

NHS BLOOD AND TRANSPLANT**National Organ Donation Committee****Investigating recent trends in numbers of DBD donors****Background**

1. The number of donors after brain death (DBD) have continued to increase in the UK. Recent NODC papers considered a number of possible theories, relating to the introduction of the devastating brain injury (DBI) protocol, the neurological death testing simulation program and the recent opiate epidemic which may have influenced the recent rise in DBD donors.
2. The previous papers concluded that a combination of small increases in DBD potential and referral rates as well as cases of hypoxic brain injury combined with a strong testing rate and good consent/authorisation rates all contributed to the the recent increase in DBD donation. This paper revisits the analysis to further explore the recent trends based on additional data.

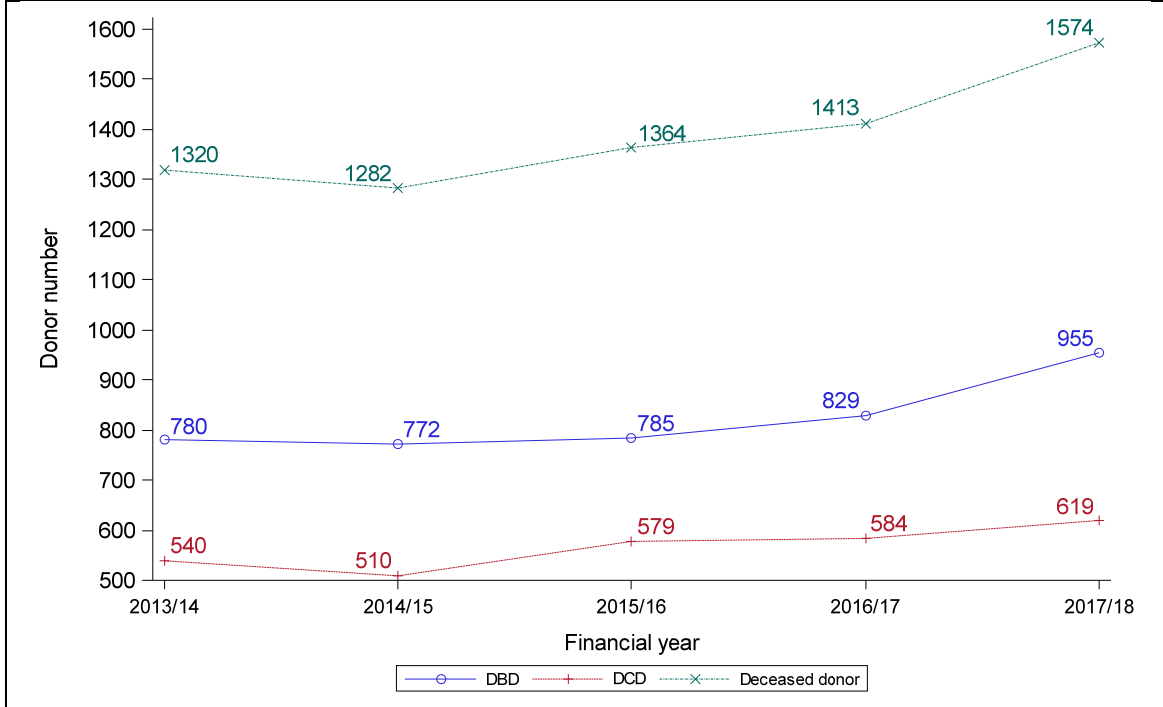
Data

3. DBD donor numbers and donor demographics have been obtained from the UK Transplant Registry (UKTR) between 1 April 2013 and 31 March 2018. Data on referrals, neurological death testing, consent/authorisation have been obtained from the national Potential Audit Data (PDA) for the same time period.

Recent trends in deceased donor numbers

4. In 2017/18 DBD donor numbers increased by 15%, an additional 126 donors compared to 2016/17. Data presented in **Figure 1** shows annual DBD, DCD and deceased donor numbers since 2013/14. DBD donor numbers in the last five years have increased year on year from 780 in 2013/14 to 955.

