

# Information in practice

## Challenges to implementing the national programme for information technology (NPfIT): a qualitative study

Jane Hendy, Barnaby C Reeves, Naomi Fulop, Andrew Hutchings, Cristina Masseria

### Abstract

**Objectives** To describe the context for implementing the national programme for information technology (NPfIT) in England, actual and perceived barriers, and opportunities to facilitate implementation.

**Design** Case studies and in depth interviews, with themes identified using a framework developed from grounded theory.

**Setting** Four acute NHS trusts in England.

**Participants** Senior trust managers and clinicians, including chief executives, directors of information technology, medical directors, and directors of nursing.

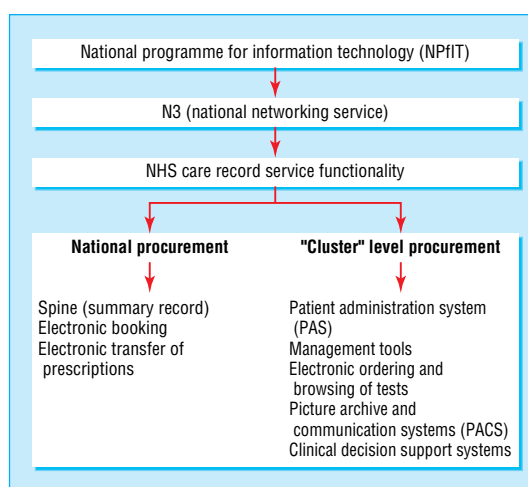
**Results** The trusts varied in their circumstances, which may affect their ability to implement the NPfIT. The process of implementation has been suboptimal, leading to reports of low morale by the NHS staff responsible for implementation. The overall timetable is unrealistic, and trusts are uncertain about their implementation schedules. Short term benefits alone are unlikely to persuade NHS staff to adopt the national programme enthusiastically, and some may experience a loss of electronic functionality in the short term.

**Conclusions:** The sociocultural challenges to implementing the NPfIT are as daunting as the technical and logistical ones. Senior NHS staff feel these have been neglected. We recommend that national programme managers prioritise strategies to improve communication with, and to gain the cooperation of, front line staff.

### Introduction

In 1998 the NHS Executive set a target for all NHS trusts to have electronic patient records in place by 2005.<sup>1</sup> By the spring of 2002, just 3% of trusts were set to meet this target.<sup>2</sup> The Wanless report suggested this failure was mainly because of local budgets for information technology (IT) being diverted elsewhere, and the inadequate setting of central IT standards.<sup>3</sup> In response, the government allocated an additional £2.3bn (\$4.0bn; €3.3bn) for a new national programme for information technology (NPfIT) in the NHS in England.<sup>4</sup> The aim is for electronic patient records to be implemented in all acute trusts by the end of 2007.

The NPfIT's key features are new stringent national data and IT standards, procured and paid for



Outline of national programme for information technology (NPfIT)

nationally. Implementation in acute trusts will be through one of five geographic partnerships with industry, called "clusters." The provision of electronic functions at acute trust level form part of the NHS care record service, a collective term for all aspects of clinical IT support applications (figure). The output of these applications is intended to be a health record that can be shared.

Implementing large scale health service IT projects has proved difficult, however,<sup>5, 6</sup> with failure rates of around 30%.<sup>7, 8</sup> We are studying the processes and outcomes of implementing the NHS care record service in four acute hospital trusts in England. This involves assessing the local context in each trust, in depth interviews of staff and patients, and a quantitative analysis of the effects of implementing three electronic functions of the record service.

