POTENTIAL DONOR AUDIT
SUMMARY REPORT FOR THE 12 MONTH PERIOD
1 APRIL 2014 - 31 MARCH 2015

1 INTRODUCTION

This report presents Potential Donor Audit (PDA) information on the financial year 1 April 2014 to 31 March 2015.

The dataset used to compile this report includes all audited patient deaths in UK Intensive Care Units (ICUs) and Emergency Departments as reported by 11 May 2015. Patients aged over 80 years and patients who died on a ward have not been audited.

This report summarises the main findings of the PDA over the 12-month period, in particular the reasons why patients were lost along the pathway, and should be read in conjunction with the PDA section of the Organ Donation and Transplantation Activity Report, available at http://www.odt.nhs.uk/odt/potential-donor-audit/.

2 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Eligible donors after circulatory death (DCD) are defined as patients who had treatment withdrawn and death was anticipated within four hours, with no absolute medical contraindications to solid organ donation.

Absolute medical contraindications to organ donation are listed here:
http://www.odt.nhs.uk/pdf/contraindications_to_organ_donation.pdf

Further definitions to aid interpretation are given in **Appendix 1**.

3 BREAKDOWN OF AUDITED DEATHS IN ICUS AND EMERGENCY DEPARTMENTS

In the 12-month period from 1 April 2014 to 31 March 2015, there were a total of 36,145 audited patient deaths in the ICUs and EDs in the UK. A detailed breakdown for both the DBD and DCD data collection flows is given in **Figure 1** and **2**, and **Table 1** summarises the key percentages.

