

# A multicentre randomised controlled trial of Transfusion Indication Threshold Reduction on transfusion rates, morbidity and health-care resource use following cardiac surgery (TITRe2)

Barnaby C Reeves,<sup>1\*</sup> Katie Pike,<sup>1</sup> Chris A Rogers,<sup>1</sup> Rachel CM Brierley,<sup>1</sup> Elizabeth A Stokes,<sup>2</sup> Sarah Wordsworth,<sup>2</sup> Rachel L Nash,<sup>1</sup> Alice Miles,<sup>1</sup> Andrew D Mumford,<sup>3</sup> Alan Cohen,<sup>4</sup> Gianni D Angelini<sup>5</sup> and Gavin J Murphy<sup>6</sup> on behalf of the TITRe2 investigators<sup>†</sup>

<sup>1</sup>Clinical Trials and Evaluation Unit, School of Clinical Sciences, University of Bristol, Bristol, UK

<sup>2</sup>Health Economics Research Centre, Nuffield Department of Population Health, University of Oxford, Oxford, UK

<sup>3</sup>School of Cellular and Molecular Medicine, University of Bristol, Bristol, UK

<sup>4</sup>Division of Specialised Services, University Hospitals Bristol NHS Foundation Trust, Bristol, UK

<sup>5</sup>Bristol Heart Institute, School of Clinical Sciences, University of Bristol, Bristol, UK

<sup>6</sup>Department of Cardiovascular Sciences and National Institute for Health Research Leicester Biomedical Research Unit in Cardiovascular Medicine, University of Leicester, Leicester, UK

\*Corresponding author

†Transfusion Indication Threshold Reduction (TITRe2) investigators are listed in *Appendix 1*

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## Plain English summary

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## Plain English summary

**W**hen patients lose blood during cardiac surgery, the oxygen-carrying capacity of the blood (haemoglobin) drops. Blood transfusion is thought to restore the oxygen-carrying capacity and a patient's haemoglobin usually guides doctors' decisions about when to give a transfusion. However, different hospitals and surgeons give transfusions at different levels of haemoglobin. The study investigated whether or not giving fewer transfusions (by allowing the haemoglobin to fall lower) reduces the risk of serious post-operative complications previously associated with transfusion.

Just over 2000 patients took part. They were allocated by chance into groups who were transfused at 'low' or 'high' haemoglobins. Almost all patients in the high group (92%), but only half of the patients in the low group (53%), had a transfusion. Slightly more patients in the low group experienced serious complications (infections, heart attacks, strokes, kidney and serious bowel problems) than in the high group (35% vs. 33%), but this was a small difference. However, more patients died in the low group than in the high group (4.2% vs. 2.6%, respectively). We found no substantial differences between groups in other aspects of patients' recovery, including the duration of hospital stay, quality of life reported by patients or lung complications.

Contrary to our original expectation, the trial showed that waiting to transfuse until lower haemoglobin is reached might, in fact, be worse. It is particularly worrying that more patients died in the lower haemoglobin group. We have recommended that more research be done to understand the reasons for this finding.



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Editorial contact: [nhredit@southampton.ac.uk](mailto:nhredit@southampton.ac.uk)

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