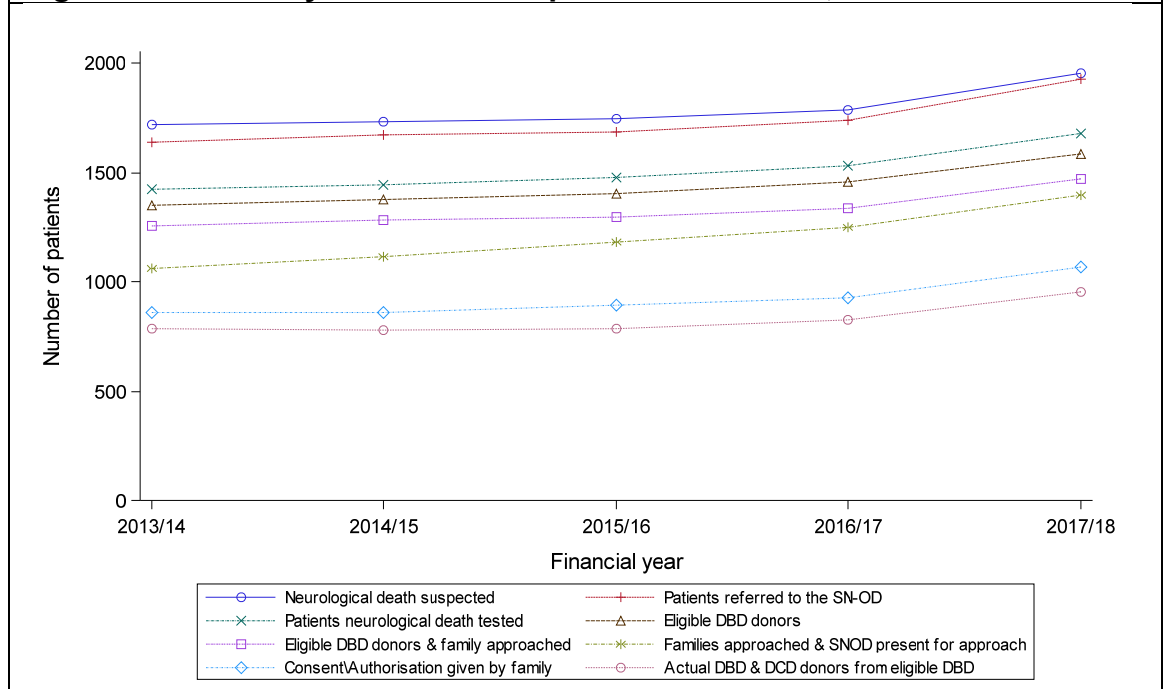
Figure 1: Deceased donor numbers, 2013/14 to 2017/18



Key DBD numbers in organ donation (PDA data)