Figure 1 Donation after brain death

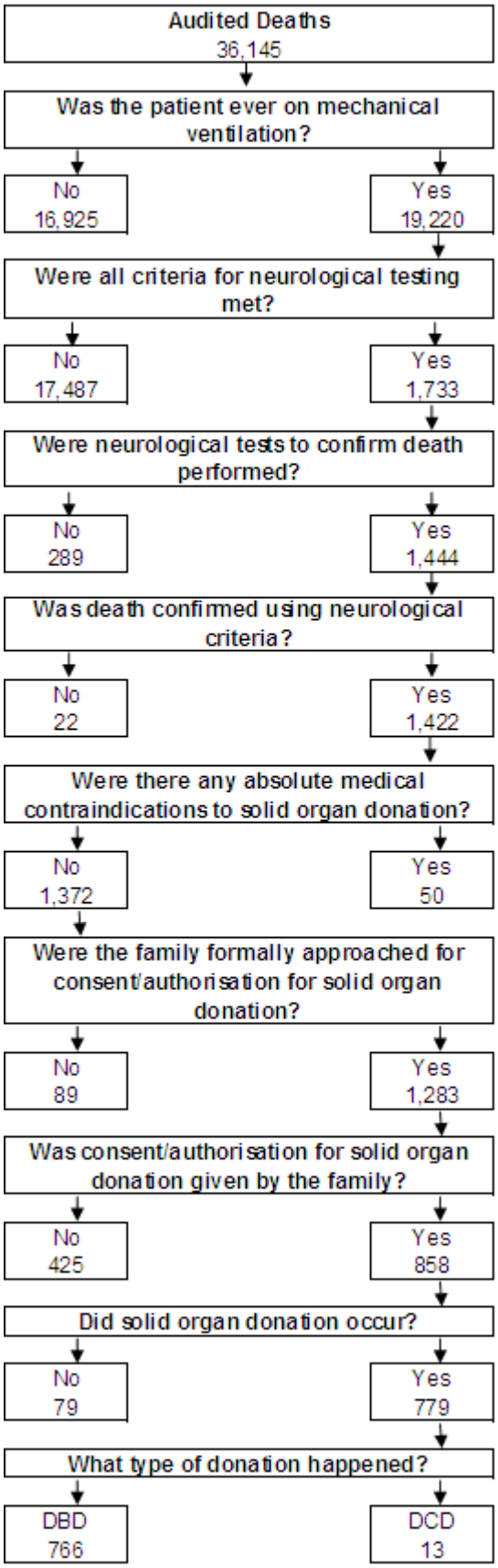


Figure 2 Donation after circulatory death

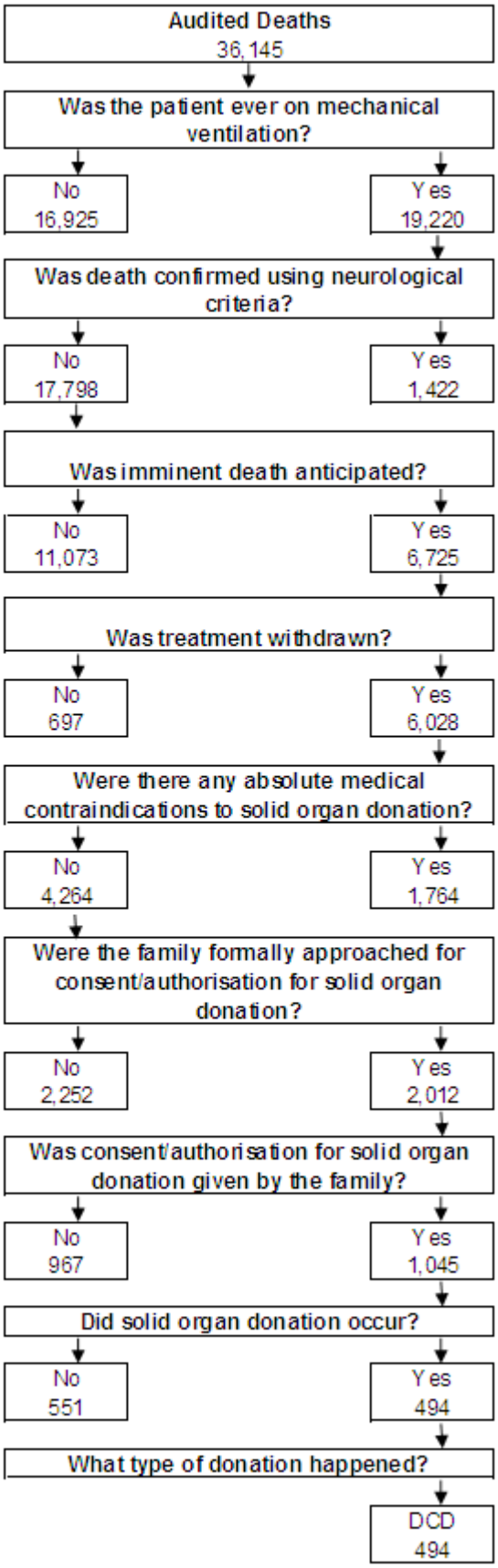


Table 1 Key numbers and rates

	DBD	DCD
Patients meeting organ donation referral criteria[1]	1733	6725
Referred to SN-OD	1669	5128
Referral rate %	*96.3%*	*76.3%*
Neurological death tested	1444	
Testing rate %	*83.3%*	
Eligible donors[2]	1372	4264
Family approached	1283	2012
Approach rate %	*93.5%*	*47.2%*
Family approached and SN-OD involved	1112	1456
% of approaches where SN-OD involved	*86.7%*	*72.4%*
Consent/authorisation given	858	1045
Consent/authorisation rate %	*66.9%*	*51.9%*
Actual donors from each pathway	779	494
% of consented/authorised donors that became actual donors	*90.8%*	*47.3%*

[1] DBD - A patient with suspected neurological death excluding those that were not tested due to reasons: cardiac arrest occurred despite resuscitation, brainstem reflexes returned, neonates - less than 2 months post term
DCD - A patient in whom imminent death is anticipated, ie a patient receiving assisted ventilation, a clinical decision to withdraw treatment has been made and death is anticipated within 4 hours

[2] DBD - Death confirmed by neurological tests and no absolute contraindications to solid organ donation
DCD - Imminent death anticipated and treatment withdrawn with no absolute contraindications to solid organ donation

4 NEUROLOGICAL DEATH TESTING RATE

Table 2 Reasons given for neurological death tests not being performed

	N	%
Patient haemodynamically unstable	79	27.3
Family declined donation	44	15.2
Clinical reason/Clinician's decision	36	12.5
Continuing effects of sedatives	22	7.6
Inability to test all reflexes	21	7.3
Family pressure not to test	19	6.6
Treatment withdrawn	19	6.6
Biochemical/endocrine abnormality	19	6.6
Other	15	5.2
Unknown	6	2.1
Medical contraindication to donation	5	1.7
SN-OD advised that donor not suitable	2	0.7
Hypothermia	1	0.3
Pressure on ICU beds	1	0.3
Total	**289**	**100.0**

