The Age of Blood Evaluation (ABLE) randomised controlled trial: description of the UK-funded arm of the international trial, the UK cost–utility analysis and secondary analyses exploring factors associated with health-related quality of life and health-care costs during the 12-month follow-up

Timothy S Walsh,1* Simon Stanworth,2,3,4 Julia Boyd,5 David Hope,6 Sue Hemmatapour,7 Helen Burrows,7 Helen Campbell,8 Elena Pizzo,9 Nicholas Swart9 and Stephen Morris9 on behalf of the UK ABLE trial investigators

1Anaesthesia, Critical Care and Pain Medicine, Division of Health Sciences, University of Edinburgh, Edinburgh, UK
2Department of Haematology, Oxford University Hospitals, Oxford, UK
3NHS Blood and Transplant, John Radcliffe Hospital, Oxford, UK
4Radcliffe Department of Medicine, University of Oxford, Oxford, UK
5Edinburgh Clinical Trials Unit, University of Edinburgh, Edinburgh, UK
6Edinburgh Critical Care Research Group, Royal Infirmary of Edinburgh, NHS Lothian, Edinburgh, UK
7Department of Haematology and Blood Transfusion, Oxford University Hospitals NHS Foundation Trust, Oxford, UK
8National Perinatal Epidemiology Unit, Nuffield Department of Population Health, University of Oxford, Oxford, UK
9Department of Applied Health Research, University College London, London, UK

*Corresponding author twalsh@staffmail.ed.ac.uk

Declared competing interests of authors: Julia Boyd reports grants from the University of Edinburgh during the conduct of the study.

Published October 2017
DOI: 10.3310/hta21620
Plain English summary

The Age of BLood Evaluation randomised controlled trial (ABLE)
Health Technology Assessment 2017; Vol. 21: No. 62
DOI: 10.3310/hta21620

NIHR Journals Library www.journalslibrary.nihr.ac.uk
Many critically ill patients require blood transfusions to treat anaemia in order to maintain the body’s ability to transport oxygen to cells. Donated blood is currently stored for up to 42 days in blood banks before being transfused. Before the trial, it was known that the blood changes during this storage time. There was widespread concern that older blood might be less safe and effective, but there were no large clinical trials that explored whether or not using the freshest blood (stored for 1 week or less) was better than the current standard storage time of about 3 weeks.

The Age of Blood Evaluation (ABLE) trial was an international trial undertaken in 64 intensive care units in Canada (the lead country), the UK (where the Health Technology Assessment programme funded the trial), the Netherlands and France. Just over 2500 patients who required a blood transfusion in the intensive care unit were allocated by chance to either receive blood transfusions using only the freshest blood (aged 1 week or less) whenever they needed a blood transfusion, or blood stored for the current standard time of about 3 weeks. In the UK, 359 patients participated; these patients were followed up for 12 months.

We found that a similar number of patients in each group died during the 3 months after participating in the trial (37.0% of patients in the group allocated to receive fresh blood and 35.3% of patients in the group allocated to receive standard-aged blood). We found no differences in any other important complications (organ failures, infections, length of time in hospital or transfusion complications). In the UK participants, we also found that there were no differences in patients’ quality of life or illness costs between the groups (based on the 6- and 12-month follow-up points).

The study showed that there are no benefits from using the freshest blood for transfusions in critically ill patients compared with using standard-aged blood transfusions, as is current practice.
Criteria for inclusion in the Health Technology Assessment journal

Reports are published in Health Technology Assessment (HTA) if (1) they have resulted from work for the HTA programme, and (2) they are of a sufficiently high scientific quality as assessed by the reviewers and editors.

Reviews in Health Technology Assessment are termed ‘systematic’ when the account of the search appraisal and synthesis methods (to minimise biases and random errors) would, in theory, permit the replication of the review by others.

HTA programme

The HTA programme, part of the National Institute for Health Research (NIHR), was set up in 1993. It produces high-quality research information on the effectiveness, costs and broader impact of health technologies for those who use, manage and provide care in the NHS. ‘Health technologies’ are broadly defined as all interventions used to promote health, prevent and treat disease, and improve rehabilitation and long-term care.

