poor function
2	A	173	49.0	16	Declined by Cambridge due to no ITU beds and other reason
3	A	168	48.0	32	Declined by Cambridge due to centre already retrieving/transplanting and by Birmingham on donor size
4	O	157	48.0	41	Declined by Cambridge due to centre already retrieving/transplanting
5	O	171	46.0	22	Declined by Cambridge due to centre already retrieving/transplanting
6	A	163	42.0	47	Positive virology fast track offer. Declined by Cambridge on past medical history and by King's on past medical history and virology
7	O	143	26.0	8	Declined by King's on poor function, by Cambridge on donor size and by Birmingham on poor function
8	O	150	39.5	55	Declined by Oxford on donor age
9	B	131	18.9	9	Declined by Cambridge on donor size
10	O	133	38.0	11	Declined by King's on poor function, by Cambridge on donor size and poor function and by Oxford due to no ITU beds and the recipient did not need a transplant
11	O	115	18.0	5	King's declined on anatomy
12	B	84	9.9	1	Declined by Cambridge on donor size

Particularly small potential bowel donors (< 30 kg)

15 Of the 381 donors who met criteria for bowel donation, 5 (1%) were less than 30kg. Four were offered and declined (donors 7, 9, 11 and 12 in **Table 3**), and one was not offered due to no suitable recipients.

Large potential bowel donors (≥ 50 kg)

16 The 198 declined bowels from donors who weighed ≥ 50 kg corresponded to 13 paediatric offers and 428 adult offers. Paediatric centres declined mostly on size. The most common reasons for decline cited by adult centres were donor history (37%) and other reason (18%).

Organs transplanted from potential bowel donors

17 **Table 4** shows summary statistics on the 234 potential bowel donors where bowel offering occurred, by whether the liver, pancreas, or bowel was transplanted. Note that these are not mutually exclusive groups. Note also that those livers that went to super-urgent liver only recipients have been shown for additional information. 190 (81%) livers and 74 (32%) pancreases were transplanted compared with 24 (10%) bowels. 46 of the livers that were transplanted were used in super-urgent liver only recipients but these were from the heavier donors.

Table 4 Transplants performed using organs from potential bowel donors where bowel offering occurred, during 2022/23

