

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, 2021/22, was analysed. In this period there were 784 UK DBD donors, of which 284 (36%) met the criteria for bowel donation. Of these, consent for bowel donation was given in 244 (86%) donors and the bowels of 189 (77%) were offered to intestinal transplant centres. 27 (14%) of those offered were accepted for transplantation.
- 4 There was a large decrease seen in the number of DBD donors between 2019/20 and 2020/21 due to the COVID-19 pandemic. The number of DBD donor increased by 2% in 2021/22. The consent rate remained at 86% but both the offered and transplanted rates increased in 2021/22 to 77% and 14% respectively and were higher than in 2019/20.
- 5 Of the 162 bowels that were offered and declined, only 4 (2%) were from donors weighing < 50 kg which were declined for a variety of reasons. Of the 284 donors meeting the potential bowel donor criteria, 4 (1%) weighed less than 30 kg. One was offered and declined, and three were offered, accepted and the bowel was transplanted.
- 6 There were 12 non-UK donors offered to the UK for bowel donation in 2021/22. All were offered to centres but all were declined.

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.

Chloe Brown
Statistics and Clinical Research

September 2022

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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

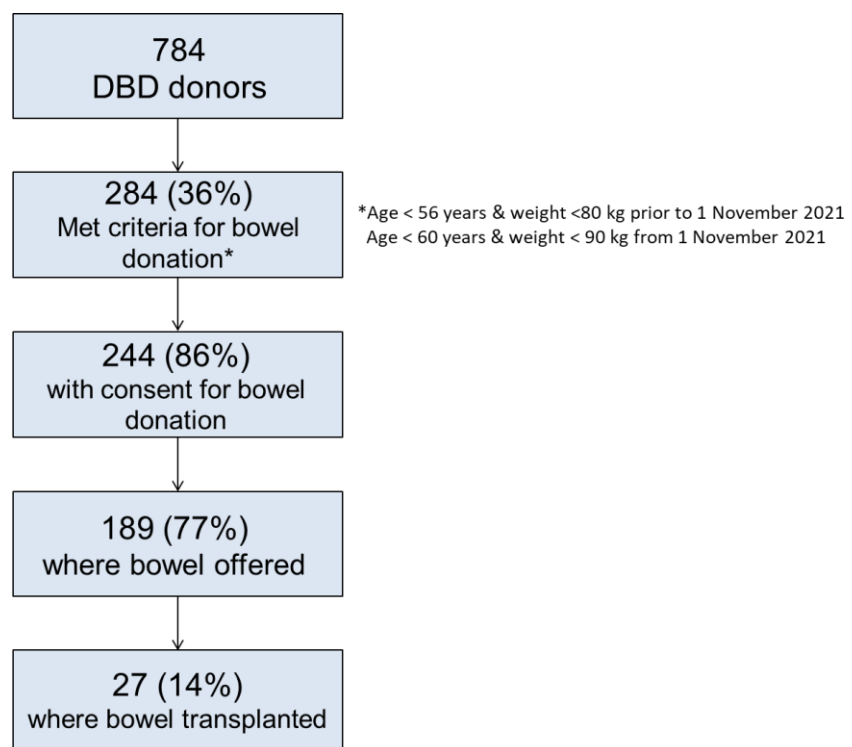
- 3 Potential bowel donors were defined as DBD donors who donated at least one solid organ for the purposes of transplantation, who met the criteria for bowel donation and whose family gave consent for bowel donation.
- 4 Data on 784 DBD donors who died in the UK between 1 April 2021 and 31 March 2022 were extracted from the UK Transplant Registry (UKTR) on 23 September 2022. 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 2021 and 31 March 2022 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 784 DBD donors in the time period, 284 (36%) met the criteria for bowel donation. Of these, consent for bowel donation was gained from the donor family in 244 cases (86%). Of these 244 potential bowel donors, the bowels of 189 (77%) were offered to intestinal transplant centres and 27 (14%) bowels were transplanted. 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 2021/22 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 from 80% in 2019/20 to 86% in 2021/22. An equivalent figure and table just for donors aged <18 years is shown in **Appendix II** and **Appendix III** respectively.
- 10 The number of DBD donors in 2021/22 is greater than in 2020/21 but remains lower than 2019/20 due to the ongoing impact of the COVID-19 pandemic. The proportion not meeting the potential bowel donor criteria has fallen slightly from 68% to 64% and the number meeting the criteria has decreased by 6% from 303 in 2019/20 to 284 in 2021/22. The consent rate has increased from 80% in 2019/20 to 86% in 2021/22, the offering rate has increased to 77% and the transplanted rate has increased to 14% in 2021/22.
- 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 2019 and 31 March 2022 to bowel donors, by financial year

