

A mixed-methods evaluation of transformational change in NHS North East

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Declared competing interests of authors: Paula Whitty has been employed as Director of Research, Innovation and Clinical Effectiveness at one of the research study's mental health trust study sites since April 2011 (and by the trust's predecessors as Consultant in Medical Care Epidemiology since 1998). David Hunter is an appointed governor of one of the acute foundation trust hospital study sites involved in this research project and was a member of the commissioning board for the National Institute for Health Research (NIHR) Service Delivery and Organisation programme between 2009 and 2012, and the NIHR Health Services and Delivery Research programme between 2012 and 2014. Jonathan Erskine was a non-executive director of one of the primary care trust study sites until October 2011. Martin Eccles received a salary one day a month as a senior mentor for the National Institute for Health and Care Excellence Fellows and Scholars programme.

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Scientific summary

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Scientific summary

Background

The North East Transformation System (NETS) was conceived as an experiment in the adoption of large-scale transformational change across a NHS region in England. Although the NHS in the North East performs well, exceeding required targets and performance measures, the health of the population within the region ranks among the poorest in the country. The NETS was viewed as a means of addressing this paradox by instigating a programme of change which aimed to transform the way services were provided with a view to improving their efficiency and effectiveness. It comprised three components – Vision, Compact and Method – which were all features of a successful approach to health system change developed by the Virginia Mason Medical Center (VMMC) in Seattle, WA.

Vision

The Vision was for NHS North East (NHS NE) to achieve excellence in health-care services and to sustain continuous improvement. This was to be accomplished by a zero-tolerance approach which was underpinned by the 'seven no's':

- no barriers to health and well-being
- no avoidable deaths, injury or illness
- no avoidable suffering or pain
- no helplessness
- no unnecessary waiting or delays
- no waste
- no inequality.

All staff were encouraged to engage with the Vision. It was intended to inspire, co-ordinate and inform the development of the Visions of each NHS organisation in the region. These were tailored to suit individual circumstances so as to avoid any charge of 'one size fits all', top-down imposition of the Vision.

Compact

The Compact emerged to address the deep-seated and enduring tensions between managerial and professional values which have been a long-term feature of the NHS. These have persisted since the first major reorganisation of the NHS in 1974, when the rise of managerialism in health care started in earnest and began to challenge professional clinical autonomy. The Compact aimed to establish a psychological contract between managers and health-care professionals by clearly articulating the 'gives' and the 'gets'.

Method

The Method was derived from the Virginia Mason Production System (VMPS) which, in turn, was based on the Toyota Production System (TPS). The VMMC was one of the first hospitals to apply lean production (often referred to simply as 'lean') to a health-care facility. In manufacturing, lean production has been shown to improve processes, quality and efficiency through standardisation, the elimination of waste and the reduction of variance.

Research questions

The research questions, as described in the study protocol, were as follows:

- How have the various manifestations of the NETS and non-NETS approaches evolved over time?
- How receptive have NHS organisations in the North East been to transformational change, including the adoption of VMPS, TPS and other lean tools?
- What has the impact of the different NETS approaches been on the quality and efficiency of health care in respect of technical quality, safety, patient experience, access and equity?
- How far has variation been reduced across specialties, departments and hospitals?
- How far has work-related stress been reduced?
- How far has the 'Compact' with clinicians, to secure their commitment to the NETS approaches, been made a reality?
- How far have staff been empowered to take control of their work?
- What are the factors facilitating, and/or acting as barriers to, successful change?

Objectives

The research objectives were to:

- review the literature relating to change management in health systems; lean and its application in the manufacturing sector; and the adoption of TPS/lean in health-care organisations
- evaluate the impact of the NETS and its evolution over the time of the study, including its influence on NHS organisational and clinical cultures (such as staff engagement and empowerment); the quality and efficiency of health care in terms of technical quality, safety, patient experience, access and equity; reduced waiting times and waste; and reduced variation across specialties, departments and hospitals
- identify the factors facilitating and/or acting as barriers to successful change, including evaluating how rapid process improvement workshops (RPIWs) function and/or what would inhibit their take up and impact
- evaluate the role of the NETS project team in co-ordinating progress and supporting the transfer of learning, including mechanisms for identifying and disseminating best practice
- evaluate the extent to which the changes introduced through the NETS (and through other means in the case of non-NETS study sites) have become embedded and been sustained
- evaluate the impact of the NETS on service users, for example patients or carers and/or family and friends.

Research design

The research comprised a longitudinal, 3.5-year study. The study sites were 14 NHS trusts in North East England, comprising two clusters of primary care trusts, two mental health and learning disability trusts, three hospital trusts, an ambulance trust and a community services trust. These sites were chosen to provide geographical coverage of the whole region, and to reflect the scale, scope and variety of the NHS organisations that were part of the NETS programme.

The research design adopted a mixed-methods approach that explored transformational change in terms of content, context, process and outcomes, in order to address the research questions set out in the study protocol. The qualitative element of the research made use of semistructured interviews, observation, documentary analysis, focus groups, and attendance at trust meetings and presentations. The quantitative element used interrupted time series (ITS) analysis.

The research was planned to remain responsive to changes in NHS organisations at local, regional and national levels. This flexibility of approach allowed research activities to proceed mostly as originally envisaged: in three phases that corresponded to years 1, 2 and 3 of the study.

Methods

The research employed a literature review, qualitative and quantitative investigations and feedback to the study sites through regular dissemination of emerging findings.

The literature review took place throughout the duration of the project, and built on and extended an earlier scoping study. It provided the theoretical background to the research.