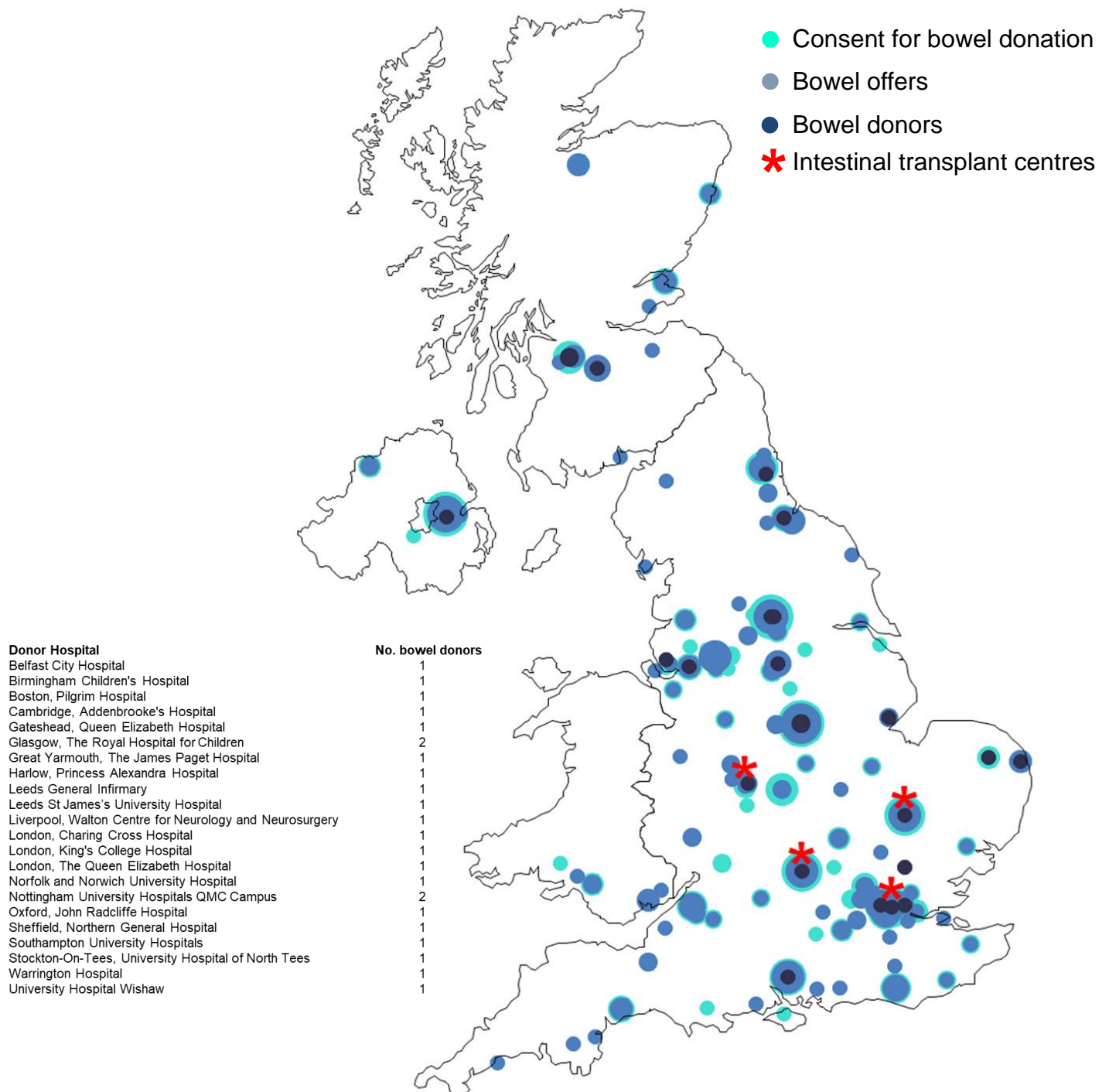
	No. donors	Liver		Organs transplanted (Liver only super-urgent transplants)*		Pancreas		Bowel	
		N	% of donors	(N)	(% of donors)	N	% of donors	N	% of donors
Donor blood group									
O	114	92	80.7	(35)	(30.7)	40	35.1	15	13.2
A	88	76	86.4	(10)	(11.4)	25	28.4	7	8.0
B	25	20	80.0	(1)	(4.0)	7	28.0	2	8.0
AB	5	2	40.0	(0)	(0.0)	2	40.0	0	0.0
Missing	2	0	0.0	(0)	(0.0)	0	0.0	0	0.0
Donor weight (kg)									
<20	3	2	66.7	(1)	(33.3)	0	0.0	0	0.0
20-<35	3	3	100.0	(0)	(0.0)	2	66.7	2	66.7
35-<50	9	8	88.9	(4)	(44.4)	7	77.8	1	11.1
≥50	219	177	80.8	(41)	(18.7)	65	29.7	21	9.6
Donor BMI (kg/m²)									
<18.5	23	21	91.3	(9)	(39.1)	12	52.2	3	13.0
18.5-<25	127	102	80.3	(22)	(17.3)	42	33.1	16	12.6
25+	84	67	79.8	(15)	(17.9)	20	23.8	5	6.0
Donor age (years)									
0-15	14	12	85.7	(2)	(14.3)	8	57.1	6	42.9
16-35	73	64	87.7	(17)	(23.3)	35	48.0	10	13.7
36-50	77	59	76.6	(13)	(16.9)	20	26.0	8	10.4
>50	70	55	78.6	(14)	(20.0)	11	15.7	0	0.0
Total	234	190	81.2	(46)	(19.7)	74	31.6	24	10.3

* This is a subset of the "Liver" column, showing those that were transplanted into super-urgent liver only recipients

Location of potential bowel donors

18 **Figure 3** shows the location of the 244 potential bowel donors (those meeting the criteria and with consent) during the time period, using the location of the donor hospital. Overlaid on the potential bowel donors (●) are the donors where bowel offering occurred (●) and overlaid on those are the donors where the bowel was transplanted (●). See **Appendix IV** for a comparison of the geographical distribution of liver offers and bowel offers.

Figure 3 Geographical distribution of potential bowel donors during 2022/23



- 19 **Table 5** shows the distribution of the 337 potential bowel donors with consent for both bowel and liver donation by Organ Donation Services Team, with the number of these donors who had the liver and bowel offered. Of the 337 donors, 328 (97%) had the liver offered and 234 (69%) had the bowel offered.

Organ Donation Services Team	No. donors	Livers offered		Bowels offered	
		N	%	N	%
A	28	28	100	18	64
B	34	33	97	27	79
C	35	35	100	23	66
D	37	35	95	20	54
E	21	19	90	18	86
F	19	18	95	14	74
G	29	29	100	23	79
H	29	29	100	17	59
I	38	38	100	25	66
J	11	11	100	9	82
K	22	21	95	17	77
L	34	32	94	23	68
Total	337	328	97	234	69

