

POTENTIAL DONOR AUDIT
SUMMARY REPORT FOR THE 24 MONTH PERIOD
1 APRIL 2006 – 31 MARCH 2008

1 INTRODUCTION

- 1.1 Fully validated data from the Potential Donor Audit (PDA) covering the 24-month period from 1 April 2006 to 31 March 2008 are now available. The dataset used to obtain the results for this report comprises data for all audited patient deaths in UK Intensive Care Units (ICUs) over the period 1 April 2006 to 31 March 2008, as recorded on the National Transplant Database (NTxD). It is based on PDA forms received and validated by UK Transplant on or before 1 August 2008. This report summarises the main findings of the PDA over the 24-month period.
- 1.2 Since 1 April 2006, patients over the age of 75 years and those who died in a cardiothoracic ICU have not been audited.
- 1.3 It is possible that there are completed PDA forms still outstanding for the time period at the time of analysis and so the results summarised in this report are subject to change.

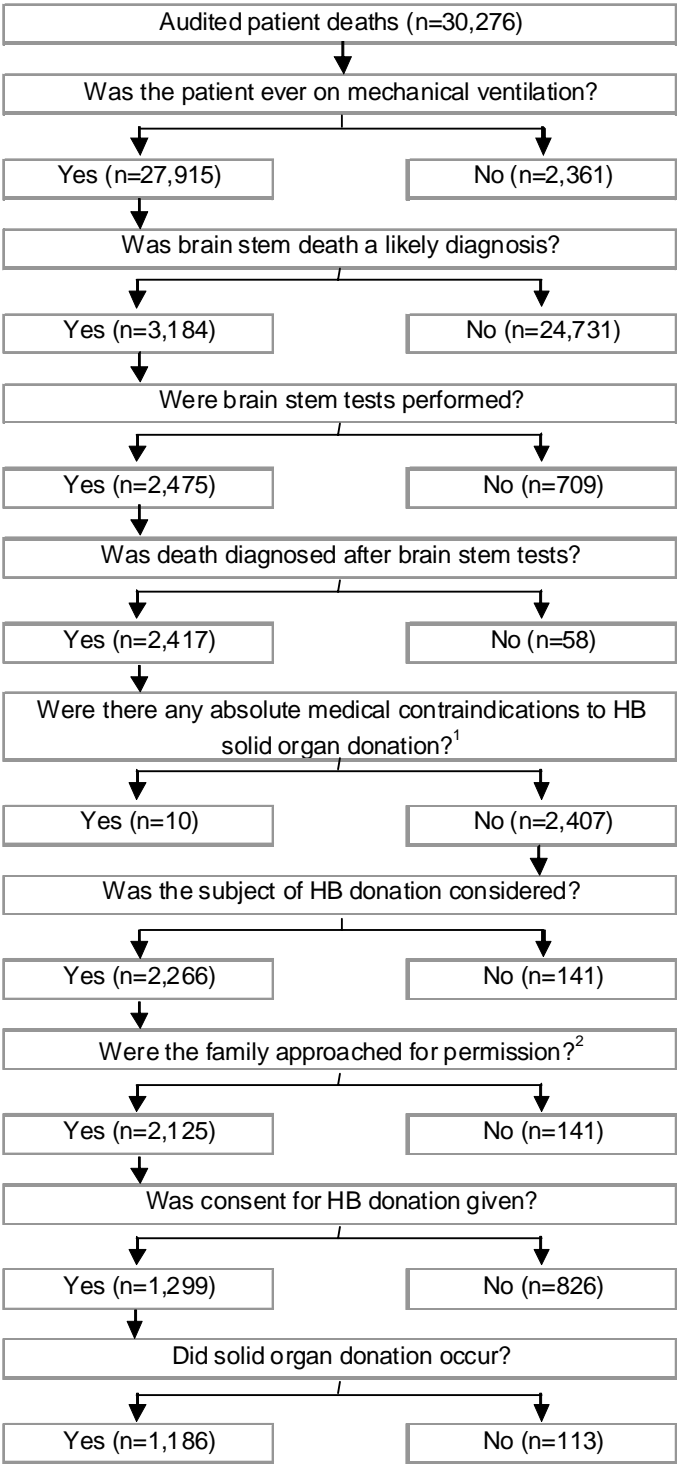
2 DEFINITIONS

- 2.1 The majority of this report refers to potential heartbeating (HB) donors, defined as patients for whom death was diagnosed following brain stem tests and who had no absolute medical contraindications to HB solid organ donation.
- 2.2 Section 9 refers to potential non-heartbeating (NHB) donors, defined as patients for whom NHB donation was possible and active treatment was withdrawn.

