

# Care bundles to reduce re-admissions for patients with chronic obstructive pulmonary disease: a mixed-methods study

Katherine Morton,<sup>1</sup> Emily Sanderson,<sup>1,2</sup> Padraig Dixon,<sup>1</sup> Anna King,<sup>1</sup> Sue Jenkins,<sup>3</sup> Stephanie J MacNeill,<sup>1,2</sup> Alison Shaw,<sup>1</sup> Chris Metcalfe,<sup>1,2</sup> Melanie Chalder,<sup>1</sup> William Hollingworth,<sup>1</sup> Jonathan Benger,<sup>4</sup> James Calvert<sup>5</sup> and Sarah Purdy<sup>1\*</sup>

<sup>1</sup>Bristol Medical School, University of Bristol, Bristol, UK

<sup>2</sup>Bristol Randomised Trials Collaboration, University of Bristol, Bristol, UK

<sup>3</sup>Sue Jenkins Consulting, Bristol, UK

<sup>4</sup>Faculty of Health and Applied Sciences, University of the West of England, Bristol, UK

<sup>5</sup>Southmead Hospital, North Bristol NHS Trust, Bristol, UK

\*Corresponding author [sarah.purdy@bristol.ac.uk](mailto:sarah.purdy@bristol.ac.uk)

**Declared competing interests of authors:** Sarah Purdy is a general practitioner, and Jonathan Benger and James Calvert are hospital consultants working in the fields of emergency care and respiratory medicine, respectively. All have endeavoured to ensure that their input to the research has not been biased by their own clinical practice. James Calvert worked with colleagues at the British Thoracic Society to design and evaluate care bundles as an intervention to improve outcomes in a number of different respiratory conditions including chronic obstructive pulmonary disease, pneumonia and asthma. Sarah Purdy is a member of the National Institute for Health Research (NIHR) Health Services and Delivery Research Researcher-led Panel, from 2017 to date. William Hollingworth is a member of the NIHR Health Technology Assessment Clinical Trials Board. Sue Jenkins runs an independent consultancy for public and charitable sector clients, providing strategy and organisation development, leadership coaching and facilitation. Melanie Chalder reports a Medical Research Council Proximity to Discovery award outside the submitted work.

Published June 2019

DOI: 10.3310/hsdr07210

## Plain English summary

### Care bundles to reduce re-admissions for patients with COPD

Health Services and Delivery Research 2019; Vol. 7: No. 21

DOI: 10.3310/hsdr07210

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

## Plain English summary

Chronic obstructive pulmonary disease (COPD) is the name for a collection of long-term conditions that affect the lungs. It is one of the most common respiratory diseases in the UK and accounts for 10% of hospital admissions each year. Nearly one-third of these patients are re-admitted to hospital within 28 days of discharge.

Care bundles are a group of interventions, each of which is thought to improve patient care. They are a way of ensuring that staff can provide a co-ordinated package of care to patients with COPD at the point that they arrive at, or are sent home from, hospital. Although several small studies have suggested that care bundles lead to better care for patients with COPD, a larger national study was needed to show that these findings are reliable.

By comparing how many patients were re-admitted to hospitals that use care bundles and to hospitals that do not, and studying what happens to patients during their stay and afterwards, we aimed to assess how successful COPD care bundles are. We used information from hospital systems and medical records and from talking to staff, patients and carers and observing care to find out the answers.

Although care bundles were viewed positively by health-care professionals, they do not seem to make a noticeable difference to the experience of patients and carers, future inpatient admissions or patient death rates. Care bundles, particularly admission bundles, were difficult to put in place and few patients actually received them. Hospitals that were not delivering care bundles were doing other similar things to improve care and this will have reduced the impact of the bundles. Care bundles do seem to reduce the number of visits patients with COPD need to make to emergency departments. However, the introduction of COPD care bundles is unlikely to save money for the NHS.

# Health Services and Delivery Research

ISSN 2050-4349 (Print)

ISSN 2050-4357 (Online)

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: [journals.library@nihr.ac.uk](mailto:journals.library@nihr.ac.uk)

The full HS&DR archive is freely available to view online at [www.journalslibrary.nihr.ac.uk/hsdr](http://www.journalslibrary.nihr.ac.uk/hsdr). 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 Services and Delivery Research* journal

Reports are published in *Health Services and Delivery Research* (HS&DR) if (1) they have resulted from work for the HS&DR programme or programmes which preceded the HS&DR programme, and (2) they are of a sufficiently high scientific quality as assessed by the reviewers and editors.

## HS&DR programme

The Health Services and Delivery Research (HS&DR) programme, part of the National Institute for Health Research (NIHR), was established to fund a broad range of research. It combines the strengths and contributions of two previous NIHR research programmes: the Health Services Research (HSR) programme and the Service Delivery and Organisation (SDO) programme, which were merged in January 2012.

The HS&DR programme aims to produce rigorous and relevant evidence on the quality, access and organisation of health services including costs and outcomes, as well as research on implementation. The programme will enhance the strategic focus on research that matters to the NHS and is keen to support ambitious evaluative research to improve health services.

For more information about the HS&DR programme please visit the website: <http://www.nets.nihr.ac.uk/programmes/hsdr>

## This report

The research reported in this issue of the journal was funded by the HS&DR programme or one of its preceding programmes as project number 12/130/53. The contractual start date was in May 2014. The final report began editorial review in October 2017 and was accepted for publication in May 2018. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HS&DR 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 HS&DR 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 HS&DR programme or the Department of Health and Social Care.

**© Queen's Printer and Controller of HMSO 2019. This work was produced by Morton *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.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)).

## 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](http://www.journalslibrary.nihr.ac.uk/about/editors)

**Editorial contact:** [journals.library@nihr.ac.uk](mailto:journals.library@nihr.ac.uk)