The neurological death testing rate was 83% and is the percentage of patients for whom neurological death was suspected that were tested. To be defined as neurological death suspected, the patients were indicated to have met the following four criteria - apnoea, coma from known aetiology and unresponsive, ventilated and fixed pupils. Patients for whom tests were not performed due to; cardiac arrest occurred despite resuscitation,

brainstem reflexes returned, neonates - less than 2 months post term were not possible to test and were therefore not counted as neurological death suspected patients. Neurological death tests were not performed in 289 patients (17%) for whom neurological death was suspected. The primary reason given for not testing is shown in **Table 2**.

79 (27%) patients were haemodynamically unstable and were therefore not tested. Other common reasons given for not performing neurological death tests were; 44 (15%) families declined donation and for 36 (13%) patients there was a clinical reason or it was the clinician's decision.

5 REFERRAL RATE

A patient for whom neurological death is suspected or for whom imminent death is anticipated, i.e. receiving assisted ventilation, a clinical decision to withdraw treatment has been made and death is anticipated within four hours, should be referred to a Specialist Nurse - Organ Donation (SN-OD). The DBD referral rate was 96% and the DCD referral rate was 76%. **Table 3** shows the reasons given why such patients were not referred. One patient can meet the referral criteria for both DBD and DCD and therefore some patients may be counted in both columns. Please note that the referral criteria have now changed, see **Appendix 1**.

Table 3 Reasons given why patient not referred

	DBD		DCD	
	N	**%**	**N**	**%**
Not identified as a potential donor/organ donation not considered	22	34.4	551	34.5
Medical contraindications	9	14.1	432	27.1
Family declined donation prior to neurological testing	8	12.5	4	0.3
Other	6	9.4	132	8.3
Thought to be medically unsuitable	5	7.8	342	21.4
Family declined donation following decision to withdraw treatment	4	6.3	92	5.8
Family declined donation after neurological testing	3	4.7	0	0.0
Reluctance to approach family	2	3.1	4	0.3
Neurological death not confirmed	2	3.1	1	0.1
Coroner/Procurator Fiscal Reason	1	1.6	5	0.3
Pressure on ICU beds	1	1.6	8	0.5
Donation after circulatory death not supported by ICU	1	1.6	8	0.5
Thought to be outside age criteria	0	0.0	10	0.6
Clinician assessed that patient was unlikely to become asystolic within 4 hours	0	0.0	8	0.5
Total	**64**	**100.0**	**1,597**	**100.0**

Of the patients who met the referral criteria and were not referred, the reason given for 34% of DBD and 35% of DCD was that the patients were not identified as potential donors and so organ donation was not considered. The reason given for 14% of DBD and 27% of DCD was medical contraindications.

6 APPROACH RATE

Families of eligible donors were approached in 94% and 47% of DBD and DCD cases, respectively. The information in **Table 4** shows the reasons given why the family were not approached.

For eligible DBD, in 29% of cases the reason stated was that the Coroner/Procurator Fiscal refused permission, whereas this only accounted for 1% of DCD cases. For eligible DCD, in 47% of cases the reason stated was the patient's general medical condition and in 22% of cases the patient was not identified as a potential donor.

Table 4 Reasons given why family not formally approached

	DBD		DCD	
	N	**%**	**N**	**%**
Coroner/Procurator Fiscal refused permission	26	29.2	29	1.3
Patient's general medical condition	19	21.3	1,066	47.3
Family stated that they would not consent/authorise before they were formally approached	15	16.9	70	3.1
Other	15	16.9	259	11.5
Other medical reason	7	7.9	252	11.2
Family untraceable	5	5.6	37	1.6
Family considered too upset to approach	1	1.1	18	0.8
Not identified as a potential donor / organ donation not considered	1	1.1	491	21.8
Resource failure	0	0.0	5	0.2
Pressure on ICU beds	0	0.0	19	0.8
Patient outside age criteria	0	0.0	6	0.3
Total	**89**	**100.0**	**2,252**	**100.0**

7 OVERALL CONSENT/AUTHORISATION RATE

The consent/authorisation rate is based on eligible donors whose family were formally approached for consent to/authorisation for donation. The consent/authorisation rate is the proportion of these families who consented to/authorised solid organ donation.