3 BREAKDOWN OF AUDITED DEATHS IN ICUs

- 3.1 In the 24-month period from 1 April 2006 to 31 March 2008 there were a total of 30,276 audited patient deaths in UK ICUs. A detailed breakdown from the number of audited patient deaths to the number of HB solid organ donors is given in **Figure 1**, and **Table 1** summarises the key percentages by financial year. The figures for the financial year 2006/2007 differ slightly from the previous report due to some PDA forms being received after the last report was completed.

Figure 1 A breakdown from audited patient deaths to HB donors



¹ Either known or suspected CJD or known HIV

² Includes cases where the family made the approach

Table 1 Summary of key percentages from ventilated patients to HB donors

	2006/2007	2007/2008	TOTAL
	N	N	N
Patients on mechanical ventilation at some point during their stay in ICU	13,964	13,951	27,915
Brain stem death possible	1,628	1,556	3,184
Brain stem death tested (percentage of brain stem death possible patients)	1,297 (80%)	1,178 (76%)	2,475 (78%)
Potential HB donors	1,263	1,144	2,407
No record of discussion/approach regarding HB solid organ donation (percentage of potential donor families)	154 (12%)	128 (11%)	282 (12%)
Patient referred to coordinator team (percentage of potential HB donors)	1,042 (83%)	977 (85%)	2019 (84%)
Families who were approached for consent	1,109	1,016	2125
Consent given for HB solid organ donation (percentage of families who were approached)	671 (61%)	628 (62%)	1299 (61%)
Consent not given for HB solid organ donation (percentage of families who were approached)	438 (39%)	388 (38%)	826 (39%)
Actual solid organ donors, based on data provided through the PDA (percentage of patients with family consent)	613 (91%)	573 (91%)	1186 (91%)
Conversion rate (actual donors as a percentage of potential HB donors)	49%	50%	49%

4 OVERALL HB CONSENT RATE

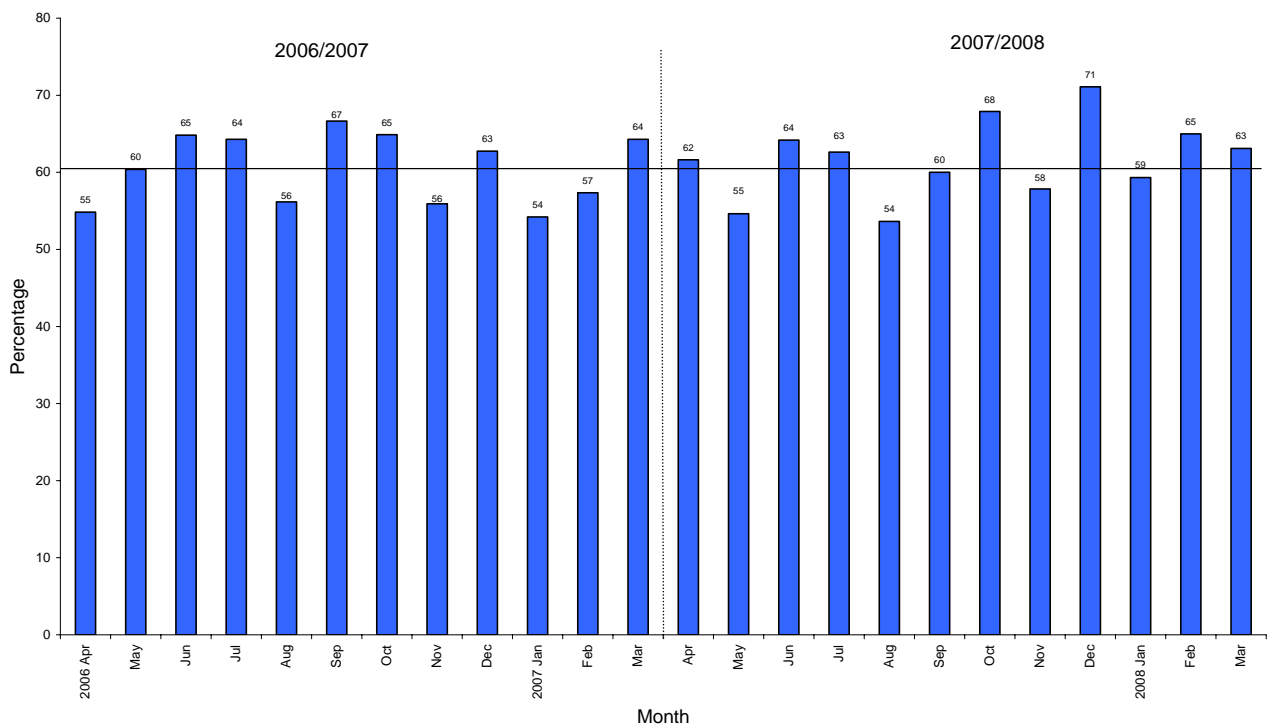
- 4.1 Consent rate is based on potential donors, for whom HB solid organ donation was considered and the family were approached for permission (or made approach). The consent rate is the proportion of these families who consented to HB solid organ donation.
- 4.2 During the 24-month period, the overall consent rate was 61% and the 95% confidence limits for this percentage range from 59% to 63%.
- 4.3 The number of families that did not consent (n=826, 39% of 2,125) includes families who did not give their consent to solid organ donation because their loved one had stated in the past that he/she did not wish to be a donor. By excluding the 145 patients who had told their families in the past that they did