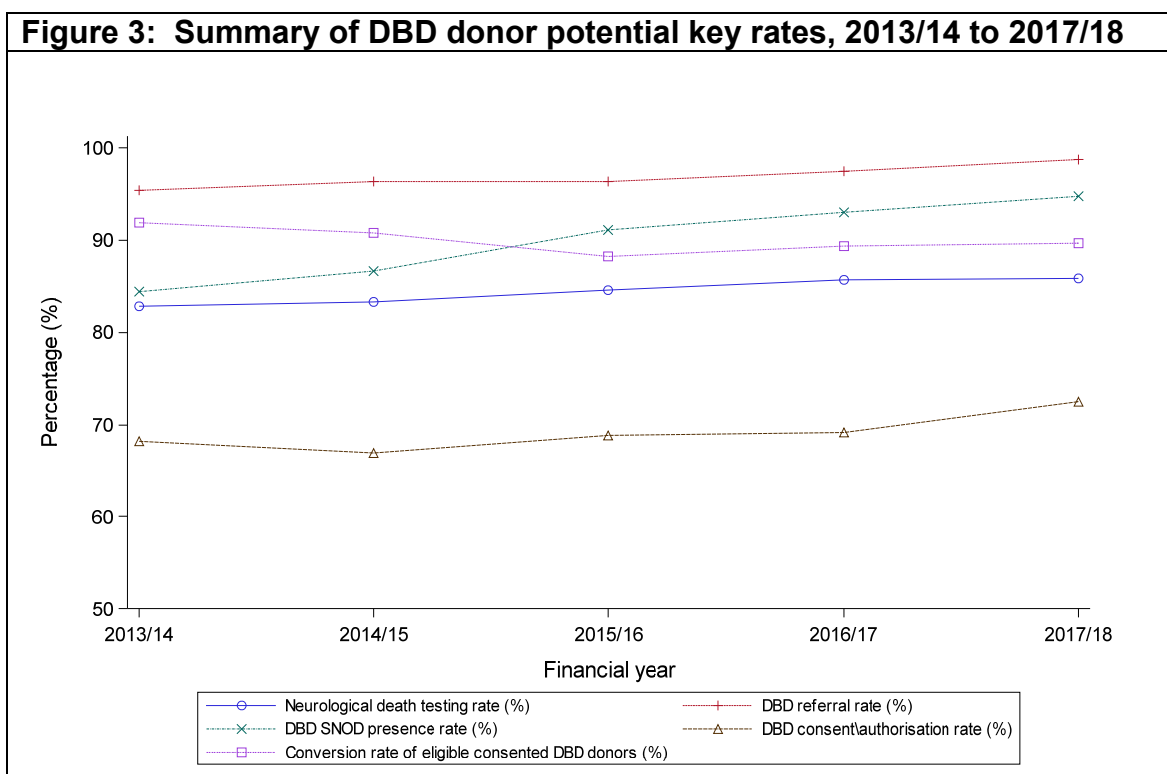
- In all key areas of DBD organ donation presented in **Figure 2**, annual numbers have risen in the last financial year. The number of patients with suspected neurological death increased by 9% (from 1787 patients to 1954), initiating increases in all other the key areas. Over the last five years, the number of approaches where a SNOD was present, has shown the biggest overall improvement.