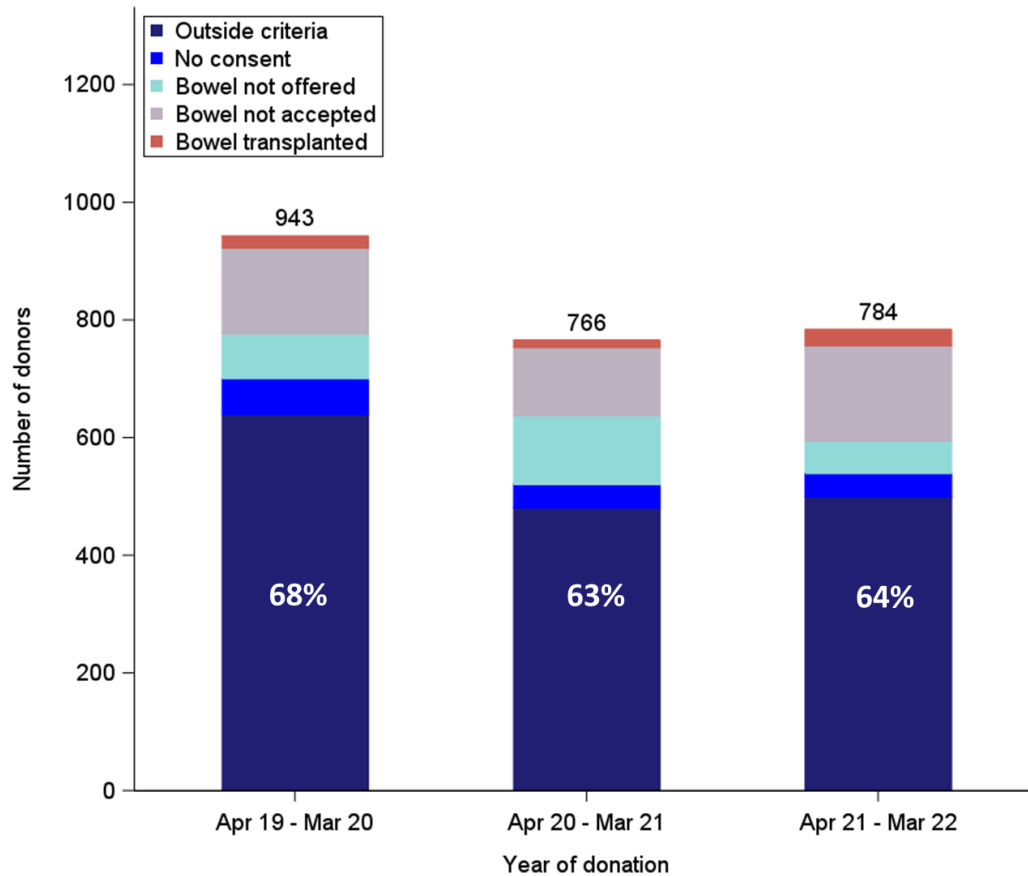


Table 1 The pathway from DBD donors between 1 April 2019 and 31 March 2022 to bowel donors, by financial year

		Financial year		
		2019/20	2020/21	2021/22
DBD donors	N	943	766	784
Met criteria for bowel donation*	N	303	285	284
	% of previous	32	37	36
Consent given for bowel donation	N	242	245	244
	% of previous	80	86	86
Bowel offered	N	166	128	189
	% of previous	69	52	77
Bowel transplanted	N	20	12	27
	% of previous	12	9	14

*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 55 potential bowel donors between 1 April 2021 and 31 March 2022 are presented in **Table 2**. The most common reasons given were no suitable recipients on the list for that donor (31%) and donor history (31%).

Reasons for not offering	Donor bowels not offered	
	N	%
Donor reasons		
History	17	31
Size	3	5
Age	3	5
Poor function	1	2
Virology	1	2
Logistical reasons		
No suitable recipients ¹	17	31
Permission refused by coroner	3	5
Donor type ³	3	5
Other organs required were not available ²	2	4
No beds	1	2
Other	4	7
Total	55	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		
³ Donor started as DCD but proceeded as DBD after offering began		

- 13 The total number of patient specific offers associated with the 189 donor bowels that were offered was reported to be 446, with adult centres receiving 407 (91%) of the offers and paediatric centres receiving 39 (9%). Adult centres accepted and transplanted 20 donor bowels (5% of offers made to them) and paediatric centres accepted and transplanted 7 donor bowels (18% of offers made to them).