not wish to be a donor, and this was given as a reason for non-consent, the overall relative consent rate was 66%. The remainder of this report includes these 145 patients in the calculation of the consent rate.

5 MONTHLY VARIATION IN THE HB CONSENT RATE

5.1 Monthly consent rates are shown in **Figure 2**. From this figure it is apparent that over the 24-month period there is no clear monthly pattern. The consent rate was highest in December 2007 (71%) and lowest in August 2007 (54%). The differences in the monthly consent rates from 1 April 2006 to 31 March 2008 are not statistically significant ($p=0.7$).

Figure 2 Month-to-month variation in HB consent rate

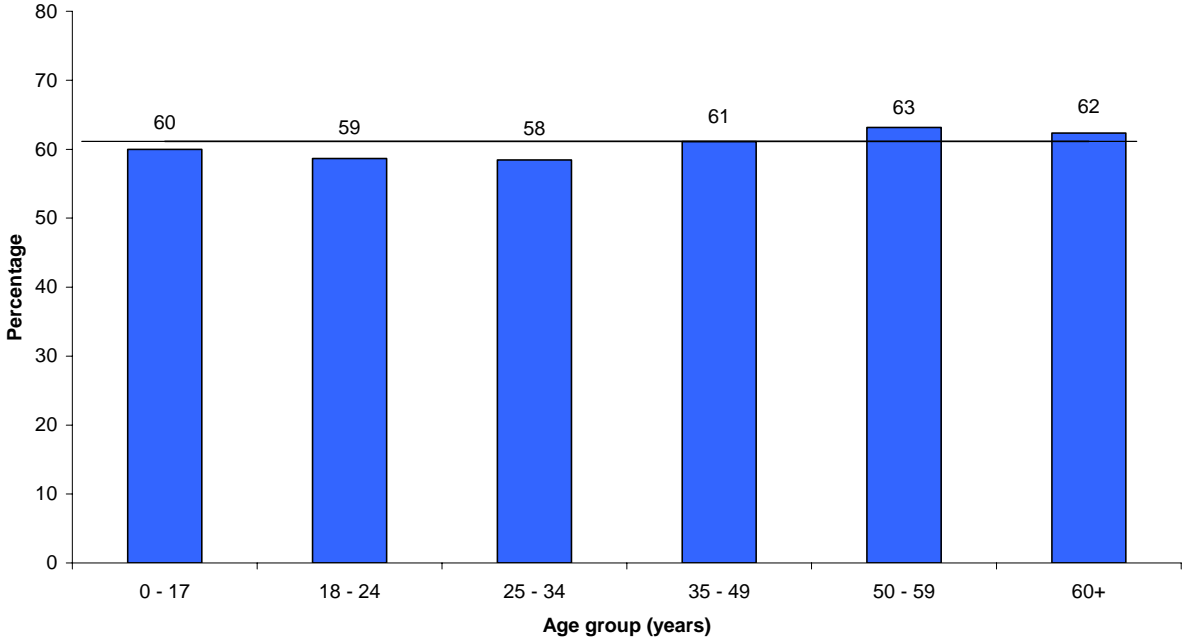


6 EFFECT OF DEMOGRAPHIC VARIABLES ON THE HB CONSENT RATE

6.1 The consent rates for males and females (for the 2,125 potential donors) were both 61%.

6.2 Age is represented by a categorical variable with intervals 0-17, 18-24, 25-34, 35-49, 50-59 and 60+ years. The consent rates for the six age groups (for the 2,125 potential donors) are illustrated in **Figure 3**. The highest consent rate occurred in the 50-59 year-old age group (63%). The lowest consent rate occurred for potential donors between 25 and 34 years of age (58%). The differences in consent rate across the six age groups are not statistically significant ($p=0.8$).

Figure 3 Age range variation in HB consent rate



6.3 To conduct a meaningful analysis, ethnicity has been split into white and known non-white groups. The consent rates (for the 2,030 potential donors out of 2,125 for whom ethnicity was recorded) were 68% for white potential donors and 26% for known non-white potential donors. The 95% confidence limits for these two consent rates range from 66% to 70% for white potential donors and 20% to 32% for known non-white potential donors.

6.4 There is very strong statistical evidence ($p < 0.001$) of a difference between the consent rates for white and known non-white potential donors and the ethnicity effect remains highly significant after allowing for age, sex and temporal effects.

