

Developing and implementing 20-mph speed limits in Edinburgh and Belfast: mixed-methods study

Ruth Jepson,^{1*} Graham Baker,² Claire Cleland,³
Andy Cope,⁴ Neil Craig,⁵ Charlie Foster,⁶
Ruth Hunter,³ Frank Kee,³ Michael P Kelly,⁷
Paul Kelly,² Karen Milton,⁸ Glenna Nightingale,¹
Kieran Turner,^{1,2} Andrew James Williams⁹
and James Woodcock¹⁰

¹Scottish Collaboration for Public Health Research and Policy, University of Edinburgh, Edinburgh, UK

²Physical Activity for Health Research Centre, University of Edinburgh, Edinburgh, UK

³School of Medicine, Dentistry and Biomedical Sciences, Queen's University Belfast, Belfast, UK

⁴Sustrans, Bristol, UK

⁵Public Health Scotland, Edinburgh, UK

⁶Centre for Exercise, Nutrition and Health Sciences, University of Bristol, Bristol, UK

⁷Department of Public Health and Primary Care, University of Cambridge, Cambridge, UK

⁸Norwich Medical School, University of East Anglia, Norwich, UK

⁹School of Medicine, University of St Andrews, St Andrews, UK

¹⁰Centre for Diet and Activity Research, University of Cambridge, Cambridge, UK

*Corresponding author ruth.jepson@ed.ac.uk

Declared competing interests of authors: Ruth Hunter is a member of the Public Health Research (PHR) Funding Board. Frank Kee is a co-investigator on the Game of Stones trial (PHR 14/185/09 and NIHR129703), the Supporting MumS trial (NIHR131509), the Global Health LINKS Research Group (NIHR 16/137/85) and Improving the Oral Health of Older People in Care Homes: a Feasibility Study (TOPIC) (NIHR 17/03/11). He is a principal investigator of the MECHANISMS study (MR/RO11176/1) and the Healthy Urban Living and Ageing in Place (HULAP) study (GCRF-GIAA18-19). Furthermore, he is a member of the following panels: Medical Research Council (MRC) Public Health Intervention Development (PHIND) Funding Panel (2013–18); MRC Better Methods, Better Research Panel (2020–present); MRC Non-clinical Fellowship Panel (2020–present); UK Research and Innovation Future Leaders Fellowship Panel (2020–present); Agile COVID Panel (2020–21); Policy Research Unit Commissioning Panel (2016 and 2018); Long COVID Panel (2021); ADD ('Our Future Health' study) Advisory Board (2020–present); School of Public Health Advisory Board (2018–present); MRC Longitudinal Studies Funding Panel; and Methods Advisory Group. He was also a member of the PHR Funding Board (2009–13; chairperson 2014–19). Michael P Kelly received grants from the Wellcome Trust, The Dunhill Medical Trust, the National Institute for Health and Care Research (NIHR), the Arts and Humanities Research Council (AHRC) and Marie Curie, and received NIHR and AHRC consultancy fees. He is a member of the Scientific Advisory Board Systems Science In Public Health Economic

Research (SIPHER), University of Sheffield. Andrew James Williams received a grant from Sustrans/ Transport for Scotland for £15,255 to conduct a systematic review into the association between modes of travel and loneliness/social isolation (McHale C, Williams A, Cormie V. Systematic review of research investigating the relationship between social disconnection and transportation activities. PROSPERO 2021 CRD42021232445 URL: www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42021232445) (5 months from November 2020).

Disclaimer: This report contains transcripts of interviews conducted in the course of the research and contains language that may offend some readers.

Published September 2022

DOI: 10.3310/XAZI9445

Plain English summary

Edinburgh and Belfast 20-mph speed limits

Public Health Research 2022; Vol. 10: No. 9

DOI: 10.3310/XAZI9445

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

Plain English summary

Background

Speed restrictions of 20 mph aim to decrease traffic speed and lower rates of collisions and casualties. They may also lead to wider benefits such as more pleasant communities and more people choosing to walk or cycle. This study evaluated the implementation of 20-mph speed limits in Edinburgh and Belfast.

Methods

We made use of routinely collected data and collected our own data via surveys and through speaking to people. We were interested in four key issues: (1) the political decision-making that led to the schemes; (2) how the schemes were delivered; (3) the impact of the schemes on perceptions, speed, collisions and casualties; and (4) whether or not the schemes were a sensible financial investment.