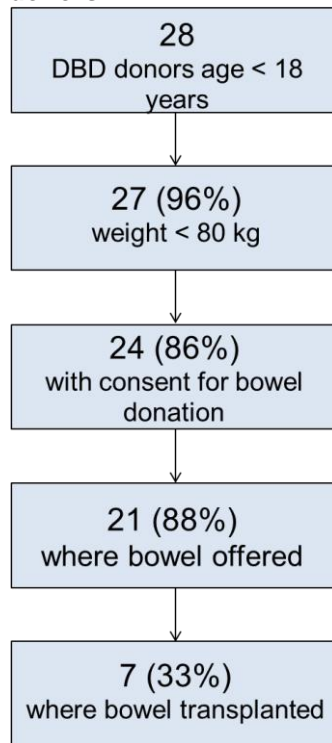
Non-UK offers

- 20 In 2022/23, there were 22 bowel offers to the UK from non-UK donors, with one retrieved and progressing to transplant. The donor from whom the bowel was retrieved and transplanted was blood group O, weighed 15kg and from the Republic of Ireland. **Table 6** summarises the reasons for decline for the remaining 21 donors.

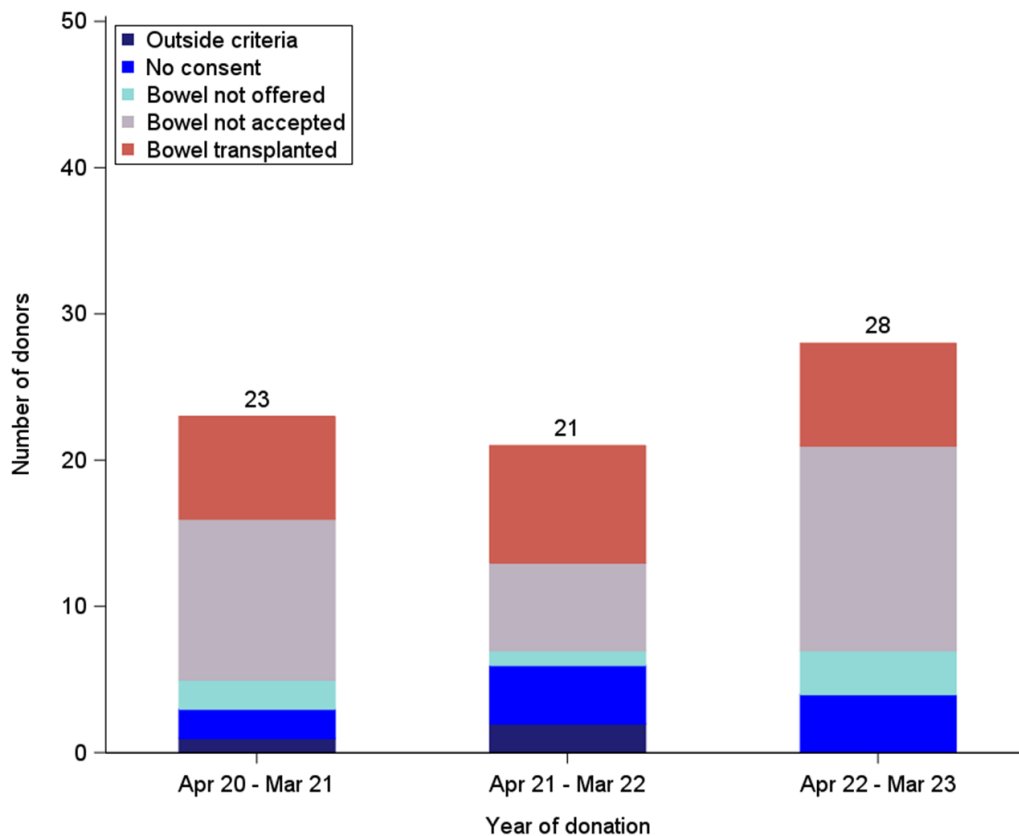
Reason for decline	N	%
No suitable recipients	13	62
Logistics	3	14
Distance	2	10
Donor past medical history	1	5
Donor size	1	5
Cold ischaemia time too long	1	5
Total	21	100

APPENDIX

Appendix I Flow diagram of the pathway from DBD donors aged < 18 years during 2022/23 to bowel donors



Appendix II The pathway from DBD donors aged <18 years between 1 April 2020 and 31 March 2023 to bowel donors, by financial year



Appendix III The pathway from DBD donors aged < 18 years between 1 April 2020 and 31 March 2023 to bowel donors, by financial year

		Financial year		
		2020/2021	2021/2022	2022/2023
DBD donors	N	23	21	28
Met criteria for bowel donation	N	22	19	28
	% of previous	96	90	100
Consent given for bowel donation	N	20	15	24
	% of previous	91	79	86
Bowel offered	N	18	14	21
	% of previous	90	93	88
Bowel transplanted	N	7	8	7
	% of previous	39	57	33

Appendix IV Geographical comparison of liver offers and bowel offers from DBD donors during 2022/23 using location of donor hospitals (note that the bowel offers are restricted to donors meeting the criteria for bowel donation while there is no restriction on the liver offers)