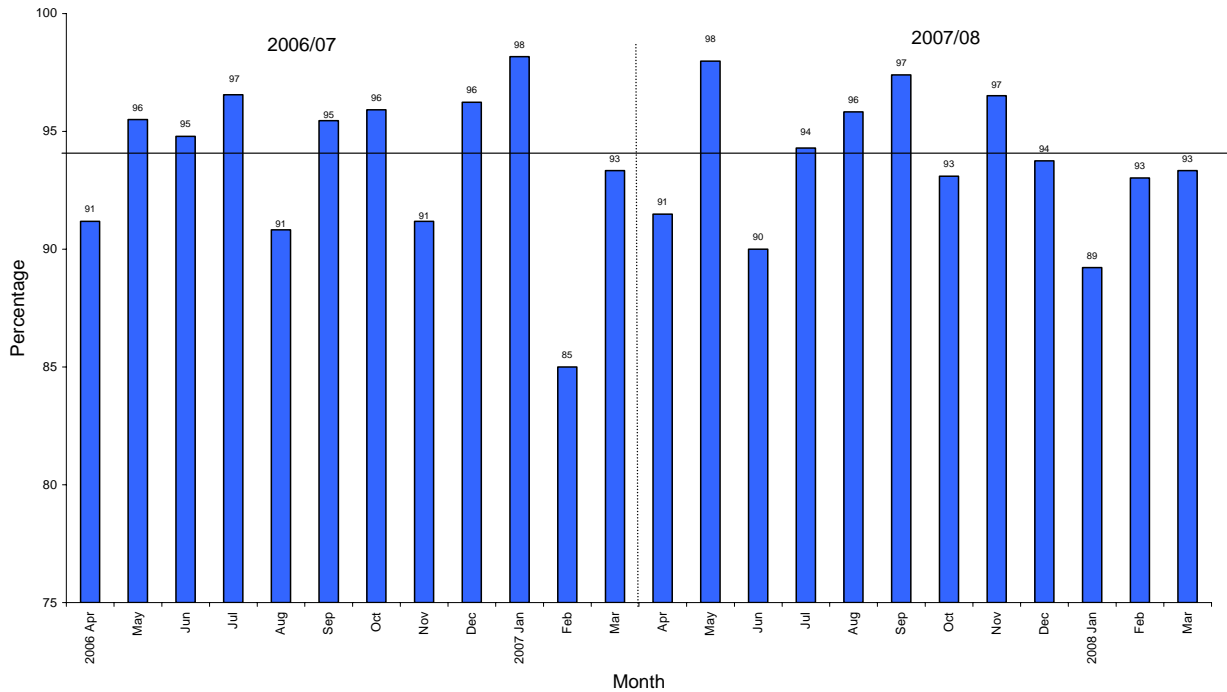
7 OVERALL HB APPROACH RATE

7.1 The approach rate is based on potential donors for whom HB solid organ donation was considered, and is the proportion of this group of potential donors whose family were approached for permission for donation, or whose family made the approach.

7.2 During the 24-month period from 1 April 2006 to 31 March 2008, the overall approach rate was 94% and the 95% confidence limits for this percentage range from 93% to 95%. There was a statistically significant difference found between monthly approach rates ($p = 0.05$). **Figure 4** shows these monthly approach rates, the highest approach rate is 98% in January and May 2007

and the lowest approach rate is in February 2007 (85%). There was no statistically significant difference found between quarterly approach rates ($p=0.7$).

Figure 3 Month-to-month variation in HB approach rate



8 DONOR TRANSPLANT COORDINATOR TEAM

8.1 **Table 2** shows the number of potential HB donors, the referral and the conversion rate by donor transplant coordinator (DTxC) team. The referral rate is the percentage of potential donors referred to a coordinator, and the conversion rate is the percentage of potential donors who became actual HB donors. The referral rates range from 69% in Cardiff to 97% in Plymouth and the conversion rates range from 36% in East Midlands to 76% in Plymouth. There is a statistically significant difference in both the referral and conversion rates between the DTxC teams, $p<0.0001$ for both. However, after risk adjusting the conversion rate for patient age, sex and ethnicity there is no statistically significant difference between the teams. There is some underlying variation in the referral rate which is unaccounted for by patient demographics, but no one team is performing statistically significantly better or worse than the others.