During the financial year, the DBD consent/authorisation rate was 67% and the 95% confidence limits for this percentage are 64% - 69%. The DCD consent/authorisation rate was 52% and the 95% confidence limits for this percentage are 50% - 54%. The overall consent/authorisation rate was 58% and the 95% confidence limits for this percentage are 56% - 60%.

When a patient was known to be registered on the Organ Donor Register (ODR) at the time of approach for consent to organ donation the DBD consent/authorisation rate was 92% compared to 56% when a patient's ODR status was not known at the time of approach. For DCD, the rates were 84% compared with 41%. Overall, these rates were 88% compared with 47%. In total during the financial year, 111 families overruled their loved one's known wish to be an organ donor.

When a SN-OD was involved in the approach to the family, the DBD consent/authorisation rate was 70% compared with 49% when the SN-OD was not involved. Similarly, for DCD the rate was 62% compared with 27% when the SN-OD was not involved. The overall rate was 65% compared with 32%.

The reasons why the family did not give consent/authorisation are shown in **Table 5**. The main reason that families of eligible DBD patients and DCD patients gave for no consent/authorisation was that the patient had previously expressed a wish not to donate (19% for both DBD & DCD). Other common reasons why the family did not consent were that the families were not sure whether the patient would have agreed to organ donation or they didn't want the patient to go through surgery to the body. Amongst DCD patients, families felt that the length of time for donation was too long. Often the family felt that patient had suffered enough.

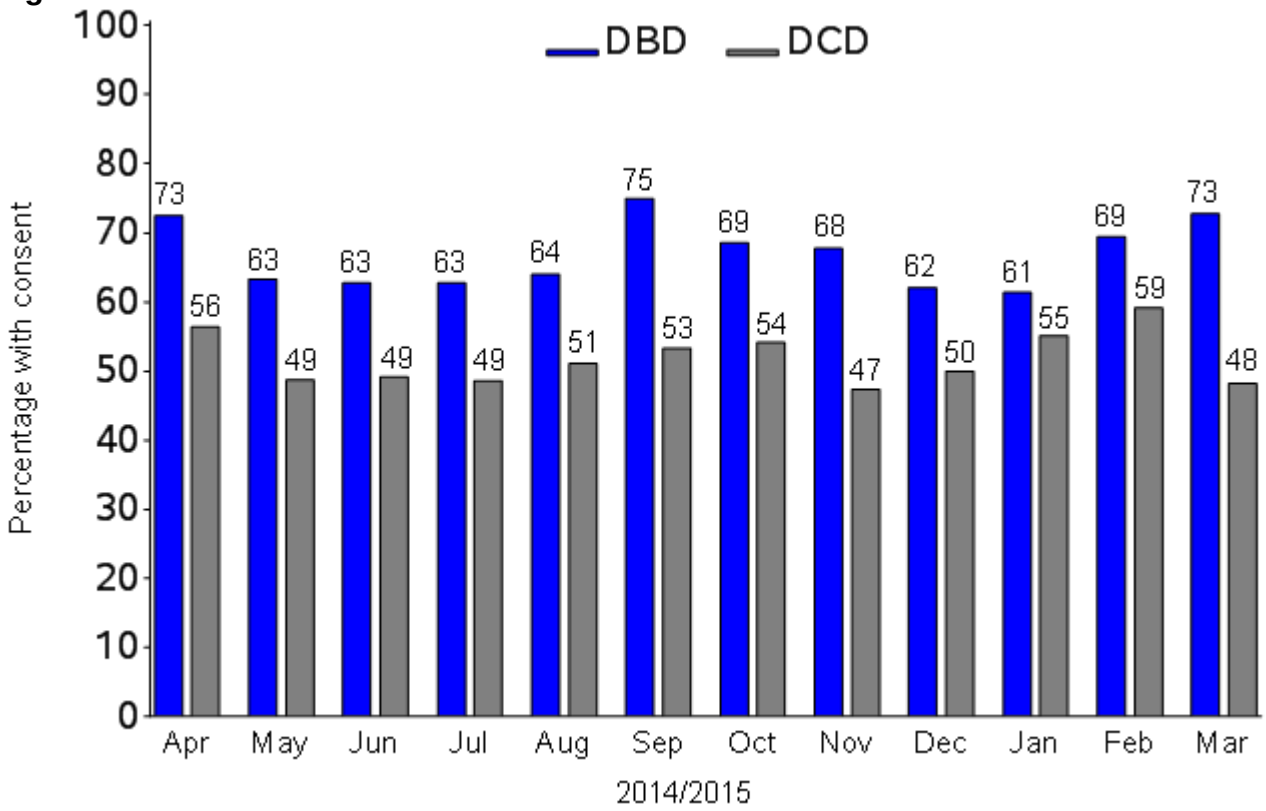
Table 5 Reasons given why family did not give consent