Figure 2: Summary of DBD donor potential numbers, 2013/14 to 2017/18



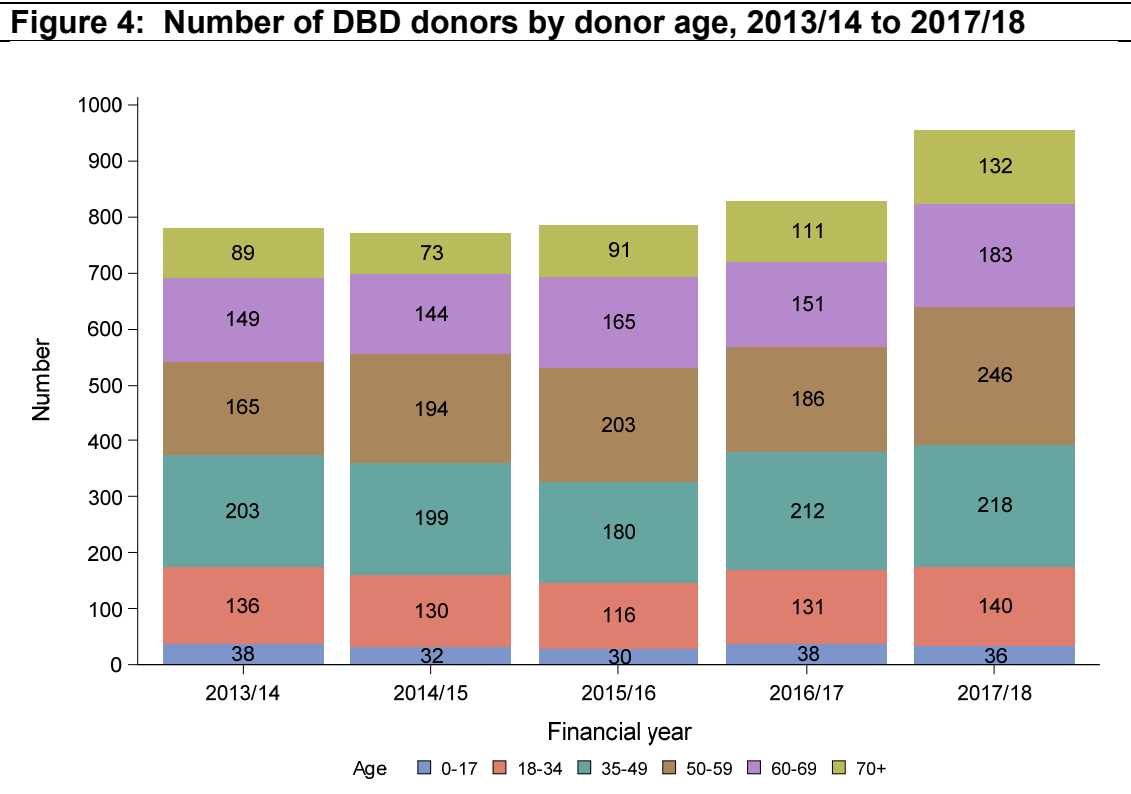
Key DBD rates in organ donation (PDA data)

- The key rates in DBD organ donation are presented in **Figure 3**. Annual testing and referral rates have remained stable since April 2013, from 83% to 86% and 95% to 99%, respectively. Whereas SNOD presence rates have steadily improved over the last five years from 84% to 95% in 2017/18. Consent/authorisation rates have shown a marked increase in the last financial year from 69% to 73%.

