

The work, workforce, technology and organisational implications of the '111' single point of access telephone number for urgent (non-emergency) care: a mixed-methods case study

Joanne Turnbull,^{1*} Catherine Pope,¹ Alison Rowsell,¹
Jane Prichard,¹ Susan Halford,¹ Jeremy Jones,¹
Carl May¹ and Valerie Lattimer²

¹Faculty of Health Sciences, University of Southampton, Southampton, UK

²School of Nursing Sciences, University of East Anglia, Norwich, UK

*Corresponding author

Declared competing interests of authors: Catherine Pope is a co-applicant on a National Institute for Health Research Programme Grants for Applied Research programme (the Healthlines Study) led by Professor Chris Salisbury on behalf of NHS Direct.

Published February 2014

DOI: 10.3310/hsdr02030

Scientific summary

The '111' single point of access telephone number for urgent care

Health Services and Delivery Research 2014; Vol. 2: No. 3

DOI: 10.3310/hsdr02030

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

Scientific summary

Background

NHS 111 is a new, telephone-based service, available through a three-digit number (111), that allow callers to access urgent health care 24 hours a day. It offers clinical telephone assessment (triage), advice and referral when necessary to an appropriate health-care provider. To date, all NHS 111 services are underpinned by a single computer decision support system (CDSS) called NHS Pathways. Trained non-clinical call advisers answer telephone calls to the service and use this technology to support questioning to assess a patient's symptoms, provide health-care advice or direct the patient to the appropriate local service. The NHS 111 service represents a large-scale and fundamental change in the way that urgent care is delivered. It is predicated on the use of new digital technologies and significant labour substitution, in particular the greater use of non-clinical staff to deliver health services. It seeks to integrate a range of different health services in the context of an increasingly complex landscape of health services and significant increases in demand for health care.

Our previous National Institute for Health Research Service Delivery and Organisation programme project 'Ethnography and survey analysis of a computer decision support system in urgent out-of-hours, single point of access and emergency (999) care' (reference no. 08/1819/217), published in 2011, highlighted the importance of effective workforce planning, management and training in the successful implementation and continued use of the CDSS that underpins NHS 111. It shed light on the 'work' and effort required to bring a CDSS into successful use in a similar service setting. The current follow-on project extends what we have learnt in the context of the roll-out of the NHS 111 service. The study was designed to complement the Policy Research Programme-funded University of Sheffield evaluation of NHS 111 and to focus on how the NHS 111 service changes the organisations that deliver it and the wider organisation of health care, notably the implications for work, workforce configuration and training.

Objectives

NHS 111 has provided a timely opportunity to empirically investigate four core features of health-care innovation and change, namely the way in which work and workforce is organised for this new service and how both the technology and the organisational context shape the way in which services are delivered. The aim of our project was to understand the implications of these inter-related aspects for the organisation and delivery of modern health services and inform workforce planning and organisation.

1. *What is the work of NHS 111?* This examined the everyday work tasks and activities involved in delivering the services and integrating care provision.
2. *Who is the NHS 111 workforce?* This examined the experience and skill sets of this new workforce and identified education and training needs of workers and how this workforce might be developed and maintained; and examined role differentiation and division of labour (e.g. how tasks are divided formally and informally between staff).
3. *What is the technology for NHS 111?* This explored the technologies underpinning the service and the complex sociotechnical interactions required to bring them into use, including configuration and use of these technologies.
4. *What is the organisational context of NHS 111?* In order to situate questions 1–3, this examined the organisational effort and environment, to compare and describe structures, practices and service integration within the wider political, sectoral and organisational settings (within NHS 111 sites and the

wider network of providers); explored the extent to which integration has been achieved; identified how information and knowledge are shared across the full range of services integrated by NHS 111; and examined how trust and knowledge transfer varies across the NHS 111 health economy.

Methods

We addressed these research questions by undertaking a comparative mixed-methods case study in five NHS 111 sites. The different NHS 111 providers were characterised by differences in organisational size, form and ethos and in the type of workforce employed and professional roles and skill mix within it.

Our case study sites were:

- An established emergency call-handling service provided by an ambulance trust (site 1) for two primary care trust areas. Urgent care centres (UCCs) were provided by a separate organisation.
- An established out-of-hours call-handling service run by a general practitioner (GP) out-of-hours service. Local partners operate an integrated UCC (site 2).
- An established emergency call-handling service provided by an ambulance trust (site 3). A local trust operated an integrated emergency department, walk-in centre and out-of-hours centre.
- An established out-of-hours organisation providing both call-handling services and UCCs (site 4).
- A commercial organisation providing call-handling services. Two UCCs were operated by two separate organisations (site 5).

The study combined ethnographic and survey methods. The ethnography used non-participant observation conducted at both NHS 111 call centres and their linked UCC(s). These data comprise 356 hours of observation undertaken between 2011 and 2012. We also conducted six focus groups with 47 call advisers, clinicians and organisational managers.