### Methods

We collected baseline information by meeting key IT, finance, and clinical directorate staff and reviewing documents and routinely published data. Interviews are taking place in three stages, with stage 1 interviews

Department of Public Health and Policy, London School of Hygiene and Tropical Medicine, London WC1E 7HT

Jane Hendy  
research fellow

Barnaby C Reeves  
reader in epidemiology

Naomi Fulop  
senior lecturer in health services delivery and organisational research

Andrew Hutchings  
lecturer in health services research

Cristina Masseria  
research fellow

Correspondence to:  
J Hendy  
jane.hendy@lshtm.ac.uk

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Details of the interview framework appear on [bmj.com](http://bmj.com)



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**Box 1: Issues of communication with NPfIT headquarters and lack of clinical engagement**

“The communication has been appalling, absolutely appalling. They’ve done some wonderful events, and I’ve met some people who are great, NPfIT, who are very facilitative and very enabling, and the next week you’re told you’re not allowed to talk to them. I’ve been to some meetings where I’ve met people who are very very good, and we’ve been ordered not, instructed, they’ve been ordered and we’ve been instructed that it’s inappropriate to talk to them.—IT manager, trust 4

“I would say that the clinicians are sort of waiting to see what’s going to happen before they commit themselves.”—Assistant director of nursing, trust 4

(the focus of this paper) taking place twice, at the start of the project and 18 months later. The data reported here are from the first round of stage 1 interviews with all local senior management staff and clinicians involved in implementing the NPfIT (23 people from the four trusts).

To enhance the generalisability of our findings, we selected the four trusts to reflect a range of characteristics (differences in size, number of sites, performance indicators, and financial situation) and various stages of implementing electronic health records.

Semi-structured interviews were conducted on a one to one basis at each trust by a qualitative researcher. Topics discussed included the processes and outcomes of implementing electronic healthcare systems and the impact of the NPfIT policies.

**Data analysis**

We analysed the interview transcripts in three stages based on grounded theory principles of coding and theme abstraction<sup>9</sup> rather than strict adherence to the theory of Glaser and Strauss.<sup>10</sup> We grouped emerging themes according to the context (each trust’s characteristics). Two members of the project team (JH and NF) independently read the interview transcripts to agree on emerging themes.

**Results**

The table shows the baseline characteristics of each trust. Data from the first round of interviews show the potential impact of these factors on implementing the care record service.

**Multiple sites within trusts**

Two of the trusts have multiple sites, resulting from recent mergers, and problems of poor communication and coordination between sites remain. Differences in working practices and organisational culture seem to

have created tensions that may make the job of getting ready for the NHS care record service especially challenging. Major changes resulting from the recent mergers seem to have affected staff morale, increasing the likelihood that staff will become resistant to the changes required during implementation.

**Communication between the national programme for information technology and the NHS**

The lack of clarity from the NPfIT about future developments—with poor communication between NPfIT headquarters, the local service provider, and trust managers—was reported to be a major concern in all four trusts. Managers felt that local needs and advice have been ignored and expressed sentiments in interviews of feeling ignored, being “done unto,” and disempowered (box 1). Participants’ views suggest a divide between the central NPfIT office and trusts, with the latter perceiving the former as failing to understand local issues. This lack of communication seems to have filtered down, with managers reporting a reluctance to communicate the benefits of the NPfIT to front line staff without having answers to questions about what IT services will be supplied and when.

**Financial circumstances of trusts**

Two of the trusts have substantial financial deficits, which were reported as contributing to slow progress on local IT projects. Central funding does not cover all of the costs of implementing the care record service, and local IT spending must be sustained or increased to provide the infrastructure necessary to support it.<sup>11</sup> For participants, funding for the change management associated with the care record service was a key concern. Up to March 2004, instead of increasing spending, participants in “cash strapped” trusts reported that scheduled IT implementation had been halted to await details of the NPfIT to be made public. Understandably, trusts may be reluctant to spend on IT if some of the cost will be covered centrally. This lack of certainty seems to have created “planning blight,” with participants reporting that few IT initiatives have been championed, thus potentially widening the IT gap between “cash rich” and “cash poor” trusts.

**Performance ratings**

For trusts with a low performance rating (0 or 1 star), improving this rating was reported as a pressing concern. As the benefits of the NPfIT (which has a 10 year roll out), are expected to take a long time to show, trusts are likely to avoid any activity that decreases rather than increases productivity unless sufficient extra financial and human resources are provided (box 2).

