

What works to increase attendance for diabetic retinopathy screening? An evidence synthesis and economic analysis

John G Lawrenson,^{1*} Ella Graham-Rowe,²
Fabiana Lorencatto,² Stephen Rice,³ Catey Bunce,⁴
Jill J Francis,² Jennifer M Burr,⁵ Patricia Aluko,³
Luke Vale,³ Tunde Peto,⁶ Justin Presseau,^{7,8}
Noah M Ivers⁹ and Jeremy M Grimshaw^{7,10}

¹Centre for Applied Vision Research, School of Health Sciences, City, University of London, London, UK

²Centre for Health Services Research, School of Health Sciences, City, University of London, London, UK

³Health Economics Group, Institute of Health and Society, Newcastle University, Newcastle upon Tyne, UK

⁴Department of Primary Care & Public Health Sciences, King's College London, London, UK

⁵School of Medicine, University of St Andrews, St Andrews, UK

⁶School of Medicine, Dentistry and Biomedical Sciences, Queen's University Belfast, Belfast, UK

⁷Clinical Epidemiology Program, Ottawa Hospital Research Institute, Ottawa, ON, Canada

⁸School of Epidemiology, Public Health, and Preventive Medicine, University of Ottawa, Ottawa, ON, Canada

⁹Department of Family and Community Medicine, Women's College Hospital – University of Toronto, Toronto, ON, Canada

¹⁰Department of Medicine, University of Ottawa, Ottawa, ON, Canada

*Corresponding author j.g.lawrenson@city.ac.uk

Declared competing interests of authors: Luke Vale is a member of the National Institute for Health Research (NIHR) Health Technology Assessment (HTA) Clinical Evaluation and Trials Board. Noah M Ivers received grants from the Canadian Institutes of Health Research outside the submitted work. Jeremy M Grimshaw received grants from the Canadian Institutes of Health Research during the conduct of this study.

Published May 2018

DOI: 10.3310/hta22290

Plain English summary

Increasing attendance for diabetic retinopathy screening

Health Technology Assessment 2018; Vol. 22: No. 29

DOI: 10.3310/hta22290

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

Plain English summary

People with diabetes mellitus may lose vision as a result of the damaging effects of the disease on small blood vessels at the back of the eye (diabetic retinopathy). Screening for diabetic retinopathy to detect and treat early signs can prevent sight loss. However, screening attendance is variable and sight-threatening changes may not be detected in good time.

This study investigated the literature to find out if interventions used to improve screening attendance are effective. We labelled each intervention in terms of the techniques used to encourage attendance and assessed whether some worked better than others. We then described what factors encourage or prevent patients from regularly attending for screening and examined whether or not the techniques used target these factors. We also assessed value for money by comparing the costs and benefits of the interventions and their component techniques.

We found that interventions aimed at patients and/or health-care professionals were effective at improving screening attendance. Interventions aimed at improving the general quality of diabetes care worked as well as those specifically aimed at improving screening for retinopathy. On average, attendance increased by 12% compared with no intervention. All of the techniques commonly used improved attendance, especially goal-setting and providing additional social support. The successful techniques were highly likely to be good value for money, particularly if used in groups who do not usually attend for screening. Linking techniques to factors influencing attendance showed that the interventions did include techniques that target these factors. However, techniques addressing emotional barriers to screening attendance and fear of the consequences of screening were not included in published interventions.

Evidence shows that interventions that target behaviour change do increase screening attendance and have a good chance of being good value for money. Further studies are required to test how well techniques addressing emotional barriers to screening work in terms of increasing attendance.

ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Impact factor: 4.236

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 13/137/05. The contractual start date was in September 2015. The draft report began editorial review in April 2017 and was accepted for publication in August 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 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 2018. This work was produced by Lawrenson *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.nhr.ac.uk), produced by Prepress Projects Ltd, Perth, Scotland (www.prepress-projects.co.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 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 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 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 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 editors: www.journalslibrary.nihr.ac.uk/about/editors

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