An online survey, administered to call centre and UCC staff, asked staff about their views of NHS 111 and information transfer and communication and assessed staff trust in NHS Pathways. Three e-mail reminders were sent 2 weeks apart. A total of 216 call centre staff responded to the survey (529 surveys were distributed), giving a response rate of 41%. Site 1 was unable to tell us how many staff the survey was administered to at the UCCs and site 5 did not administer the survey to UCC staff. Excluding these two sites our response rate for UCC staff, based on the other three sites, is 35%.

Ethnographic data were coded independently, analysed jointly in data clinics and imported into Atlas.Ti 6.2 (Scientific Software Development GmbH, Berlin, Germany). We examined data within each setting and then across settings structured around our research questions. We used a mixture of analytical approaches including thematic analysis and matrix/charting techniques to facilitate comparison.

Survey data were exported to IBM SPSS Statistics version 19 (IBM Corp., Armonk, NY, USA). Descriptive statistics were calculated and univariate analysis of variance was applied to the data.

Results

The NHS 111 service receives calls about a broad range of physical and mental health problems as well as social issues, from life-threatening illnesses to requests for health information. The types of calls received by NHS 111 shape the everyday work for call advisers, clinical advisers and UCC clinicians working within NHS 111 care provision. The everyday work of these groups of staff is distinctive in each site.

Work

Building on our previous study, NHS 111 call-handling work involves high levels of communication (including negotiation, communication and translation) and 'emotion' work (for the management of potentially life-threatening events and diseases and to establish rapport with the caller, as well as managing their anxiety and distress). In summary, call advisers engage in a range of everyday work activities that extend beyond being simple users of a CDSS to assess calls.

The everyday work of clinical advisers varied from site to site. At all sites (except site 2 where clinical advisers were based at a separate organisation) these staff support call advisers in clinical assessment and they also play an important role in managing and sanctioning dispositions, notably emergency ambulance dispositions. Call supervisors at some sites also played a key role in supporting the call advisers and providing expert NHS Pathways advice. Levels of trust at an organisational level appeared to influence patterns of working so that some call-handling organisations engendered a more autonomous call-handling workforce. Clinicians at UCCs provide further assessment and a consultation, either on the telephone or face to face (at an UCC or at home), and their work is shaped by call advisers, clinical advisers and call supervisors working at the call centre, who determine how many patients are seen, who is seen and how quickly patients are seen by clinicians.

Workforce

All sites were required to expand their workforce to provide the NHS 111 service, employing new staff and/or reorganising staff to undertake new roles. Commitment to their work was high amongst call advisers and many took particular pride in the health-care nature of their work. At some sites, NHS Pathways and NHS 111 offered the opportunity for career development roles or activities (such as a supervisory, training or auditing role) for non-clinical and clinical workers. Although formal roles exist in each organisation, the boundaries between roles are often blurred. Although call advisers lack clinical training, there is consistent evidence of them performing complex health-care work, albeit supported by the technology. We observed that clinical knowledge gathered from the system and from clinical staff becomes internalised in call advisers who then draw on this knowledge when handling calls. Despite this there are clear beliefs amongst the workforce that input from clinical staff is essential not only for supporting call advisers but also to allow them to take clinical responsibility for more complex calls.

Participation in training can be challenging for call advisers and requires considerable commitment in relation to the amount that they have to learn and also the times that training sessions are run. Ongoing formal and informal coaching was provided at all of our sites through buddying systems, support from call supervisors and clinical staff and feedback from the audit process. However, there is considerable variation across sites in how these activities are performed and by whom, which raises questions about the standardisation of service delivery.

Technology

We examined the core technologies implicated in the delivery of the NHS 111 service. These included the CDSS used to assess and manage calls and the Directory of Services (DoS) used to locate appropriate services for onward referral when indicated. The DoS is key to the delivery of NHS 111 as it provides call advisers with information about services including location, opening hours and remit. However, the delivery of the services requires additional technologies (such as case record and case management systems and booking systems) and a range of what might be considered peripheral information and communication technologies (ICTs) (including the internet).

Trust in the CDSS amongst call advisers is relatively high, particularly compared with UCC staff. There is some appreciation that the system is risk averse and awareness of some areas in which the pathways are less effective or useful (e.g. multiple symptoms). It appears that GPs and other external stakeholders are less positive about the CDSS than those who use it every day. Turning to the theme of technology failures we noted that the providers have established contingency plans for dealing with major faults, but we also noted that the staff in the call centres work hard to make the technology work, often developing

workarounds that enable this. The survey suggests that staff felt that the systems were largely reliable, although some problems with the DoS were particularly noted.

Organisational context

There is considerable variation in the organisation and delivery of NHS 111, which is shaped by the organisational history, dominant service ethic and professional culture of the varied contracted organisations. Call-handling organisations were motivated by different reasons when bidding for the NHS 111 contract. These reasons included entrepreneurial drivers (such as expanding the size of the business or to grow new business) as well as protective drivers (to defend against threats to existing business and the desire to keep call handling 'in-house').