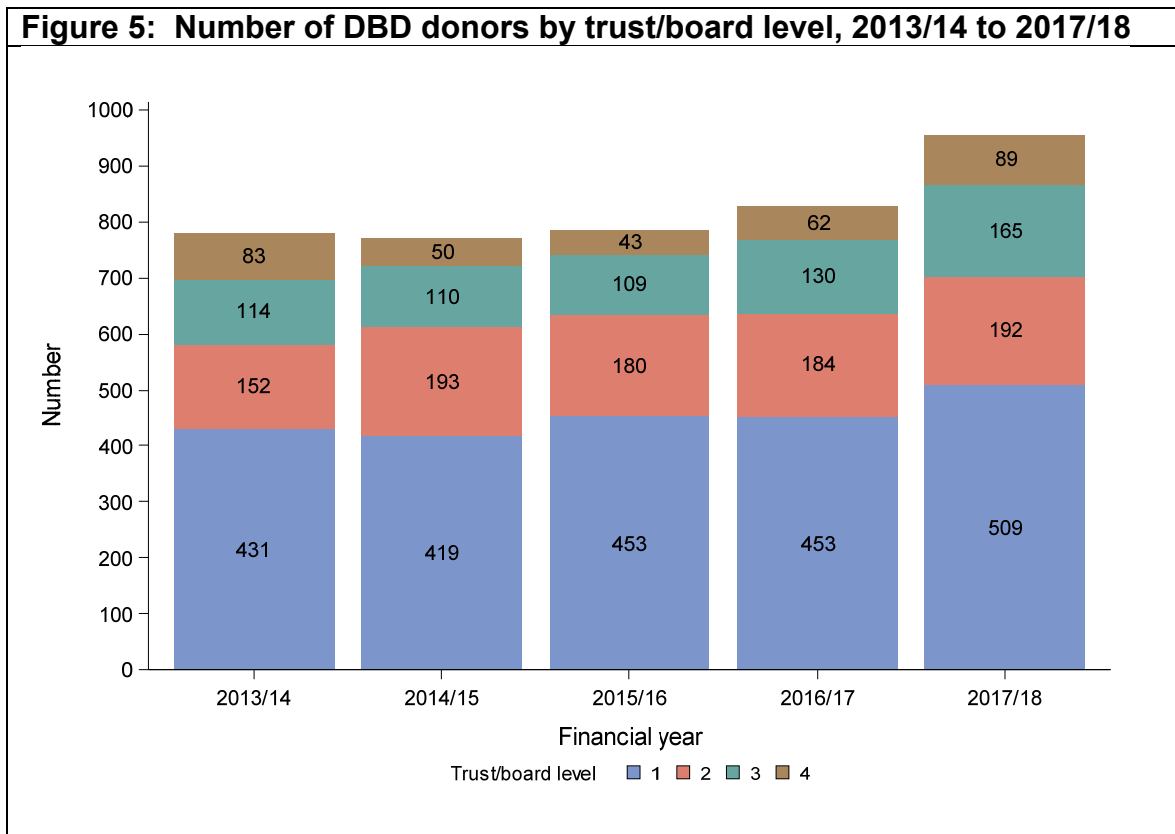


DBD donor demographics (UKTR data)

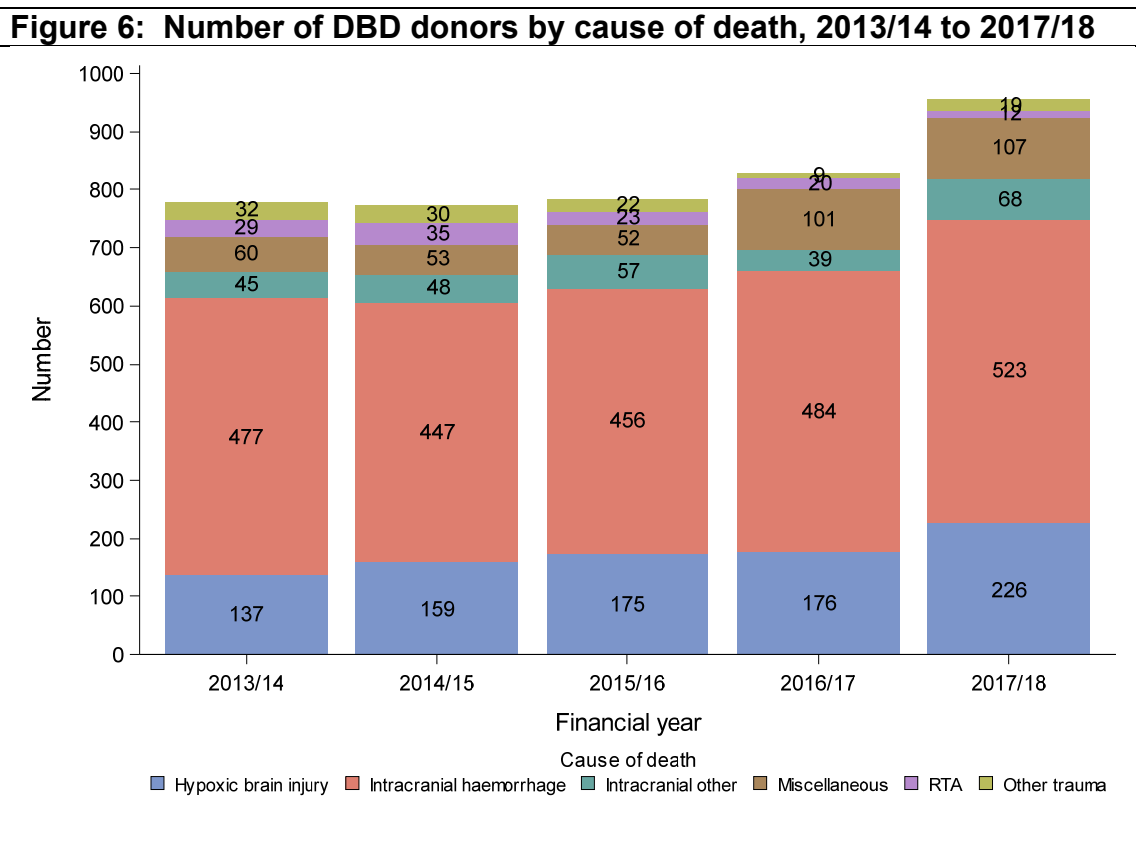
- Previous papers, investigating the increase in DBD donors have identified an increase in the numbers of older DBD donors, donors with hypoxic brain injury and numbers of donors from level 3 and 4 trust/boards. Updated figures based on 2017/18 activity are presented below.
- The number of DBD donors by donor age are shown in **Figure 4**. There remains an increasing trend in the number of donors from the three eldest age groups; 50-59, 60-69 and 70+. In 2017/18, the observed increases, in those groups, were 32%, 21% and 19%, respectively. The number of additional donors in these groups accounted for 90% of the total increase in DBD donors.