Table 2 Number of potential HB donors, the referral and conversion rates

Donor transplant coordinator team	Number of potential HB donors	Number of referrals (referral rate)	Number of conversions (conversion rate)
Belfast	115	88 (77%)	55 (48%)
Bristol	67	59 (88%)	30 (45%)
Cambridge	88	82 (93%)	45 (51%)
Cardiff	127	87 (69%)	63 (50%)
East Midlands	100	94 (94%)	36 (36%)
East of Scotland	59	48 (81%)	33 (56%)
Leeds	114	93 (82%)	60 (53%)
Liverpool	164	114 (70%)	86 (52%)
Manchester	158	118 (75%)	75 (47%)
Newcastle	163	137 (84%)	87 (53%)
North of Scotland	21	17 (81%)	12 (57%)
North Thames	369	328 (89%)	160 (43%)
Oxford	126	104 (83%)	53 (42%)
Plymouth	58	56 (97%)	44 (76%)
Portsmouth	46	39 (85%)	29 (63%)
Sheffield	70	66 (94%)	45 (64%)
South Thames	289	248 (86%)	134 (46%)
West Midlands	213	190 (89%)	105 (49%)
West of Scotland	60	51 (85%)	34 (57%)

8.2 The number of potential donors whose family were approached for consent to donation and the number who consented are shown in **Table 3**, by DTxC team. The unadjusted consent rates range from 48% in East Midlands to 82% in Plymouth and there is a statistically significant difference across the teams, $p=0.0014$. Risk adjusting the consent rate for patient age, sex and ethnicity and temporal effects takes account of the variation and no statistically significant differences remained. For completeness, only data with all the demographic variables present were used for the risk adjusted consent rates. There were 95 observations with missing ethnicity that were not included in the risk analysis.