	DBD		DCD	
	N	**%**	**N**	**%**
Patient previously expressed a wish not to donate	82	19.3	179	18.5
Family were not sure whether the patient would have agreed to donation	61	14.4	153	15.8
Family did not want surgery to the body	53	12.5	77	8.0
Family felt the body needs to be buried whole (unrelated to religious or cultural reasons)	40	9.4	31	3.2
Family felt it was against their religious/cultural beliefs	35	8.2	19	2.0
Family were divided over the decision	28	6.6	44	4.6
Other	27	6.4	98	10.1
Strong refusal - probing not appropriate	23	5.4	67	6.9
Family felt the patient had suffered enough	21	4.9	82	8.5
Family did not believe in donation	16	3.8	34	3.5
Family felt the length of time for donation process was too long	15	3.5	141	14.6
Family had difficulty understanding/accepting neurological testing	8	1.9	0	0.0
Family wanted to stay with the patient after death	6	1.4	17	1.8
Family concerned that organs may not be transplanted	6	1.4	20	2.1
Family concerned that other people may disapprove/be offended	2	0.5	3	0.3
Family concerned donation may delay the funeral	2	0.5	0	0.0
Families concerned about organ allocation	0	0.0	2	0.2
Total	**425**	**100.0**	**967**	**100.0**

8 MONTHLY VARIATION IN THE CONSENT/AUTHORISATION RATE

Monthly consent/authorisation rates are shown in **Figure 3**. From this figure it is apparent that over the financial year there is no clear monthly pattern. The DBD consent/authorisation rate was highest in September 2014 (75%) and lowest in January 2015 (61%), whereas the DCD consent/authorisation rate was highest in February 2015 (59%) and lowest in November 2014 (47%). The differences in the monthly consent/authorisation rates from 1 April 2014 to 31 March 2015 are not statistically significant for either DBD or DCD (p=0.3 and p=0.5, respectively).