11. The number of DBD donors within each trust/board level are presented in **Figure 5**. The level allocation has recently been revised but the data presented in this paper are based on the previous trust/board levels. Whilst increases in DBD donor numbers have been observed across all levels, the most obvious increases have been in the level 3 and 4 trust/boards. In 2017/18 there were an additional 35 DBD donors in level 3 trust/boards and 27 in level 4 trust/boards, a rise of 27% and 44%, respectively. The combined number accounts for 49% of the total increase in DBD donors in 2017/18.



12. **Figure 6** shows the number DBD donors by cause of death over the last five years. The number of DBD donors with hypoxic brain injury recorded as the cause of death has continued to increase. In the most recent financial year there were an additional 50 donors with hypoxic brain damage, an increase of 28% from 2016/17. Other increases were observed in the number of intracranial haemorrhage deaths, 41 (8% increase) and other intracranial deaths 29 (75% increase).



13. The number of deaths from hypoxic brain injury has been considered as a measure of the impact of the recent opiate epidemic on DBD donor numbers. However, it is known that this data does not accurately reflect the drug overdose cohort and data on deaths following drug overdose are not well recorded. An exploration of the free text recorded relating to donor cause of death identified 29 (3%) deaths following a drug overdose in 2017/18. This compares to 10 (1%) the previous year. However, it is recognised that there may be inconsistencies in the recording of information relating to a drug overdose which may account for the variation in numbers.

14. It has also been suggested that an increase in donation following suicide may be a contributing factor in the rise in DBD donor numbers. An indication of patient suicide has been identified from the information recorded in the free text relating to the cause of death. A total of 44 (5%) of DBD donors were a consequence of suicide, a marked increase on the previous year, 13 (2%). Again, the data are subject to the consistency of the SNOD recording information relating to a suicide in the free text.

Summary

15. The number of DBD donors has continued to increase throughout 2017/18, resulting in 126 (15%) more DBD donors when compared to 2016/17.
16. Increases have been observed across all key stages of DBD donation. Starting with a 9% increase in the number of patients with suspected neurological death, good testing and referral rates and further improvements in SNOD present and consent/authorisation rates have led to the observed increase in DBD donors.
17. Level 3 and 4 trusts/boards have contributed a similar number of donors to the recent increase as the level 1 and 2 trust/boards. The number of donors from level 3 and 4 trust/boards have increased by 27% and 34%, respectively.
18. The number of DBD donors over the age of 50 has increased since 2016/17. There were an additional 113 donors in the three oldest age groups, 90% of the total increase in the last year.
19. The number of donors with hypoxic brain injury continues to increase and in 2017/18 there were 50 more donors in this group which equates to 40% of the total increase in DBD donors.

**Sue Madden
Statistics and Clinical Studies**

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