Population-level susceptibility, severity and spread of pandemic influenza: design of, and initial results from, a pre-pandemic and hibernating pandemic phase study using cross-sectional data from the Health Survey for England (HSE)

Ellen B Fragaszy,1,2* Mark Quinlivan,3 Judith Breuer,4 Rachel Craig,5 Stephanie Hutchings,3 Michael Kidd,6 Jennifer Mindell7 and Andrew C Hayward1

1Institute of Health Informatics, Farr Institute, UCL, London, UK
2Department of Infectious Disease Epidemiology, London School of Hygiene and Tropical Medicine, London, UK
3Great Ormond Street Hospital for Children, London, UK
4Division of Infection and Immunity, UCL, London, UK
5NatCen Social Research, London, UK
6UCL Hospitals NHS Foundation Trust, London, UK
7Department of Epidemiology and Public Health, UCL, London, UK

*Corresponding author

Declared competing interests of authors: Jennifer Mindell and Rachel Craig are funded by the Health and Social Care Information Centre to run the Health Survey for England.

Published June 2015
DOI: 10.3310/phr03060

Plain English summary

Population-level susceptibility, severity and spread of pandemic influenza

Public Health Research 2015; Vol. 3: No. 6
DOI: 10.3310/phr03060

NIHR Journals Library www.journalslibrary.nihr.ac.uk
Plain English summary

The next influenza pandemic will appear suddenly and with little warning. Pandemic influenza can be severe and cause many deaths, like the 1918 pandemic, or it can be relatively mild, like the 2009 swine flu pandemic. Governments need information on the severity of the pandemic and groups affected very early on so that they can plan their public health response and, in particular, decide how best to use national vaccine and antiviral supplies. Accurately measuring the frequency and severity of pandemic influenza, and the groups affected, requires large studies that ask people about their illness and test their blood for infection. Studies like this generally take months to set up, but in a pandemic we need results much more quickly. This study was designed to solve that problem by simply adding a few questions and an extra blood sample to a large national survey that already takes place throughout every year – the Health Survey for England.

We are currently setting up, testing and refining this system so that we are ready to run it again if another influenza pandemic occurs. We have finished the first stage of testing, in which we discovered that we need to change the way we ask people about their illnesses. We are using this information to improve the study and help make sure that, if a pandemic arises, we are collecting reliable and useful information that will help the government and health services respond to the pandemic.
Public Health Research

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 Research (NIHR), evaluates 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. The Public Health Research programme also complements the NIHR Health Technology Assessment programme which has a growing portfolio evaluating NHS public health interventions.

For more information about the PHR programme please visit the website: www.nets.nihr.ac.uk/programmes/phr

This report

The research reported in this issue of the journal was funded by the PHR programme as project number 11/46/09. The contractual start date was in September 2013. The report detailing the set up phase and initial outcomes began editorial review in February 2015 and was accepted for publication in May 2015. 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. Should the study progress further, the full report will be published in the PHR journal.

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 PHR 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 PHR programme or the Department of Health.

© Queen’s Printer and Controller of HMSO 2015. This work was produced by Fragaszy 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).
Public Health Research Editor-in-Chief

Professor Martin White  Professor of Public Health, Institute of Health & Society, Newcastle University and Honorary Consultant in Public Health with Public Health England

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, Faculty of Education, University of Winchester, 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 Helen Snooks  Professor of Health Services Research, Institute of Life Science, College of Medicine, Swansea University, 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