OPTIMA prelim: a randomised feasibility study of personalised care in the treatment of women with early breast cancer

Robert C Stein,^{1*} Janet A Dunn,² John MS Bartlett,³ Amy F Campbell,² Andrea Marshall,² Peter Hall,⁴ Leila Rooshenas,⁵ Adrienne Morgan,⁶ Christopher Poole,² Sarah E Pinder,⁷ David A Cameron,⁸ Nigel Stallard,² Jenny L Donovan,⁵ Christopher McCabe,⁹ Luke Hughes-Davies¹⁰ and Andreas Makris¹¹ on behalf of the OPTIMA Trial Management Group

- ¹Department of Oncology, University College London Hospitals, London, UK
 ²Warwick Medical School, University of Warwick, Coventry, UK
 ³Ontario Institute for Cancer Research, Toronto, ON, Canada
 ⁴Academic Unit of Health Economics, Leeds Institute of Health Sciences, University of Leeds, Leeds, UK
 ⁵School of Social and Community Medicine, University of Bristol, Bristol, UK
 ⁶Independent Cancer Patients' Voice, London, UK
 ⁷Research Oncology, Division of Cancer Studies, King's College London, London, UK
 ⁸Edinburgh Cancer Research Centre, University of Edinburgh, Edinburgh, UK
 ⁹Department of Emergency Medicine, University of Alberta, Edmonton, AB, Canada
 ¹⁰Oncology Centre, Addenbrooke's Hospital, Cambridge University Hospitals NHS
- Foundations Trust, Cambridge, UK
- ¹¹Department of Clinical Oncology, Mount Vernon Cancer Centre, Mount Vernon Hospital, Northwood, UK

*Corresponding author

Declared competing interests of authors: Robert C Stein reports grants from the NIHR-UCLH Biomedical Research Centre during the conduct of the study; grants and personal fees from Celgene Ltd and grants from Amgen Ltd outside the submitted work. Christopher Poole reports personal fees from Genomic Health outside the submitted work. Andreas Makris reports personal fees from Genomic Health during the conduct of the study. John MS Bartlett reports the following, all outside the submitted work: personal fees and other (support in kind) from BioNTech AG; personal fees from GE Healthcare; other (support in kind) from NanoString Technologies Inc.; other (support in kind) from Genoptix Medical Laboratory; grants from the NIHR HTA programme; grants from Cancer Research UK; grants from Celgene Ltd; grants from Ontario Institute for Cancer Research (OICR) High Impact Clinical Trials (HICT) Programme; grants from The Breast Cancer Research Foundation; grants from Medical Research Council; grants from Pfizer (UK); grants from Breakthrough Breast Cancer; grants from European Union; grants from The Breast Cancer Institute (UK); grants from European Organisation for Research and Treatment of Cancer; grants from Roche Pharmaceuticals Limited; personal fees from Daiichi Sankyo Pharma Development; and personal fees from Rexahn Pharmaceuticals Inc.

Published February 2016 DOI: 10.3310/hta20100

Plain English summary

OPTIMA prelim: a randomised feasibility study

Health Technology Assessment 2016; Vol. 20: No. 10 DOI: 10.3310/hta20100

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

Plain English summary

What was the problem?

Breast cancer is the most common cancer in the UK. After surgery, doctors often advise chemotherapy. We know that this is life-saving for some patients. However, we also know that many patients would do just as well without it. The problem is that doctors cannot pick out who actually needs chemotherapy, so they play safe. They use quite simple methods, for example measuring the size of the cancer, to decide. Therefore, many patients have to undergo chemotherapy to benefit the few who need it. Recently, scientists have developed new laboratory tests to look at breast cancers. They claim that these tests can find out which patients need chemotherapy.

What did we do?

We ran a pilot study using one of these tests. Our study was called Optimal Personalised Treatment of early breast cancer using Multiparameter Analysis (OPTIMA) prelim, in which 313 women took part. Half of the women had chemotherapy as usual. The other half had a test [called Oncotype DX[®] (Genomic Health Inc., Redwood City, CA, USA)] to decide whether or not they should have chemotherapy.

What did we find?

We showed that patients and their doctors are willing to trust the test. The test can be used in NHS clinics without delaying treatment. We also compared several different tests against each other. We worked out which test we should use in a larger study.

What does this mean?

We can now run a much larger study with 4500 patients taking part. This will let us answer one of the most important questions in breast cancer: can we safely reduce the number of people who have chemotherapy?

© Queen's Printer and Controller of HMSO 2016. This work was produced by Stein *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

ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Impact factor: 5.027

Health Technology Assessment is indexed in MEDLINE, CINAHL, EMBASE, The Cochrane Library and the ISI 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: nihredit@southampton.ac.uk

The full HTA archive is freely available to view online at 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

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 10/34/01. The contractual start date was in May 2012. The draft report began editorial review in May 2014 and was accepted for publication in September 2015. 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 2016. This work was produced by Stein *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), produced by Prepress Projects Ltd, Perth, Scotland (www.prepress-projects.co.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 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, Health and Wellbeing Research and Development Group, University of Winchester, UK

Professor John Norrie Health Services Research Unit, University of Aberdeen, 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, 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

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

Editorial contact: nihredit@southampton.ac.uk