**Table 1** Characteristics of the participating trusts

Characteristic	Trust 1	Trust 2	Trust 3	Trust 4
Size	Large	Large	Large	Small
No of main sites	2 (recent merger)	2 (recent merger)	1	1
Financial situation*	Moderate deficit (<£5m)	Small surplus	Large deficit (<£10m)	Small deficit (<£1m)
Performance indicators†	1 star	2 stars	0 star	2 stars
EPR legacy e-function	Site 1—no EPR Site 2—electronic orders	Site 1—electronic orders Site 2—electronic orders, PACS	No EPR	PACS
Expected date for PAS replacement	Unknown	2007	2006	2004-5 (earlier adoption of electronic booking)

EPR=electronic patient records, PAS=patient administration system, PACS=picture archive and communication system.

\*Annual accounts for 2002-3.

†CHI Clinical Governance Review 2002-3.

**Box 2: Issues of performance ratings**

"At the moment, you know, a lot of chief [executives], a lot of your short term focus is on star ratings and performance management because that's where, you know, the carrot, that's why you're driven down that route. So, you know, we're paid to do that and keep the strategic vision going, but it depends how much pressure you get about where your focus could be."—Chief executive, trust 2

"So if that national programme wants this to happen they, the government, whoever, must make sure any moneys that come down through whatever route are ring fenced, and they're ring fenced right down to trust level, so that creative finance directors and others cannot divert them for other purposes."—IT and NPfIT project manager, trust 3

**Box 3: Issues of loss of functionality and resistance from clinicians**

"There's a feeling of loss of autonomy, um, and possibly lack of or loss of functionality, because some of the systems that we've got are ... pretty well customised and people get used to that level of customisation."—Chief executive, trust 4

"Where it needs tailoring to local trusts—I don't think that's being listened to at all, and that's where they're going to find the biggest amount of resistance, which is where local systems will always be better than the national solution."—Electronic patient records and NPfIT programme manager, trust 2

**Supporting "legacy" IT systems**

In contrast with the centralised approach of the NPfIT, the NHS has traditionally devolved IT procurement, resulting in a proliferation of IT architecture. Potential legacy problems reported by participants are the loss of existing electronic functionality and concerns over support for existing systems during any transition period.

All trusts in our study reported having effective customised pockets of IT. If these systems cannot be integrated with national "standards" some functionality may be lost (box 3), which is likely to be resisted. Replacing existing systems will require contracts with existing suppliers to be redrawn. Maintaining goodwill and continued support for such systems may be difficult. Trusts that actively pursued the original plan for electronic patient records<sup>1</sup> may be particularly disadvantaged if they are bound into long term contracts with suppliers not awarded contracts under the national procurement process.

**Timetable for replacement of patient administration systems**

To implement the care records service software, most trusts will need to replace their existing patient administration systems. The new administration system will act as a foundation on which additional "bundles" of clinical functions can be added. However, patient administration systems cannot be replaced immediately in all trusts. For example, in London this activity alone is projected to take up to five years. The timing of this replacement is causing concern, and participants reported that their trusts have been jostling for a slot that meets their particular needs (box 4).

Some trusts reported an urgent need to replace existing IT systems for radiology or pathology. According to participants, the previously scheduled implementation of such replacement systems has been put on hold until details of the NPfIT are made public. Such delay may mean a risk of system failure, but buying a temporary solution is seen as costly. Being first in the queue for implementing the care records service may risk delays and teething problems. However, being at the end of the queue risks "planning blight," with no new local IT development until the new administration system is provided.

**Discussion**

The national programme for information technology promises far reaching benefits for patients and throughout the NHS.<sup>12</sup> The immediate hurdle is the disruption and change that NHS staff must undergo during implementation of the NPfIT. Persuading people that "it will all be worthwhile" is at least as great a challenge as the technical one.

Doubters need to reflect on alternatives. Not investing in IT is not an option.<sup>11 13</sup> The choice lies between a centralised approach like the national programme or more piecemeal local solutions. The benefits of the former are potentially much greater, but realising these benefits depends on procuring systems that work and managing their implementation without alienating staff. It is in these areas that our study has identified room for improvement.