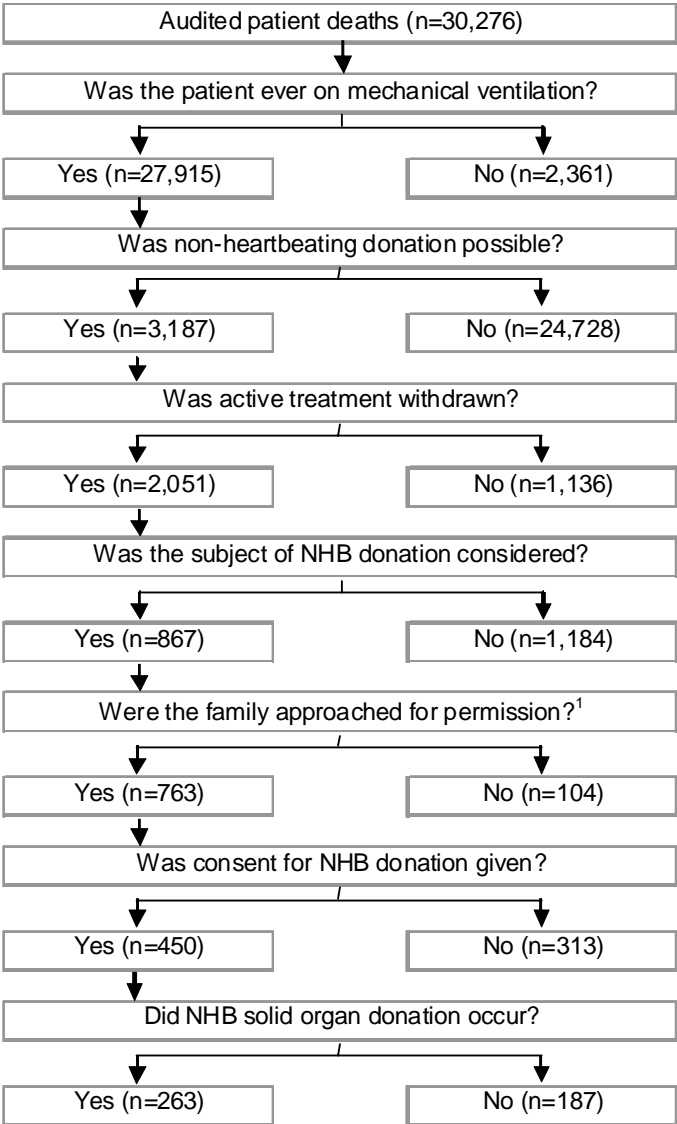
Table 3 Number of families approached, the consent rate and the risk adjusted consent rate

Donor transplant coordinator team	Number of potential HB donors	Number of families approached	Number where family consented (consent rate)	Risk adjusted consent rate
Belfast	115	102	58 (57%)	55%
Bristol	67	57	37 (65%)	59%
Cambridge	88	80	47 (59%)	58%
Cardiff	127	115	68 (59%)	68%
East Midlands	100	93	45 (48%)	53%
East of Scotland	59	45	34 (76%)	68%
Leeds	114	101	64 (63%)	60%
Liverpool	164	144	93 (65%)	60%
Manchester	158	127	80 (63%)	60%
Newcastle	163	144	92 (64%)	60%
North of Scotland	21	19	14 (74%)	65%
North Thames	369	326	180 (55%)	61%
Oxford	126	113	60 (53%)	65%
Plymouth	58	56	46 (82%)	69%
Portsmouth	46	42	32 (76%)	68%
Sheffield	70	67	47 (70%)	63%
South Thames	289	246	151 (61%)	62%
West Midlands	213	190	111 (58%)	59%
West of Scotland	60	58	40 (69%)	62%

9 POTENTIAL FOR NON-HEARTBEATING DONATION

- 9.1 The following results comprise data for all audited patient deaths in UK ICUs over the period 1 April 2006 to 31 March 2008. Some of the subgroup analyses are based on relatively small numbers of individuals and as a consequence some of the percentages quoted suffer from a lack of precision and should be regarded with some caution.
- 9.2 In this 24-month period there were a total of 30,276 audited patient deaths in UK ICUs. A detailed breakdown of the audited patient deaths is given in **Figure 4**, and **Table 4** summarises the key percentages by financial year.