Small potential bowel donors (< 50 kg)

- 14 Of the 162 bowels that were offered and declined, 4 (2%) were from donors weighing < 50 kg. The details of why these bowels were not used are shown in **Table 3 (removed as patient identifiable)**.

Particularly small potential bowel donors (< 30 kg)

- 15 Of the 284 donors who met criteria for bowel donation, 4 (1%) were less than 30kg. One was offered and declined (donor 4 in **Table 3**), and three were offered and the bowel was transplanted.

Large potential bowel donors (\geq 50 kg)

- 16 The 157 declined bowels from donors who weighed \geq 50 kg corresponded to 29 paediatric offers and 349 adult offers. Paediatric centres declined mostly on size and past history. The most common reasons for decline cited by adult centres were donor history (24%) and virology (12%).

Organs transplanted from potential bowel donors

- 17 **Table 4** shows summary statistics on the 189 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. 161 (85%) livers and 59 (31%) pancreases were transplanted compared with 27 (14%) bowels. 45 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 2021/22

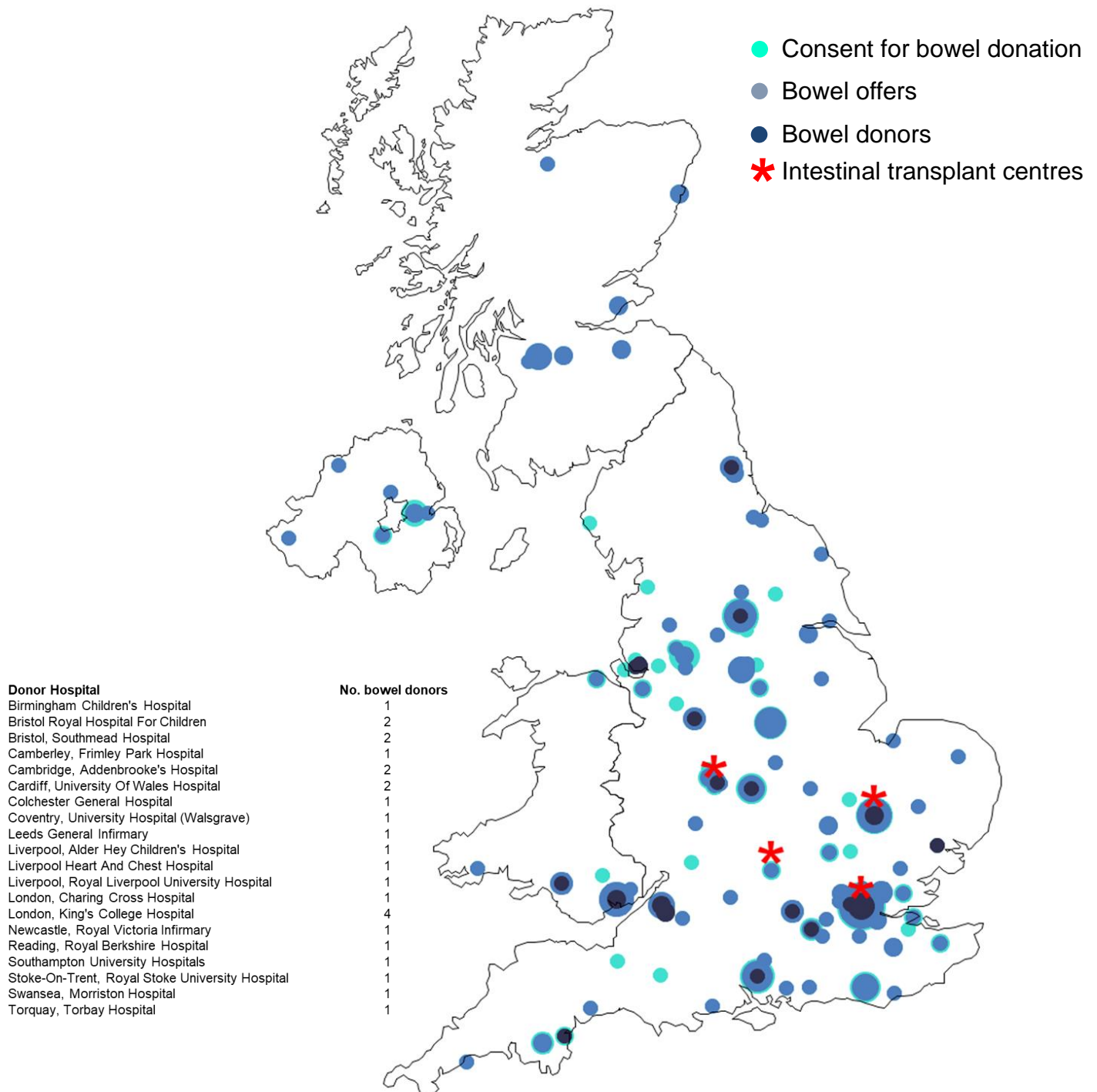
	No. donors	Liver		Organs transplanted (Liver only super-urgent transplants)*		Pancreas		Bowel	
		N	% of donors	(N)	(% of donors)	N	% of donors	N	% of donors
Donor blood group									
O	97	82	84.5	(31)	(32.0)	33	34.0	17	17.5
A	71	61	85.9	(13)	(18.3)	17	23.9	9	12.7
B	17	14	82.4	(1)	(5.9)	8	47.1	1	5.9
AB	4	4	100.0	(0)	(0.0)	1	25.0	0	0.0
Donor weight (kg)									
<20	3	3	100.0	(1)	(33.3)	1	33.3	2	66.7
20-<35	1	1	100.0	(0)	(0.0)	1	100.0	1	100.0
35-<50	9	9	100.0	(3)	(33.3)	5	55.6	5	55.6
≥50	176	148	84.1	(41)	(23.3)	52	29.6	19	10.8
Donor BMI (kg/m²)									
<18.5	14	13	92.9	(2)	(14.3)	7	50.0	6	42.9
18.5-<25	114	93	81.6	(29)	(25.4)	32	28.1	17	14.9
25+	61	55	90.2	(14)	(23.0)	20	32.8	4	6.6
Donor age (years)									
0-15	11	11	100.0	(2)	(18.2)	7	63.6	7	63.6
16-35	65	59	90.8	(22)	(33.8)	28	43.1	12	18.5
36-50	71	58	81.7	(13)	(18.3)	20	28.2	5	7.0
>50	42	33	78.6	(8)	(19.0)	4	9.5	3	7.1
Total	189	161	85.2	(45)	(23.8)	59	31.2	27	14.3

