

# United Kingdom Oscillation Study: long-term outcomes of a randomised trial of two modes of neonatal ventilation

Anne Greenough,<sup>1\*</sup> Janet Peacock,<sup>2</sup> Sanja Zivanovic,<sup>1</sup>  
Mireia Alcazar-Paris,<sup>1</sup> Jessica Lo,<sup>2</sup> Neil Marlow<sup>3</sup>  
and Sandy Calvert<sup>4</sup>

<sup>1</sup>Division of Asthma, Allergy and Lung Biology, Medical Research Council (MRC)  
Centre for Allergic Mechanisms in Asthma, King's College London, London, UK

<sup>2</sup>Division of Health and Social Care Research, King's College London, London, UK

<sup>3</sup>Institute for Women's Health, University College London, London, UK

<sup>4</sup>Department of Child Health, St George's Hospital, University of London,  
London, UK

\*Corresponding author

**Declared competing interests of authors:** Anne Greenough has held grants from various ventilator manufacturers and received honoraria for giving lectures and advising various ventilator manufacturers.

Published June 2014

DOI: 10.3310/hta18410

## Plain English summary

United Kingdom Oscillation Study: long-term outcomes

Health Technology Assessment 2014; Vol. 18: No. 41

DOI: 10.3310/hta18410

NIHR Journals Library [www.journalslibrary.nihr.ac.uk](http://www.journalslibrary.nihr.ac.uk)

# Plain English summary

## Background

One in 200 babies in the UK is born extremely prematurely, that is before 29 weeks of gestation. Advances in neonatal care have meant that 75% of such babies survive, but many have long-term breathing problems and difficulties at school. The majority of such babies require breathing support from birth. Our aim was to determine if the breathing support technique used immediately after birth influenced breathing problems and school performance in children born extremely prematurely.

## Methods

Children entered into a multicentre, randomised trial, the United Kingdom Oscillation Study, were assessed when aged between 11 and 14 years. The children had been randomised to receive either high-frequency oscillation (HFO) or conventional ventilation (CV) within 1 hour of birth. At 11–14 years of age, they underwent comprehensive lung function and cardiac assessments. Respiratory, health-related quality of life and school performance assessment questionnaires were completed by the children, their parents and their teachers.

## Results

Three hundred and nineteen children were assessed; 160 had been supported by HFO. On average, the children in the HFO group had significantly better breathing test results than those in the CV group and their teachers reported them to have better achievements in art and design, information technology, and design and technology.

## Conclusion

These results demonstrate that use of HFO rather than CV immediately after birth in extremely prematurely born infants is associated with better breathing and educational outcomes at 11–14 years of age.

ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Five-year impact factor: 5.804

*Health Technology Assessment* is indexed in MEDLINE, CINAHL, EMBASE, The Cochrane Library and the ISI Science Citation Index and is assessed for inclusion in the Database of Abstracts of Reviews of Effects.

This journal is a member of and subscribes to the principles of the Committee on Publication Ethics (COPE) ([www.publicationethics.org/](http://www.publicationethics.org/)).

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

The full HTA archive is freely available to view online at [www.journalslibrary.nihr.ac.uk/hta](http://www.journalslibrary.nihr.ac.uk/hta). Print-on-demand copies can be purchased from the report pages of the NIHR Journals Library website: [www.journalslibrary.nihr.ac.uk](http://www.journalslibrary.nihr.ac.uk)

## 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: [www.hta.ac.uk/](http://www.hta.ac.uk/)

## This report

The research reported in this issue of the journal was funded by the HTA programme as project number 08/116/10. The contractual start date was in March 2011. The draft report began editorial review in May 2013 and was accepted for publication in January 2014. 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 2014. This work was produced by Greenough *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.

Published by the NIHR Journals Library ([www.journalslibrary.nihr.ac.uk](http://www.journalslibrary.nihr.ac.uk)), produced by Prepress Projects Ltd, Perth, Scotland [www.prepress-projects.co.uk](http://www.prepress-projects.co.uk)).

## **Editor-in-Chief of *Health Technology Assessment* and NIHR Journals Library**

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

### **NIHR Journals Library Editors**

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

**Professor Andree Le May** Chair of NIHR Journals Library Editorial Group (EME, 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

**Professor Aileen Clarke** Professor of Public Health and Health Services Research, Warwick Medical School, University of Warwick, UK

**Dr Tessa Crilly** Director, Crystal Blue Consulting Ltd, UK

**Dr Peter Davidson** Director of NETSCC, HTA, UK

**Ms Tara Lamont** Scientific Advisor, NETSCC, UK

**Professor Elaine McColl** Director, Newcastle Clinical Trials Unit, Institute of Health and Society, Newcastle University, UK

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

**Professor Geoffrey Meads** Professor of Health Sciences Research, Faculty of Education, University of Winchester, UK

**Professor Jane Norman** Professor of Maternal and Fetal Health, 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 Riemsma** Reviews Manager, Kleijnen Systematic Reviews Ltd, UK

**Professor Helen Roberts** Professor of Child Health Research, University College London, UK

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

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

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