Figure 4 A breakdown from audited patient deaths to NHB donors



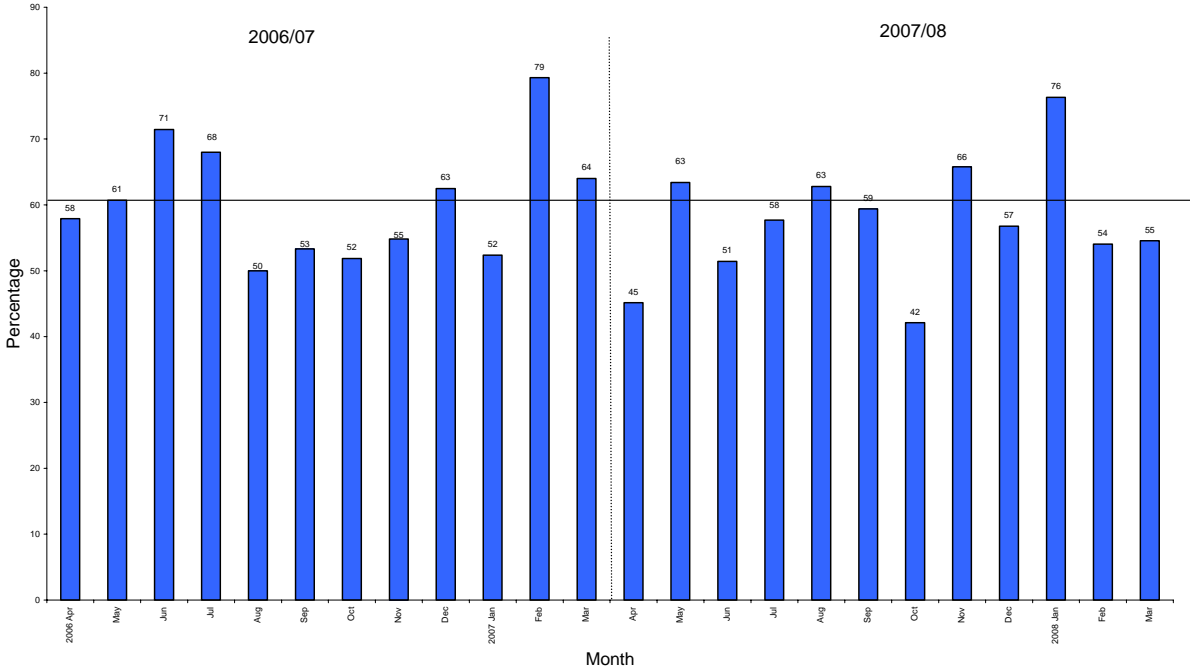
¹ Includes cases where the family made the approach

Table 4 Summary of key percentages from ventilated patients to NHB donors

	2006/2007 N	2007/2008 N	TOTAL N
Patients on mechanical ventilation at some point during their stay in ICU	13,964	13,951	27,915
NHB donation possible	1,513	1,674	3,187
Potential NHB donors - active treatment withdrawn (percentage of NHB donation possible)	929 (61%)	1,122 (67%)	2,051 (64%)
No record of discussion/approach regarding NHB solid organ donation (percentage of potential donor families)	606 (65%)	682 (61%)	1,288 (63%)
Patient referred to coordinator team (percentage of potential NHB donors)	329 (35%)	445 (40%)	774 (38%)
Families who were approached for consent	323	440	763
Consent given for NHB solid organ donation (percentage of families who were approached)	196 (61%)	254 (58%)	450 (59%)
Consent not given for NHB solid organ donation (percentage of families who were approached)	127 (39%)	186 (42%)	313 (41%)
Actual NHB solid organ donors, based on data provided through the PDA (percentage of patients with family consent)	114 (58%)	149 (59%)	263 (58%)
Conversion rate (Actual NHB donors as percentage of potential NHB donors)	12%	13%	13%