Findings

The topic of 20-mph speed limits had been talked about for many years before the schemes were implemented. Small steps were taken, including the introduction of schemes near schools and engaging the general public to try to build support. The large-scale schemes were broadly implemented as intended in terms of signage, education and enforcement. In Edinburgh, the overall percentage reduction in collision rates was 40%, and the reduction in casualty rates was 39%. Average speed was reduced by 1.34 mph at 12 months. At 12 months following implementation, the number of people who were supportive of the speed limits increased, as did their willingness to obey the limits. In Belfast only minor changes were seen for all outcomes. This may be because speeds were already low in the city centre, or could be a result of other factors.

Conclusions

The citywide approach in Edinburgh was effective at reducing speed, leading to reductions in collisions and casualties. Public perceptions and compliance with the speed limits also increased. These findings suggest that 20-mph limits can be implemented at scale, lead to positive public health benefits and are likely to be a sensible financial investment.

Public Health Research

ISSN 2050-4381 (Print)

ISSN 2050-439X (Online)

Public Health Research (PHR) was launched in 2013 and is indexed by Europe PMC, NCBI Bookshelf, DOAJ, INAHTA and Ulrichsweb™ (ProQuest LLC, Ann Arbor, MI, USA).

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@nih.ac.uk

The full PHR archive is freely available to view online at www.journalslibrary.nih.ac.uk/phr.

Criteria for inclusion in the *Public Health Research* journal

Reports are published in *Public Health Research* (PHR) if (1) they have resulted from work for the PHR programme, and (2) they are of a sufficiently high scientific quality as assessed by the reviewers and editors.

Reviews in *Public Health Research* 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.

PHR programme

The Public Health Research (PHR) programme, part of the National Institute for Health and Care Research (NIHR), is the leading UK funder of public health research, evaluating public health interventions, providing new knowledge on the benefits, costs, acceptability and wider impacts of non-NHS interventions intended to improve the health of the public and reduce inequalities in health. The scope of the programme is multi-disciplinary and broad, covering a range of interventions that improve public health.

For more information about the PHR programme please visit the website: <https://www.nih.ac.uk/explore-nihr/funding-programmes/public-health-research.htm>

This report

The research reported in this issue of the journal was funded by the PHR programme as project number 15/82/12. The contractual start date was in March 2017. The final report began editorial review in March 2021 and was accepted for publication in February 2022. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The PHR 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 and Care 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, the PHR 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, the PHR programme or the Department of Health and Social Care.

Copyright © 2022 Jepson *et al.* This work was produced by Jepson *et al.* under the terms of a commissioning contract issued by the Secretary of State for Health and Social Care. This is an Open Access publication distributed under the terms of the Creative Commons Attribution CC BY 4.0 licence, which permits unrestricted use, distribution, reproduction and adaptation in any medium and for any purpose provided that it is properly attributed. See: <https://creativecommons.org/licenses/by/4.0/>. For attribution the title, original author(s), the publication source – NIHR Journals Library, and the DOI of the publication must be cited.

Published by the NIHR Journals Library (www.journalslibrary.nih.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 Consultant Clinical Adviser, National Institute for Health and Care Excellence (NICE), UK, and Professor of Digital Health Care, Nuffield Department of Primary Care Health Sciences, University of Oxford, UK

Professor Andrée Le May Chair of NIHR Journals Library Editorial Group (HSDR, PGfAR, PHR journals) and Editor-in-Chief of HSDR, 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 Consultant in Public Health, Delta Public Health Consulting Ltd, UK

Dr Peter Davidson Interim Chair of HTA and EME Editorial Board. Consultant Advisor, School of Healthcare Enterprise and Innovation, University of Southampton, UK

Ms Tara Lamont Senior Adviser, School of Healthcare Enterprise and Innovation, University of Southampton, UK

Dr Catriona McDaid Reader in Trials, 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 Emeritus Professor of Wellbeing Research, University of Winchester, UK

Professor James Raftery Professor of Health Technology Assessment, School of Healthcare Enterprise and Innovation, University of Southampton, UK

Dr Rob Riemsma Consultant Advisor, School of Healthcare Enterprise and Innovation, University of Southampton, UK

Professor Helen Roberts Professor of Child Health Research, Child and Adolescent Mental Health, Palliative Care and Paediatrics Unit, Population Policy and Practice Programme, UCL Great Ormond Street Institute of Child Health, London, 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

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

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