

Three wound-dressing strategies to reduce surgical site infection after abdominal surgery: the Bluebelle feasibility study and pilot RCT

Barnaby C Reeves,¹ Leila Rooshenas,²
Rhiannon C Macefield,² Mark Woodward,³
Nicky J Welton,² Benjamin R Waterhouse,⁴
Andrew D Torrance,⁵ Sean Strong,^{2,4}
Dimitrios Siassakos,^{2,4} William Seligman,⁴
Chris A Rogers,¹ Lloyd Rickard,⁶ Anne Pullyblank,⁴
Caroline Pope,¹ Thomas D Pinkney,⁷ Samir Pathak,³
Anwar Owais,³ Jamie O'Callaghan,³ Stephen O'Brien,⁴
Dmitri Nepogodiev,^{6,7} Khaldoun Nadi,⁴
Charlotte E Murkin,^{2,3} Tonia Munder,³ Tom Milne,⁴
David Messenger,³ Christel M McMullan,⁸
Jonathan M Mathers,⁸ Matthew Mason,³
Morwena Marshall,³ Richard Lovegrove,⁹
Robert J Longman,³ Jessica Lloyd,⁴ Jeffrey Lim,³
Kathryn Lee,³ Vijay Korwar,⁴ Daniel Hughes,³
George Hill,⁴ Rosie Harris,¹ Mohammed Hamdan,^{3,4}
Hannah Gould Brown,³ Rachael Gooberman-Hill,¹⁰
James Glasbey,³ Caroline Fryer,⁶ Lucy Ellis,¹
Daisy Elliott,² Jo C Dumville,¹¹ Tim Draycott,⁴
Jenny L Donovan,^{2,12} David Cotton,³ Joanna Coast,²
Madeleine Clout,¹ Melanie J Calvert,^{8,13}
Benjamin E Byrne,² Oliver D Brown,³
Natalie S Blencowe,^{2,3} Katarzyna D Bera,¹⁴
Joanne Bennett,⁴ Richard Bamford,³
Danya Bakhbakh,⁴ Muhammad Atif,³ Kate Ashton,¹
Elizabeth Armstrong,⁴ Lazaros Andronis,¹⁵
Piriyanakan Ananthavarathan³ and Jane M Blazeby^{2,3*}

- ¹Clinical Trials and Evaluation Unit, Department of Translational Health Sciences, Bristol Medical School, University of Bristol, Bristol, UK
- ²Department of Population Health Sciences, Bristol Medical School, University of Bristol, Bristol, UK
- ³University Hospitals Bristol NHS Foundation Trust, Bristol, UK
- ⁴North Bristol NHS Trust, Bristol, UK
- ⁵Department of Surgery, Sandwell and West Birmingham NHS Trust, West Bromwich, UK
- ⁶University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK
- ⁷Academic Department of Surgery, Queen Elizabeth Hospital, University of Birmingham, Birmingham, UK
- ⁸Institute of Applied Health Research, University of Birmingham, Birmingham, UK
- ⁹Worcestershire Acute Hospitals NHS Trust, Worcester, UK
- ¹⁰Musculoskeletal Research Unit, Department of Translational Health Sciences, Bristol Medical School, University of Bristol, Bristol, UK
- ¹¹Division of Nursing, Midwifery and Social Work, School of Health Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester Academic Health Science Centre, Manchester, UK
- ¹²National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care West at University Hospitals Bristol NHS Foundation Trust, Bristol, UK
- ¹³Centre for Patient Reported Outcomes Research, University of Birmingham, Birmingham, UK
- ¹⁴Clinical Academic Graduate School, University of Oxford, Oxford, UK
- ¹⁵Health Economics Unit, Institute of Applied Health Research, University of Birmingham, Birmingham, UK

*Corresponding author j.m.blazeby@bristol.ac.uk

Declared competing interests of authors: Chris A Rogers reports grants from the British Heart Foundation to April 2017, outside the submitted work. Chris A Rogers is a member of Clinical Trials Units funded by the National Institute for Health Research (NIHR) and the Health Technology Assessment (HTA) Commissioning Board. Melanie J Calvert reports personal fees from Ferring Pharmaceuticals (Saint-Prex, Switzerland), outside the submitted work. Rhiannon C Macefield has a patent Wound Healing Questionnaire pending to the University of Bristol. Stephen O'Brien reports grants from Saving Lives at Birth Partners, outside the submitted work. Tim Draycott reports personal fees from Ferring Pharmaceuticals, outside the submitted work. Barnaby C Reeves reports membership of the HTA Commissioning Board (up to 31 March 2016), the Systematic Reviews Programme Advisory Group (up to 5 July 2017) and Interventional Procedures Panel Methods Group, the HTA Efficient Study Designs Board, SRP – Cochrane Programme Grant Funding Meeting and Systematic Reviews NIHR Cochrane Incentive Awards (all current).

