

Potential to almost double the number of UK paediatric donors

Rachel Hodge, Joanne Allen, Emma Thirlwall, Liz Waite, Paula Watson

On behalf of the Paediatric Donor Working Group, NHS Blood and Transplant

Background

Adult rates of neurological death testing, approach and consent/authorisation are consistently higher than those achieved for paediatric donors (see **Table 1**). In 2012-13 neurological death testing rates for adult and paediatric potential donors after brain death (DBD) were 79% and 60%, respectively. Adult and paediatric DBD approach rates were 93% and 86% and approach rates for eligible donors after circulatory death (DCD) were 59% and 50%. DBD consent/authorisation rates for adult and paediatric eligible donors were 68% and 59% but the biggest difference was observed in the DCD consent/authorisation rates: 52% for adults and 29% for eligible paediatric donors.

Table 1: DBD and DCD key metrics from the Potential Donor Audit, 1 April 2012 to 31 March 2013, 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	Approach rate (%)	Percentage of approaches involving a SN-OD (%)	Consent/authorisation rate (%)	Number of actual donors ²
DBD	Adult (>=18)	1,535	78.8	92.2	1,137	1,056	92.9	79.6	68.0	652
	Paediatric (<18)	96	60.4	80.2	51	44	86.3	61.4	59.1	24
	TOTAL	1,631	77.7	91.5	1,188	1,100	92.6	78.9	67.6	676
DCD	Adult (>=18)	6,664		63.1	2,969	1,744	58.7	67.4	52.2	436
	Paediatric (<18)	296		47.3	145	72	49.7	50.0	29.2	13
	TOTAL	6,960		62.4	3,114	1,816	58.3	66.7	51.3	449

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

²Actual donors resulting from eligible DBD donors includes 18 DCD donors aged 18 years and over.

Methods

Data were obtained from the UK Potential Donor Audit (PDA) and UK Transplant Registry for adult and paediatric potential donors (<18 years) from 1 April 2010 to 31 March 2013 (PDA data as at 6 June 2013). Adult neurological death testing, approach and consent/authorisation rates were applied to the paediatric data to determine the number of additional paediatric donors that could have resulted each year if adult rates were achieved.

Furthermore, the number of extra patients who could have received a transplant had those rates been achieved has been estimated. This is particularly important, given that more patients are typically transplanted per paediatric donor compared with adult donors (see **Table 2**).

Table 2: Mean number of patients transplanted per deceased donor, by age group.

Year	DBD		DCD		All donors	
	Adult	Paediatric	Adult	Paediatric	Adult	Paediatric
2010-11	3.08	3.48	1.86	2.31	2.63	3.14
2011-12	3.14	3.50	1.94	1.92	2.65	3.02
2012-13	3.06	3.75	1.82	2.38	2.54	3.27
Total	3.09	3.56	1.87	2.21	2.60	3.14

Potential for extra donors and transplants

Figure 1 shows the estimated number of extra donors that could be achieved each year if paediatric testing, approach and consent/authorisation rates matched adult rates. Furthermore, **Figure 2** shows the estimated number of extra transplants that could result.

Figure 1: Number of extra paediatric donors that could result each year if adult testing, approach and consent/authorisation rates were achieved.