Figure 3 Month-to-month variation in consent/authorisation rate



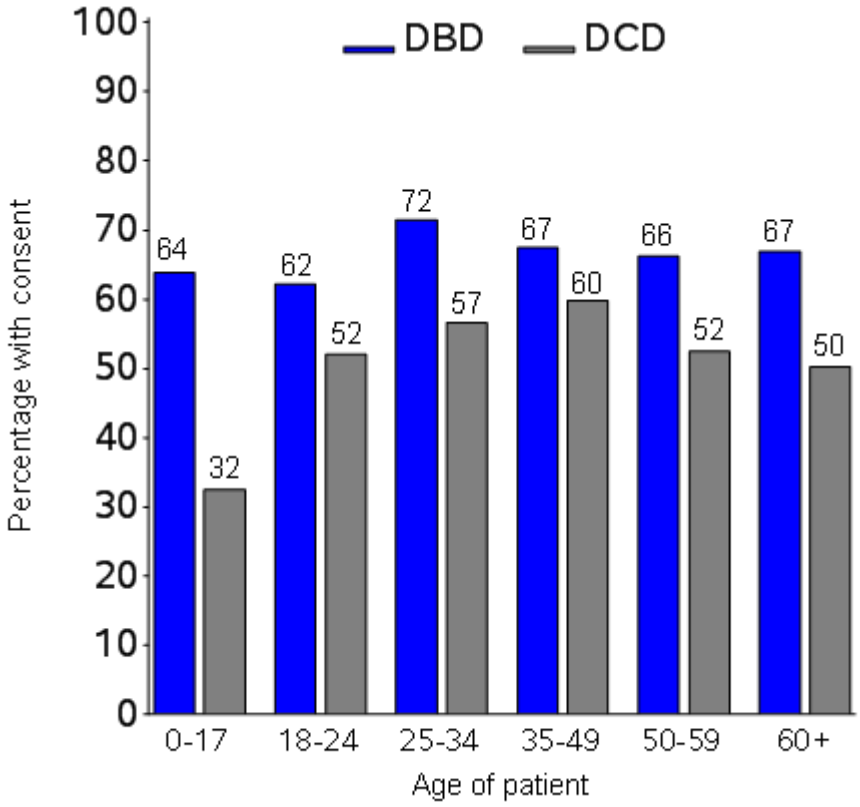
9 EFFECT OF DEMOGRAPHIC VARIABLES ON THE CONSENT/AUTHORISATION RATE

The consent/authorisation rate for the 653 male eligible DBD was 68% and the consent/authorisation rate for the 630 female eligible DBD was 66%. The difference is not statistically significant, p=0.3. For the 1,192 male eligible DCD the consent/authorisation rate was 54% and for the 819 female eligible DCD was 49%. This difference is not statistically significant, p=0.07.

Age is represented by a categorical variable with intervals 0-17, 18-24, 25-34, 35-49, 50-59 and 60+ years. The consent/authorisation rates for the six age groups (for the 1,283 eligible DBD and 2,012 eligible DCD whose families were approached) are illustrated in **Figure 4**. The highest consent/authorisation rate for eligible DBD occurred in the 25-34 age group (72%) and for eligible DCD in the 35-49 age group (60%). The lowest consent/authorisation rate for eligible DBD was in the 18-24 age group (62%). The lowest consent/authorisation rate for eligible DCD was in the 0-17 age group (32%). The

differences in consent/authorisation rate across the six age groups for DBD are not statistically significant (p=0.8) and for DCD are statistically significant (p=0.0006). When comparing only between adult and paediatric (<18 years), the differences in consent/authorisation rate for DBD are not statistically significant (p=0.6) and for DCD are statistically significant (p=0.0005).

Figure 4 Age variation in consent/authorisation rate



To conduct a meaningful analysis on ethnicity, patients have been categorised as white or in an ethnic minority group (including those with unknown ethnicity) and the rates are shown in **Figure 5**. For eligible DBD, the consent/authorisation rates were 70% for white eligible donors and 46% for eligible donors from an ethnic minority. The 95% confidence limits for DBD consent/authorisation rates are 68% - 73% for white eligible donors and 38% - 53% for eligible donors from an ethnic minority group.