Published August 2019

DOI: [10.3310/hta23390](https://doi.org/10.3310/hta23390)

Plain English summary

Three wound-dressing strategies to reduce surgical site infection

Health Technology Assessment 2019; Vol. 23: No. 39

DOI: [10.3310/hta23390](https://doi.org/10.3310/hta23390)

NIHR Journals Library www.journalslibrary.nihr.ac.uk

Plain English summary

Wound infections are common after surgery. Some are cured with simple treatment, but others may lead to serious problems. Reducing the risk of a wound infection is important. We do not know if the type of dressing, or not using a dressing, influences the risk of infection. A study that allocated patients to receive different dressings (or no dressing) would answer this question. We did preliminary research to explore whether or not such a study is possible.

We interviewed doctors, nurses and patients about their views on dressings and a future study. We also described dressings currently being used in the NHS and found that simple dressings and tissue adhesive (glue) 'as-a-dressing' are used most frequently. We studied existing evidence and interviewed experts to develop a questionnaire, completed by patients, to identify wound infections after patients leave hospital and tested its accuracy. We also explored taking photographs of wounds. We investigated whether or not a major study would be worth the cost and designed a pilot study to test its feasibility.

The pilot study recruited 394 patients undergoing abdominal operations in five NHS hospitals. These patients were allocated to have a simple dressing, glue-as-a-dressing or no dressing, and 92% received the allocated dressing method. Patients and their doctors and nurses found the dressing methods to be acceptable. We showed that the new patient questionnaire accurately identified infections. Patients or their carers also found it acceptable to photograph their wounds. Our research suggests that a future large study would be worth the investment and is possible.

ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Impact factor: 3.819

Health Technology Assessment is indexed in MEDLINE, CINAHL, EMBASE, The Cochrane Library and the Clarivate Analytics Science Citation Index.

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

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

The full HTA archive is freely available to view online at www.journalslibrary.nhr.ac.uk/hta. Print-on-demand copies can be purchased from the report pages of the NIHR Journals Library website: www.journalslibrary.nhr.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: <http://www.nets.nhr.ac.uk/programmes/hta>

This report

The research reported in this issue of the journal was funded by the HTA programme as project number 12/200/04. The contractual start date was in June 2014. The final report began editorial review in January 2018 and was accepted for publication in July 2018. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The EME editors and production house have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the final report 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 and Social Care. 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 and Social Care.

© Queen's Printer and Controller of HMSO 2019. This work was produced by Reeves *et al.* under the terms of a commissioning contract issued by the Secretary of State for Health and Social Care. 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.nhr.ac.uk), produced by Prepress Projects Ltd, Perth, Scotland (www.prepress-projects.co.uk).

NIHR Journals Library Editor-in-Chief

Professor Ken Stein Professor of Public Health, University of Exeter Medical School, UK

NIHR Journals Library Editors

Professor John Powell Chair of HTA and EME Editorial Board and Editor-in-Chief of HTA and EME journals. Consultant Clinical Adviser, National Institute for Health and Care Excellence (NICE), UK, and Honorary Professor, University of Manchester, and Senior Clinical Researcher and Associate Professor, Nuffield Department of Primary Care Health Sciences, University of Oxford, UK

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

Professor Matthias Beck Professor of Management, Cork University Business School, Department of Management and Marketing, University College Cork, Ireland

Dr Tessa Crilly Director, Crystal Blue Consulting Ltd, UK

Dr Eugenia Cronin Senior Scientific Advisor, Wessex Institute, UK

Dr Peter Davidson Consultant Advisor, Wessex Institute, University of Southampton, UK

Ms Tara Lamont Director, NIHR Dissemination Centre, 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 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, UCL Great Ormond Street 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 Ken Stein Professor of Public Health, University of Exeter Medical School, UK

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

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

Please visit the website for a list of editors: www.journalslibrary.nihr.ac.uk/about/editors

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