Our study suggests that NPfIT project managers need to address four key issues:

- Trusts vary in their circumstances, which affect their ability to implement the NPfIT
- The process of implementing the NPfIT has been suboptimal, leading to reports of low morale among NHS staff responsible for implementation
- The overall timetable for implementation is unrealistic, and trusts continue to face uncertainties. The need to renew the patient administration system in most trusts represents a bottleneck, with timings published in the *NHS Care Record Service: Indicative Deployment Plan*<sup>14</sup> not tying in with promises of detailed electronic patient records being provided by the end of 2007<sup>15</sup>

**Box 4: Jostling for a new patient administration system (PAS), concern over delays, and "planning blight"**

"It's going to be an absolute scrabble, you know, and I'm a bit annoyed. We went to a launch day for the, for the [local service provider] and one of questions I said, 'You know, there's 77 trusts, a limited number of slots [for PAS replacement], you know, it is going to be a big bun fight.'"—IT director, trust 4

"If we aren't one of the first PASs, which I don't think we are, it could be 2010 or something before we even get a PAS, and then, you know, we've got to implement all the various compliant systems. So it could be a, over a decade before anybody, you know, and it will be over a decade in some places before anybody at some trusts see any difference."—Chief executive, trust 4

"Our biggest sort of stumbling block for taking anything from NPfIT is the fact that nine times out of 10 we've got to have the [new] PAS in, so, as much as we would like to take some of the modules, we can't."—Electronic patient records and NPfIT programme manager, trust 2

**What is already known on this topic**

The NHS has invested heavily in a 10 year national programme for information technology (NPfIT)

**What this study adds**

It is too early to assess the success of the programme, but interviews with trust staff responsible for its implementation have identified concerns

Unrealistic and shifting timetables, lack of consultation and communication with NPfIT managers, and lack of perceived short term benefits have affected staff morale

Optimal delivery of the NPfIT will depend not only on technical capability but also on managing implementation so that staff embrace the IT changes with enthusiasm, and NPfIT headquarters urgently needs to focus on the latter

- Short term benefits alone are unlikely to be sufficient to persuade NHS staff to support the NPfIT wholeheartedly, particularly if local IT functionality is reduced.

**Limitations of study**

These issues were communicated to us by interviewees, with supporting information that showed their importance to the participating trusts and that underlines their validity. The small number of cases makes us cautious about generalising more widely, but the circumstances of participating trusts that were often the basis of managers' concerns are prevalent throughout the NHS: such as poor performance ratings,<sup>16</sup> having a financial deficit,<sup>17</sup> or having recently merged.<sup>18</sup> The main limitation of our study is that we may have missed important factors because they were not present in our participating trusts, and we cannot conclude that the issues highlighted in this report are the only or most important ones.

**Implications for the national programme for information technology**

Previous experiences of IT implementation confirm the importance of sociocultural considerations.<sup>19</sup> There are also major technical and logistical challenges to implementation, but NPfIT project managers have shown commitment to dealing with these.<sup>20</sup> However, the sociocultural challenges are equally daunting,<sup>21-23</sup> and we found that senior NHS staff felt these to have been neglected. One concern is that staff will not experience tangible benefits in the near future,<sup>5 24</sup> but will have to cope with disruption, uncertainty, and change, and possibly a loss of IT functionality in the short term. A more sophisticated approach is needed to gain the cooperation of front line staff, on whom success will depend.

It is clear from our interviewees that better communication is essential. However, improved communication could imply one way traffic (from NPfIT headquarters to trusts), and this alone is unlikely to win cooperation. An improved sense of realism would be a

start, such as reconciling the overall timetable with the recently published schedule for replacement of patient administration systems across trusts.<sup>14</sup> Representative users of the NHS care record service in trusts must become partners in the enterprise through genuine consultation; this is what is likely to give them a sense of ownership and reward as systems are introduced, even when the going gets difficult.

**Conclusion**

NPfIT headquarters should urgently revisit its priorities, managing the changes in working practices in addition to the technical challenges. The NPfIT is likely to succeed or fail according to the groundswell of opinion, as well as its technical performance.

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