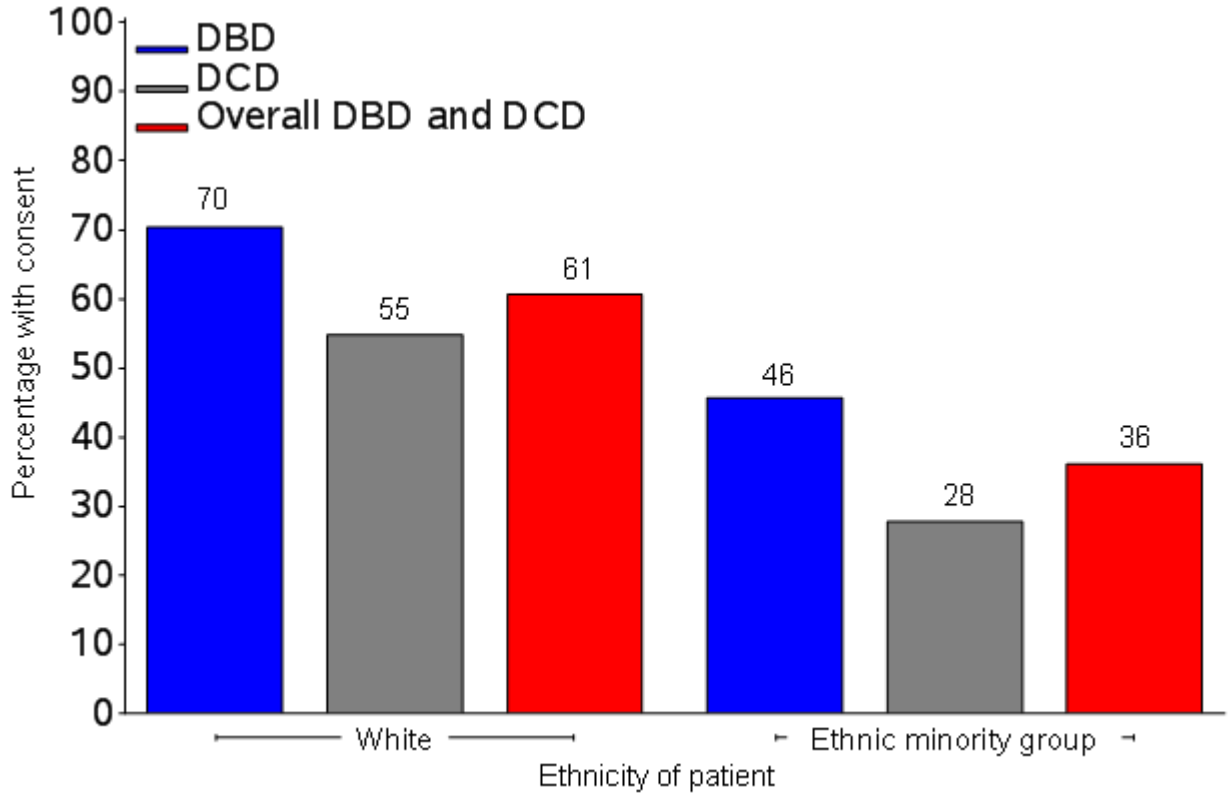
For eligible DCD, the consent/authorisation rates were 55% for white eligible DCD and 28% for eligible DCD from an ethnic minority group. The 95% confidence limits for DCD consent/authorisation rates are 52% - 57% for white eligible donors and 22% - 34% for eligible donors from an ethnic minority group.

The overall consent/authorisation rates were 61% for white eligible donors and 36% for eligible donors from an ethnic minority group. The 95% confidence limits for overall consent/authorisation rates are 59% - 62% for white eligible donors and 31% - 41% for eligible donors from an ethnic minority group.

The difference between consent/authorisation rates for white DBD eligible donors and DBD eligible donors from an ethnic minority group is statistically significant, p<0.0001. The difference between consent/authorisation rates for white DCD eligible donors and DCD donors from a minority ethnic group or with unknown ethnicity is statistically significant,

p<0.0001. The ethnicity effect remains highly significant after allowing for age, sex and month of death.

Figure 5 Ethnic group variation in consent/authorisation rate



10 SOLID ORGAN DONATION

Of the eligible donors whose family consented to/authorised donation, 91% of the eligible DBD and 47% of the eligible DCD went on to become actual solid organ donors. **Table 6** shows the reasons why consented/authorised eligible donors did not become actual solid organ donors.

For consented/authorised eligible DBD the main reason given for solid organ donation not proceeding was that the organs were deemed to be medically unsuitable in 43% of cases, in 30% of cases by recipient centres and 13% of cases on surgical inspection. Likewise, 32% of non-proceeding DCD organs were declined by recipient centres. The main reason given for consented/authorised eligible DCD not proceeding to become a solid organ donor was the prolonged time to asystole, 42%.

Table 6 Reasons why solid organ donation did not happen following consent				
	DBD		DCD	
	N	%	N	%
Organs deemed medically unsuitable by recipient centres	24	30.4	180	32.7
Family changed mind	11	13.9	38	6.9
Organs deemed medically unsuitable on surgical inspection	10	12.7	12	2.2
Coroner/ Procurator Fiscal refusal	9	11.4	22	4.0
General instability	8	10.1	23	4.2
Other	7	8.9	25	4.5
Cardiac arrest	6	7.6	10	1.8
Positive virology	3	3.8	7	1.3
Logistic reasons	1	1.3	4	0.7
Prolonged time to asystole	0	0.0	229	41.6
Family placed conditions on donation	0	0.0	1	0.2
Total	**79**	**100.0**	**551**	**100.0**

11 SUMMARY

In the year 1 April 2014 to 31 March 2015, there were 36,145 deaths audited for the PDA. Of these deaths, 1,733 and 6,725 patients met the referral criteria for DBD and/or DCD, respectively and 96% and 76% were referred to a SN-OD.