* 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 2021/22



- 19 **Table 5** shows the distribution of the 244 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 244 donors, 233 (95%) had the liver offered and 189 (77%) had the bowel offered.

Organ Donation Services Team	No. donors	Livers offered		Bowels offered	
		N	%	N	%
A	26	25	96	20	77
B	38	37	97	33	87
C	25	24	96	20	80
D	23	21	91	10	43
E	8	8	100	7	88
F	10	9	90	7	70
G	16	15	94	16	100
H	16	15	94	12	75
I	23	22	96	16	70
J	13	13	100	12	92
K	20	20	100	16	80
L	26	24	92	20	77
Total	244	233	95	189	77

Non-UK offers

- 20 In 2021/22, there were 12 bowel offers to the UK from non-UK donors, with none retrieved or progressing to transplant. **Table 6** summarises what was offered and the outcome.

Table 6 Details of 12 non-UK donors where the bowel was offered to the UK in 2021/22

Donor	Donor country	Blood group	Donor weight (kg)	Organs available	Offered to centres	Outcome	Reason for non-use/Organs transplanted
1	Austria	A	60.0	Bowel only	Yes	Declined	No suitable recipients
2	Europe ¹	O	65.0	Bowel only	Yes	Declined	No suitable recipients and logistics
3	Germany	O	72.0	Bowel only	Yes	Declined	Size, logistics and no suitable recipients
4	Switzerland	O	75.0	Bowel only	Yes	Declined	Size, logistics and no suitable recipients
5	Switzerland	B	56.0	Bowel only	Yes	Declined	Size, no suitable recipients
6	Austria	B	61.0	Bowel only	Yes	Declined	No suitable recipients
7	Europe ¹	A	55.0	Bowel only	Yes	Declined	Size and no suitable recipients
8	Germany	A	70.0	Bowel only	Yes	Declined	No suitable recipients
9	Switzerland	A	57.0	Bowel only	Yes	Declined	No suitable recipients, couldn't retrieve from Europe at time
10	Germany	A	8.0	Bowel only	Yes	Declined	Size, logistics and no suitable recipients
11	Austria	O	15.0	Bowel only	Yes	Declined	History
12	Europe ¹	AB	63.0	Bowel only	Yes	Declined	No suitable recipients