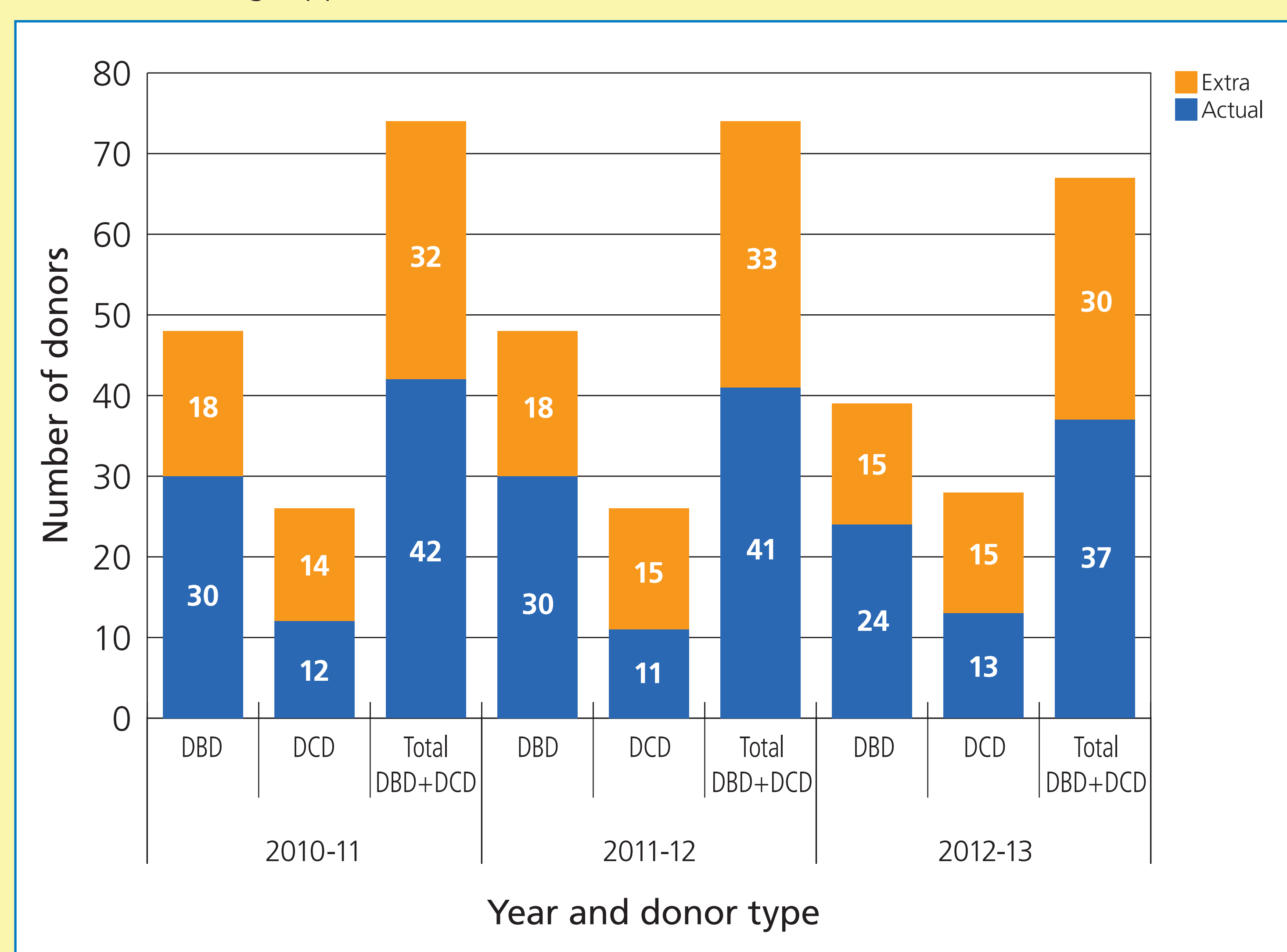
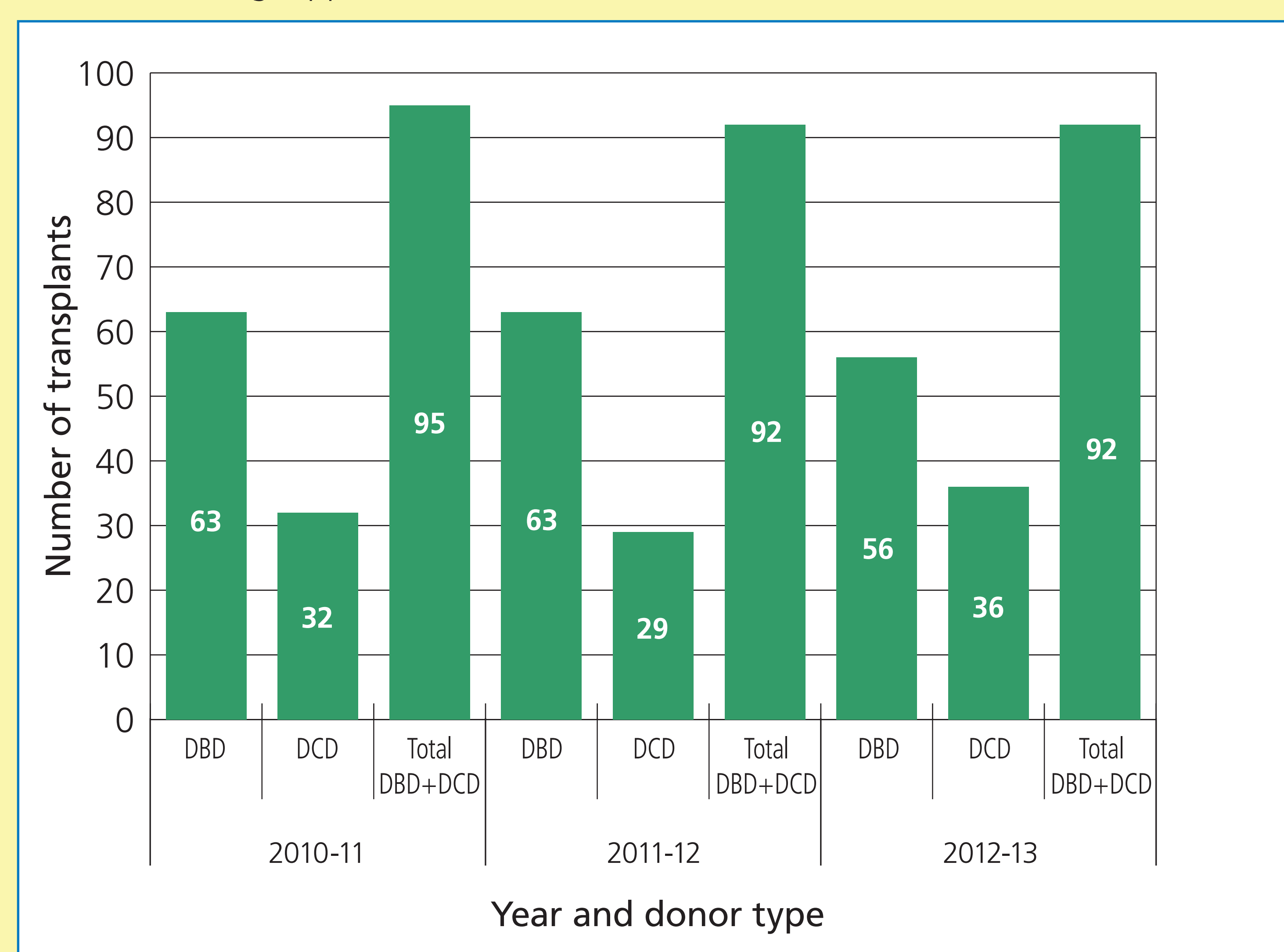


Figure 2: Number of extra transplants that could result each year if adult testing, approach and consent/authorisation rates were achieved.



Conclusion

Although organs from the adult donor (living and deceased) provide both an available and effective source of organs for some paediatric transplant programmes (Kidney and Liver), other programmes depend almost entirely on organs from the paediatric donor (Heart and Bowel). It is appreciated that there will inevitably be differences in the organ donation pathway for potential adult and paediatric donors. However, paediatric donors are a valuable source of organs for transplant, with a higher number of patients transplanted per paediatric donor compared with adult donors. Over the three year period an additional 95 paediatric donors, a 79% increase on the 120 paediatric donors reported through the PDA could have been achieved. On average this equates to a potential 32 extra paediatric donors and 93 extra patients transplanted each year. In view of the critical shortage of size matched organs the paediatric donation pathway needs to be optimised in order to increase the number of organs available for paediatric transplant recipients.