The journal is indexed in NHS Evidence via its abstracts included in MEDLINE and its Technology Assessment Reports inform National Institute for Health and Care Excellence (NICE) guidance. HTA research is also an important source of evidence for National Screening Committee (NSC) policy decisions.

For more information about the HTA programme please visit the website: http://www.nets.nihr.ac.uk/programmes/hta

This report

The research reported in this issue of the journal was funded by the HTA programme as project number 09/144/51. The contractual start date was in September 2011. The draft report began editorial review in September 2016 and was accepted for publication in April 2017. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors’ report and would like to thank the reviewers for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

This report presents independent research funded by the National Institute for Health Research (NIHR). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health. If there are verbatim quotations included in this publication the views and opinions expressed by the interviewees are those of the interviewees and do not necessarily reflect those of the authors, those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health.

© Queen’s Printer and Controller of HMSO 2017. This work was produced by Walsh et al. under the terms of a commissioning contract issued by the Secretary of State for Health. This issue may be freely reproduced for the purposes of private research and study and extracts (or indeed, the full report) may be included in professional journals provided that suitable acknowledgement is made and the reproduction is not associated with any form of advertising. Applications for commercial reproduction should be addressed to: NIHR Journals Library, National Institute for Health Research, Evaluation, Trials and Studies Coordinating Centre, Alpha House, University of Southampton Science Park, Southampton SO16 7NS, UK.
Health Technology Assessment Editor-in-Chief

Professor Hywel Williams  Director, HTA Programme, UK and Foundation Professor and Co-Director of the Centre of Evidence-Based Dermatology, University of Nottingham, UK

NIHR Journals Library Editor-in-Chief

Professor Tom Walley  Director, NIHR Evaluation, Trials and Studies and Director of the EME Programme, UK

NIHR Journals Library Editors

Professor Ken Stein  Chair of HTA and EME Editorial Board and Professor of Public Health, University of Exeter Medical School, UK

Professor Andrée Le May  Chair of NIHR Journals Library Editorial Group (HS&DR, PGfAR, PHR journals)

Dr Martin Ashton-Key  Consultant in Public Health Medicine/Consultant Advisor, NETSCC, UK

Professor Matthias Beck  Chair in Public Sector Management and Subject Leader (Management Group), Queen's University Management School, Queen's University Belfast, UK

Dr Tessa Crilly  Director, Crystal Blue Consulting Ltd, UK

Dr Eugenia Cronin  Senior Scientific Advisor, Wessex Institute, UK

Dr Peter Davidson  Director of the NIHR Dissemination Centre, University of Southampton, UK

Ms Tara Lamont  Scientific Advisor, NETSCC, UK

Dr Catriona McDaid  Senior Research Fellow, York Trials Unit, Department of Health Sciences, University of York, UK

Professor William McGuire  Professor of Child Health, Hull York Medical School, University of York, UK

Professor Geoffrey Meads  Professor of Wellbeing Research, University of Winchester, UK

Professor John Norrie  Chair in Medical Statistics, University of Edinburgh, UK

Professor John Powell  Consultant Clinical Adviser, National Institute for Health and Care Excellence (NICE), UK

Professor James Raftery  Professor of Health Technology Assessment, Wessex Institute, Faculty of Medicine, University of Southampton, UK

Dr Rob Riemsmma  Reviews Manager, Kleijnen Systematic Reviews Ltd, UK

Professor Helen Roberts  Professor of Child Health Research, UCL Institute of Child Health, UK

Professor Jonathan Ross  Professor of Sexual Health and HIV, University Hospital Birmingham, UK

Professor Helen Snooks  Professor of Health Services Research, Institute of Life Science, College of Medicine, Swansea University, UK

Professor Jim Thornton  Professor of Obstetrics and Gynaecology, Faculty of Medicine and Health Sciences, University of Nottingham, UK

Professor Martin Underwood  Director, Warwick Clinical Trials Unit, Warwick Medical School, University of Warwick, UK

Please visit the website for a list of members of the NIHR Journals Library Board: www.journalslibrary.nihr.ac.uk/about/editors

Editorial contact: journals.library@nihr.ac.uk