Intervention Now to Eliminate Repeat Unintended Pregnancy in Teenagers (INTERUPT): a systematic review of intervention effectiveness and cost-effectiveness, and qualitative and realist synthesis of implementation factors and user engagement

Rhiannon Whitaker, 1* Maggie Hendry, 2 Rabeea'h Aslam, 3 Andrew Booth, 4 Ben Carter, 5 Joanna M Charles, 6 Noel Craine, 7 Rhiannon Tudor Edwards, 6 Jane Noyes, 8 Lupetu Ives Ntambwe, 9 Diana Pasterfield, 2 Jo Rycroft-Malone 10 and Nefyn Williams 2, 11

¹Whitaker Research Ltd, Cae Ffos, Bangor, UK

Liverpool, UK

Cardiff University, Cardiff, UK

²North Wales Centre for Primary Care Research, Bangor University, Wrexham, UK ³Liverpool Review and Implementation Group, University of Liverpool,

⁴School of Health and Related Research, University of Sheffield, Sheffield, UK ⁵Institute of Primary Care and Public Health, School of Medicine,

⁶Centre for Health Economics and Medicines Evaluation, School of Healthcare Sciences, Bangor University, Bangor, UK

⁷Microbiology Department, Public Health Wales, Ysbyty Gwynedd, Bangor, UK

⁸School of Social Sciences, Bangor University, Bangor, UK

⁹Veristat S.A., Montreal, QC, Canada

¹⁰School of Healthcare Sciences, Bangor University, Bangor, UK

¹¹North Wales Organisation for Randomised Trials in Health (& Social Care), School of Healthcare Sciences, Bangor University, Bangor, UK

^{*}Corresponding author

Declared competing interests of authors: Nefyn Williams, Rhiannon Tudor Edwards and Joanna Charles's posts are part funded and Noel Craine is employed by Public Health Wales. Jane Noyes received grants from the National Institute for Health Research (NIHR) Health Technology Assessment programme during the conduct of the study and received other financial support for speaking at a Diabetes UK conference sponsored by Janssen-Cilag Ltd, AstraZeneca UK, Boehringer Ingelheim Ltd, Eli Lilly and Company, Merck Sharp & Dohme Corp., Novartis Pharmaceuticals UK Ltd and Roche who may produce and distribute contraceptives to the target population of this systematic review outside the submitted work. Jo Rycroft-Malone is a member of the NIHR Health Services and Delivery Research (HS&DR) Board (commissioned research) and, since completing this research, she has been appointed director of the NIHR HS&DR programme.

Published February 2016

DOI: 10.3310/hta20160

Plain English summary

INTERUPT

Health Technology Assessment 2016; Vol. 20: No. 16

DOI: 10.3310/hta20160

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

Plain English summary

We wanted to find out whether or not there is any good evidence to help understand and reduce the number of teenage mothers having another baby that they did not plan. The UK has one of the highest rates of pregnancy among teenagers in Europe. One-fifth of these are repeat pregnancies. Teenage pregnancy can be bad both for mothers and for their babies. For mothers, emotional, educational and general life opportunities can be damaged, and for their children, there is an increased risk of premature death, living in poverty, not doing well at school and being unemployed in later life.

We have examined different sorts of research, from the world's scientific publications, which tested new intervention programmes or asked young mothers for their perspective, to help us find the best prevention strategies. We also asked practitioners for their views.

We found very little useful evidence about which programmes help teenage mothers the most, who the programmes should be offered to or how they work.

Much of the research had been carried out in the USA and many of the ideas they were testing are already widely used in the UK, such as free and accessible birth control.

We found that the most helpful programmes involved home visits by professionals who could help young women with many different issues, including health care, birth control methods and child care, and who could also link young mothers to other health, education and employment services to prevent isolation. We tested our conclusions with a group of young mothers.

HTA/HTA TAR

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 11/141/05. The contractual start date was in January 2013. The draft report began editorial review in January 2014 and was accepted for publication in April 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 Whitaker 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