

NHS BLOOD AND TRANSPLANT

CARDIOTHORACIC ADVISORY GROUP

SUMMARY OF CUSUM MONITORING OF OUTCOMES FOLLOWING HEART TRANSPLANTATION

INTRODUCTION

- 1 NHSBT monitors short-term patient outcomes following organ transplantation through centre specific cumulative sum (CUSUM) analyses. These are undertaken monthly for cardiothoracic transplantation. These 'within centre' analyses enable prompt detection of any changes in mortality rates, providing external assurance and enabling centres to compare current outcomes with their own past performance to assist in internal auditing.
- 2 The methods used in the analysis are based on CUSUM monitoring and compare current outcome rates with an expected rate.
- 3 Each month, CUSUM monitoring reports on 30-day mortality following heart transplantation are produced and sent to each centre. This paper summarises the results of these reports for the five month period since the last Cardiothoracic Advisory Group meeting. Where signals have occurred, actions that were taken and lessons learnt are noted.
- 4 In November 2014, it was decided that DCD heart transplants would be excluded from the heart transplant CUSUM monitoring reports.

RESULTS

- 5 **Table 1** shows that over the five month period since the last Cardiothoracic Advisory Group meeting there have been no signals in heart transplantation CUSUM reporting.

Table 1 Summary of CUSUM analysis results				
Month CUSUM report issued	No. reports issued	No. signals	No. signals requiring investigation	No. investigations outstanding
April 2017	6	0	0	0
May 2017	6	0	0	0
June 2017	6	0	0	0
July 2017	6	0	0	0
August 2017	6	0	0	0
Total	30	0	0	0

CONCLUSION

- 6 Over the five month period since the last Cardiothoracic Advisory Group meeting there have been no signals in heart transplantation CUSUM reporting.

CHANGES TO CUSUMS

- 7 The expected mortality rates used in the CUSUM monitoring are currently based on transplants performed between January 2008 and December 2011. This period is now quite out of date and mortality rates may have changed since this time period. Therefore the baseline period will be updated within the next 6 months in order to compare performance to more recent expected mortality rates. The revised rates will be presented for information at the next CTAG meeting. The suitability of the chart limit will also be reviewed in the context of whether the number of past signals is more or less than expected.

- 8 Currently CUSUM charts monitor transplant outcome as a binary variable (alive/died) at 30 days post-transplant. This means that a death at 7 days post-transplant is treated the same as a death at 30 days. Survival based CUSUMs, which take into account post-transplant survival time, will be developed with a view that they will eventually replace the current binary based CUSUMs after a period of simultaneous production. These new charts will be similar to those used by the US Scientific Registry of Transplant Recipients (SRTR).

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