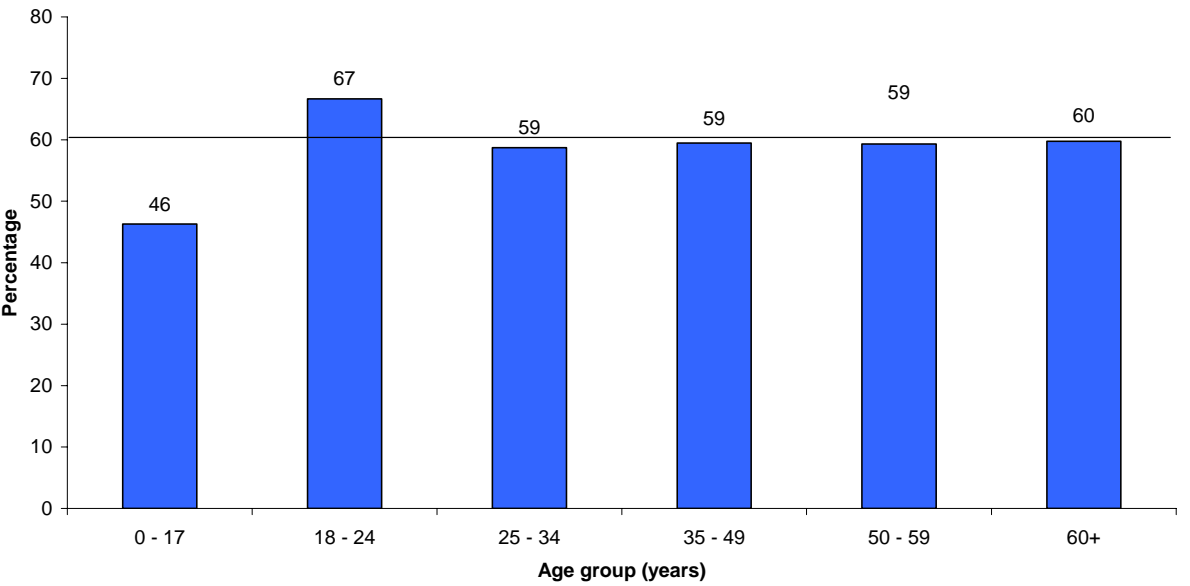
- 9.3 The overall consent rate for 763 potential NHB donors whose families were approached or made the approach during the 24-month period was 59% and the 95% confidence limits for this percentage range from 56% to 62%.
- 9.4 When looking at the month-to-month variation, the consent rate was lowest in October 2007 (42%) and highest in February 2007 (79%). Shown in **Figure 5**. The differences in the monthly NHB consent rates over the 24-month period were not statistically significant ($p=0.3$).

Figure 5 Month-to-month variation in NHB Consent rate



9.5 The consent rates for males and females were 60% and 57%, respectively, with no statistically significant difference between them ($p=0.4$). There was also no significant difference in the consent rate between the six age groups 0-17, 18-24, 25-34, 35-49, 50-59 and 60+ years ($p=0.4$). The consent rates for these age groups are shown in **Figure 6**.

Figure 6 Age variation in NHB consent rate



- 9.6 Ethnicity information was available for 727 (95%) of the 763 potential NHB donors whose families were approached for consent. Of these potential donors, with known ethnicity, 35 were non-white and in 7 (20%) of these cases consent for donation was given. The consent rate for white patients was 63%, with a 95% confidence interval of 61% to 69%. There is evidence to suggest differences in the consent rate between white and non-white patients, but the number of non-white patients analysed is very small.

10 SUMMARY

- 10.1 In the 24-month period, 1 April 2006 to 31 March 2008, there were 2,407 potential HB donors. The overall HB consent rate, for the 2,125 patients whose relatives were approached or made the approach for consent to donation, was 61%, although there is evidence of variation in this rate over the time period analysed. There is also a clear difference in the consent rates for white and non-white potential HB donors, but no differences related to sex or age group. The overall HB approach rate was 94%.
- 10.2 There are statistically significant differences in the referral, conversion and consent rates for HB donation across the donor transplant coordinator teams. However, risk adjusting the consent rate for patient age, sex and ethnicity and temporal effects takes account for this variation.
- 10.3 In the 24-month period, 1 January 2006 to 31 March 2008, there were 2,051 potential NHB donors. The overall NHB consent rate, for the 763 patients whose relatives were approached or made the approach for consent to donation, was 59%. There was no statistical evidence of variation in this rate over the time period analysed. There was also no statistically significant difference in the consent rate between males and females or across the age groups. There was evidence of differences in the consent rate between white and non-white patients, although the numbers used in the analysis were small.

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