Qualitative research progressed through three phases, corresponding to years 1, 2 and 3 of the study. It employed semistructured interviews ($n = 68$), field observation, focus groups ($n = 2$), and document gathering and analysis. The analysis of the qualitative data made use of both deductive and inductive frameworks. The deductive framework adopted Pettigrew *et al.*'s 'receptive contexts for change' framework (Pettigrew AM, Ferlie E, McKee L. *Shaping Strategic Change: Making Change in Large Organizations – The Case of the National Health Service*. London: Sage; 1992) to evaluate transformational change in NHS NE. The framework comprises eight factors:

- quality and coherence of policy
- availability of key people leading change
- long-term environmental pressure to trigger change
- supportive organisational culture
- effective managerial–clinical relations
- co-operative interorganisational networks
- simplicity and clarity of goals and priorities
- fit between change agenda and its locale.

The inductive frameworks, which were iteratively updated during the duration of the study, were derived from issues and topics that arose during close reading of interview and focus group transcripts, and from analysis of documentary materials.

Quantitative research focused on a small number of RPIWs, and made use of ITS analyses to evaluate the impact of these. The ITS approach was adopted owing to the strength of controlled ITS design and the short period over which RPIW interventions took place. The research team liaised with the trusts' information staff to identify and obtain extracts of the appropriate anonymous data.

Ethical review

Ethical approval for the study was obtained from the ethics committee of Durham University's School for Medicine, Pharmacy and Health in August 2009. Ethical review was also sought from the National Research Ethics Service Committee North East – County Durham and Tees Valley. Ethical approval was obtained from this committee on 19 October 2009.

Results

Undertaking successful transformational change in a complex system takes time and demands consistency, constancy of purpose and organisational stability. The NHS continually experiences changes in its context in terms of policy, organisation, funding and external environment, which creates particular challenges when it comes to embedding transformational change. The NETS was seriously disrupted by the NHS changes announced in July 2010 as it was overseen and co-ordinated by the Strategic Health Authority, which was subsequently abolished. In addition, there are numerous complexities within any health-care setting. When combined, these issues make it extremely difficult to arrive at any final conclusions about the impact of any change programme on services or the public's health. Even where there may be evidence of change and improvement, it is important to exercise caution in attributing these solely to the NETS. Establishing strong causal links, as distinct from strong associations and/or correlations, has not proved possible.

Notwithstanding the impact of the changes on the overall NETS programme, four of the study sites demonstrated positive impacts. Progress in the other study sites was slowed, halted or seriously disrupted by the NHS upheaval, which resulted in local implementation of the NETS losing momentum. Leadership style is critical to the success of any transformational change initiative, wherever it is pursued. Although this was clearly a factor in the progression of the NETS overall, it was also critical in respect of each of the participating organisations. The four sites which made progress in implementing the NETS all had clear, visible and relatively stable leadership. Despite this, the commitment to embedding deep cultural change proved challenging and fragile. Arguably, none of the sites could match what had been achieved by, or the degree of embeddedness to be found in, the VMMC. Most of the attention of managers and other practitioners was devoted to the lean tools rather than to the more difficult issues around values and culture which the Vision and Compact sought to address. Some of those involved in the NETS regretted the imbalance and felt that they should have spent less time on the Method. Compared with its use in the manufacturing sector, the application of lean to the NHS involved a far greater degree of being able to manage complexity and numerous competing objectives. Perhaps four, maybe five, of the study sites remained truly committed to the NETS. Other sites tended to adopt a pick-and-mix approach that combined elements of the NETS with other approaches which were perceived to be more appropriate. The absence of adoption of a pure NETS approach did not preclude some sites from achieving success in quality improvement and patient safety. Analysis of the ITS component of this study produced mixed findings when evaluating the outcomes of RPIWs. A small number of statistically significant improvements were observed. However, some results were ambiguous and others showed no evidence of impact. There were also some counter-expectation findings. Clear improvements included:

- a reduction in time from the arrival of patients with abdominal pain in accident and emergency to their being X-rayed (surgical pathway RPIW)
- a reduction in length of stay on the ward for women (purposeful inpatient admission RPIW).

Counter-expectation findings included an increase in the time to discharge (community psychosis – discharge RPIW). Overall, for 9 out of 19 variables analysed, the results tended to be ambiguous without clear evidence of a positive or negative impact of the RPIWs. It is difficult to draw definitive conclusions from the ITS analysis, which may have missed significant changes owing to a reliance on routine administrative data and the absence of data on a range of clinical outcomes.

Conclusions

The NETS was a bold and ambitious initiative. It may have succeeded in bringing about real and lasting change in some parts of the health-care system in the North East of England. However, it was unable fully to realise its vision and purpose partly as a result of dramatic change in the NHS landscape. Positive and encouraging developments and changes were identified but their ultimate fate became less certain as the NETS programme itself underwent radical change from mid-2010.

Our recommendations for research are derived from a need to develop new methods to understand how change occurs, or fails, in complex settings like the NHS. There is a need for more in-depth studies in those sites that were able to implement and sustain change. The findings would inform future policy and practice. The results of the quantitative analyses were less conclusive than those obtained by qualitative methods. Further development of mixed-methods approaches would provide additional support for evidence-based decision-making. Although our study was concerned with adopting a broad sweep across a number of organisations as this whole-system approach was at the centre of the NETS, this inevitably meant some sacrifice in terms of depth. This is the reason for our support for studies aimed at exploring the organisations engaged in the NETS in greater depth and eliciting the factors that contributed to success or, conversely, to failure. Finally, there were limitations with the ITS part of the study, in particular with getting access to NHS data retrospectively. There might be merit in considering a well-designed prospective study to evaluate the effectiveness of RPIW-type interventions.

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