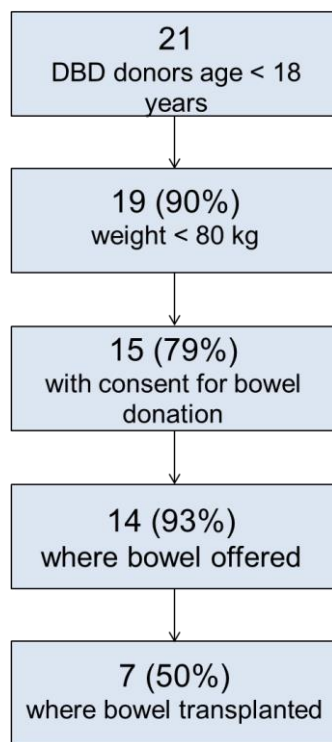
¹ Exact country of donor is not known

Chloe Brown
Statistics and Clinical Research

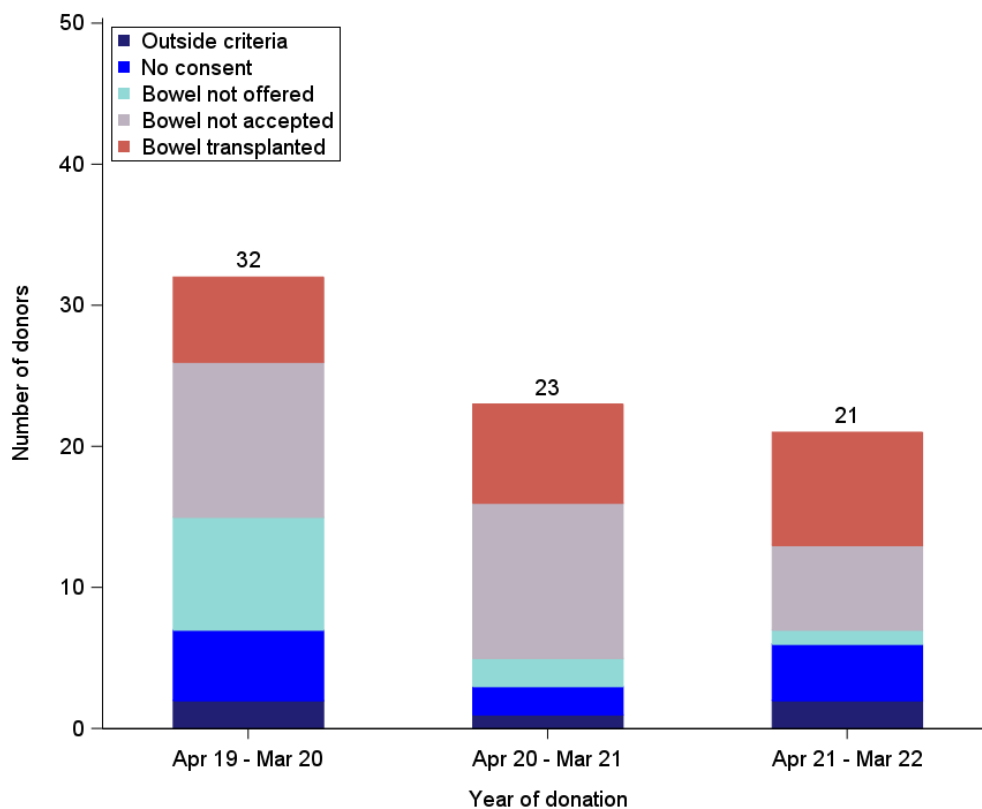
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APPENDIX

Appendix I Flow diagram of the pathway from DBD donors aged < 18 years during 2021/22 to bowel donors



Appendix II The pathway from DBD donors aged <18 years between 1 April 2019 and 31 March 2022 to bowel donors, by financial year



Appendix III The pathway from DBD donors aged < 18 years between 1 April 2019 and 31 March 2022 to bowel donors, by financial year

		Financial year		
		2019/2020	2020/2021	2021/2022
DBD donors	N	32	23	21
Met criteria for bowel donation	N	30	22	19
	% of previous	94	96	90
Consent given for bowel donation	N	25	20	15
	% of previous	83	91	79
Bowel offered	N	17	18	14
	% of previous	68	90	93
Bowel transplanted	N	6	7	7
	% of previous	35	39	50

Appendix IV Geographical comparison of liver offers and bowel offers from DBD donors during 2021/22 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)