There is an inherent tension within the NHS 111 service. On the one hand there is a push towards rationalisation and standardisation, but local service providers are strongly pulled towards designing services that are aligned with their service ethic and with their views about what is needed locally. Broadly, the commercial organisation (site 5) and ambulance service providers (sites 1 and 3) were more driven by rationing and systemising – by pursuing the NHS 111 vision of 'right care, right place, right time' – whereas out-of-hours services (sites 2 and 4) were heavily driven by an ethos of providing a service that is more in line with what they provided as out-of-hours organisations. The competitive nature of NHS 111 contracts has presented challenges for organisations delivering NHS 111, with the need to protect themselves against the potential loss of their business. Opportunities for sharing early best practice have been hampered as sites have been less willing to 'open their doors' to potential competitors for fear of giving away their competitive edge.

Conclusions

Each group of workers has a different but integrated role that enables NHS 111 to operate. This integration is not 'seamless' and there are clear frustrations in some areas about the use of non-clinical staff to perform clinical assessments. On the face of it, call centre work is characterised by operating in isolation – working one-to-one with the caller; however, the relationships between call advisers, call supervisors and clinical advisers are a crucial part of managing calls and the overall workload. The ability to engage in effective teamwork is also important both to support colleagues during calls and to provide advice and emotional support following difficult calls. There is some variation in training across sites and in who provides such training. This may have implications for the skills acquired by call advisers and for the degree of confidence that they have to complete calls effectively.

Underpinning NHS 111 with non-clinical workers offers significant opportunities for workforce reconfiguration. However, our findings suggest that there is not a simple substitution of labour (i.e. non-clinical staff replacing clinical staff). A significant organisational structure is in place to support and 'keep in place' the CDSS and the non-clinical workers that use it. The apparent advantage of a non-clinical workforce has to be set against the resources and structures needed to support these types of staff.

NHS 111 is primarily founded on a network of different organisations that provide different aspects of the service (call centre, UCC and so on) and this network is primarily enabled through technological integration (e.g. communication, information sharing). Technological integration is key to delivering NHS 111, most notably NHS Pathways being able to assess the 'right time and right place' for the patient and the DoS containing accurate information about the most appropriate service available locally. Technological integration has been achieved in NHS 111, albeit with staff effort in developing workarounds to 'make the technology work'. However, successful integration requires trust and communication between different providers. Our study revealed that at some sites relationships between different providers in the NHS 111 network were poor and mistrust (of technology and of partner organisations) was high. Much of the communication between different NHS 111 providers was electronic,

with little personal contact between providers. We suggest that technological integration alone is not enough to sustain an integrated service.

Relationships were more harmonious in sites that were co-located and/or that had a history of working together. Time and effort is crucial in promoting shared communication and a more harmonious relationship between partner organisations. NHS 111 imposes an abstracted standardised system on the urgent and emergency health-care system, but our findings suggest that 'place' affects the way in which this standardised system becomes embedded in practice. The way in which NHS 111 has developed in different areas and the diversity of providers, which bring with them different values and history, suggests that NHS 111 is unlikely to be an entirely standardised service across England.

Funding

The National Institute for Health Research Health Services and Delivery Research programme.

Health Services and Delivery Research

ISSN 2050-4349 (Print)

ISSN 2050-4357 (Online)

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 HS&DR archive is freely available to view online at www.journalslibrary.nihr.ac.uk/hsdr. 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 Services and Delivery Research* journal

Reports are published in *Health Services and Delivery Research* (HS&DR) if (1) they have resulted from work for the HS&DR programme or programmes which preceded the HS&DR programme, and (2) they are of a sufficiently high scientific quality as assessed by the reviewers and editors.

HS&DR programme

The Health Services and Delivery Research (HS&DR) programme, part of the National Institute for Health Research (NIHR), was established to fund a broad range of research. It combines the strengths and contributions of two previous NIHR research programmes: the Health Services Research (HSR) programme and the Service Delivery and Organisation (SDO) programme, which were merged in January 2012.

The HS&DR programme aims to produce rigorous and relevant evidence on the quality, access and organisation of health services including costs and outcomes, as well as research on implementation. The programme will enhance the strategic focus on research that matters to the NHS and is keen to support ambitious evaluative research to improve health services.

For more information about the HS&DR programme please visit the website: www.netscc.ac.uk/hsdr/

This report

The research reported in this issue of the journal was funded by the HS&DR programme or one of its preceding programmes as project number 10/1008/10. The contractual start date was in August 2011. The final report began editorial review in November 2012 and was accepted for publication in April 2013. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HS&DR 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 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 HS&DR 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 HS&DR programme or the Department of Health.

© Queen's Printer and Controller of HMSO 2014. This work was produced by Turnbull *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 Services and Delivery Research Editor-in-Chief

Professor Ray Fitzpatrick Professor of Public Health and Primary Care, University of Oxford, 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 Health Sciences, 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 Honorary Professor, Business School, Winchester University and Medical School, University of Warwick, UK

Professor Jane Norman Professor of Maternal and Fetal Health, 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 Professorial Research Associate, University College London, 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