Of the 1,733 patients for whom neurological death was suspected, 83% were tested and there were 1,372 and 4,264 eligible DBD and DCD, respectively. Families of these eligible DBD and DCD were approached for consent to/authorisation for donation in 94% and 47% of cases, respectively.

Of the families approached, 67% and 52% consented to/authorised DBD and DCD donation. Of these, 91% and 47%, respectively, became actual solid organ donors. 111 families overruled their loved one's known wish to be an organ donor.

There was no statistically significant difference in the consent/authorisation rates form male and female patients for DBD or DCD. The difference in the consent/authorisation rate across the different age groups was statistically significant for DCD, with paediatric patients (0-17 years) having a much lower consent/authorisation rate than the adult age groups. There was no difference in the age groups for DBD.

There was a statistically significant difference in both the DBD and DCD consent/authorisation rate between white patients and patients from an ethnic minority group and this effect remains after adjusting for patient age, sex and month of patient death.

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Appendix 1

POTENTIAL DONOR AUDIT / REFERRAL RECORD	
Data excluded	Cardiothoracic ICUs, wards and patients aged over 75 years are excluded.
Donors after brain death (DBD)	
Suspected Neurological Death	A patient who meets all of the following criteria: Apnoea, coma from known aetiology and unresponsive, ventilated, fixed pupils. Excluding cases for which cardiac arrest occurred despite resuscitation, brainstem reflexes returned, and neonates - less than 2 months post term
Potential DBD donor	A patient who meets all four criteria for neurological death testing (ie suspected neurological death, as defined above)
DBD referral criteria	A patient with suspected neurological death. Excluding cases for which cardiac arrest occurred despite resuscitation, brainstem reflexes returned, and neonates - less than 2 months post term
Discussed with Specialist Nurse – Organ Donation	A patient with suspected neurological death discussed with the Specialist Nurse – Organ Donation (SN-OD)
Neurological death tested	Neurological death tests were performed
Eligible DBD donor	A patient confirmed dead by neurological death tests, with no absolute medical contraindications to solid organ donation
Family approached for consent / authorisation	Family of eligible DBD asked to make a decision on donation
Family consented / authorised	Family consented to / authorised donation
Actual donors: DBD	Neurological death confirmed patients who became actual DBD as reported through the PDA
Actual donors: DCD	Neurological death confirmed patients who became actual DCD as reported through the PDA
Neurological death testing rate	Percentage of patients for whom neurological death was suspected who were tested
Referral rate	Percentage of patients for whom neurological death was suspected who were discussed with the SN-OD
Approach rate	Percentage of eligible DBD families approached for consent /authorisation for donation
Consent / authorisation rate	Percentage of families approached about donation that consented to / authorised donation
SN-OD involvement rate	Percentage of family approaches where a SN-OD was involved
SN-OD consent / authorisation rate	Percentage of families approached about donation by a SN-OD that consented to / authorised donation
Donors after circulatory death (DCD)	
Imminent death anticipated	A patient, not confirmed dead using neurological criteria, receiving assisted ventilation, a clinical decision to withdraw treatment has been made and death is anticipated within 4 hours
DCD referral criteria	A patient in whom imminent death is anticipated (as defined above)
Discussed with Specialist Nurse – Organ Donation	Patients for whom imminent death was anticipated who were discussed with the SN-OD
Potential DCD donor	A patient who had treatment withdrawn and death was anticipated within four hours
Eligible DCD donor	A patient who had treatment withdrawn and death was anticipated within four hours, with no absolute medical contraindications to solid organ donation
Family approached for consent / authorisation	Family of eligible DCD asked to make a decision on donation
Family consented / authorised	Family consented to / authorised donation
Actual DCD	DCD patients who became actual DCD as reported through the PDA
Referral rate	Percentage of patients for whom imminent death was anticipated who were discussed with the SN-OD
Approach rate	Percentage of eligible DCD families approached for consent /authorisation for donation
Consent / authorisation rate	Percentage of families approached about donation that consented to / authorised donation
SN-OD involvement rate	Percentage of family approaches where a SN-OD was involved
SN-OD consent / authorisation rate	Percentage of families approached about donation by a SN-OD that consented to / authorised donation