

Editorial

UK's National Programme for IT welcomes recommendation for a more sociotechnical approach to evaluation: a commentary on the Greenhalgh evaluation of the summary care record

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Introduction: The 'National Programme' and the 'socio-technical' approach

The UK is embarking on a major national programme for IT implemented through an agency called Connecting for Health (CfH).[1] Generally, this programme is following a strategy which has been welcomed but whose implementation has been much criticised. One of the components of the CfH programme is the summary care record, which will enable key patient information to be accessed by authorised clinicians across the NHS. The idea of sharing information to improve patient safety and make health services more efficient is sound, and reflects an international agenda set out in landmark reports.[2,3]

The initial implementation of the UK's national programme focused on providing the IT infrastructure rather than improving patient safety.

Somewhat late in the day, CfH developed a safety accreditation process and appointed a National Clinical Safety Officer[4] ... thereby recognising the need to focus on the potential for quality improvement heralded in the landmark Institute of Medicine reports.

The CfH evaluation programme are to be congratulated for their courage to commission a sociotechnical approach to the evaluation of the Summary Care Record.[5] The sociotechnical approach is well established within informatics, and challenges the pervasive (and in the authors' opinion incorrect) view that IT systems' implantations primarily fail for technical reasons. People, technologies, organisations and processes of care interact in complex ways.[6] A technology focused approach may have limitations when working with complex systems.[7]

IT experts are extremely good at linear, reductionist positivist thinking, and not so good at constructing social solutions and appreciating other perspectives.

So there is an inherent mismatch between the mode of thinking required to develop robust social solutions and the thinking required to develop robust technical solutions.

The origins of sociotechnical thinking date back to the 1940s during the mechanisation of the coalmines. However, sociotechnical approaches now include:

- the importance of the context in which technology is used[8]
- how different cultures within health systems vary in their approach to problems[9]
- the importance of learning how people, technologies, and the process of care interact[10]
- most importantly, this interaction often takes place in unintended and unpredictable ways.[11]

This editorial reviews the approach used in the Greenhalgh's evaluation of the CfH Summary Care Record in the context of previous attempts to employ sociotechnical approaches to, and discusses the potential weaknesses of more quantitative approaches.

The sociotechnical perspective of the Greenhalgh report

Rightly Greenhalgh *et al* stress that the study of the summary care record cannot be separated from its organisational context. The sociotechnical perspective or approach in this study stresses the importance of the interrelation between technology and its social environment.

The sociotechnical approach is not so much a well-described method, but harbours predominantly qualitative methods to understand how information systems are developed, introduced and become part of social practices.[12] It has already been mentioned that its origins can be traced back to workplace design in British coalmines, emphasising the need to develop tools to go hand in hand with focus on users' skills, job satisfaction and good working conditions. Later, in the 1960s Enid Mumford expanded these ideas into information systems design, which led to a humanistic approach of systems design, called ETHICS (Effective Technical and Human Implementation of Computer-based Systems) methodology.[13] Interestingly, as long ago as 1991, Mumford advised the NHS to adopt a sociotechnical perspective when it was introducing new information systems as part of its resource management programme.[14]

In Scandinavia the tradition of trade union involvement in work place organisations, led social scientists and computer scientists to collaborate to develop tools to support group decision making. This process led to the development of computer supported collaborative work and participatory design as research fields. Researchers in the field of science and technology recognized how any in-depth study of the functioning or development of a technology has multiple social aspects. And, vice versa, social systems, such as healthcare, cannot be understood with a notion of the role of technology.[15] The sociotechnical approach, which relies on qualitative methods such as utilisation-focused evaluation adopted by the Greenhalgh study (see Box 1), is capable of getting to the what, why and how of a social phenomenon; and to how users perceive and experience a system or why an implemention strategy that worked in one organisation does not work in another.

Quantitative research methods, summarised under the notion of the 'objectivist' approach, are suitable for establishing the size, extent or duration of certain phenomena, or to establish that a specific cause or intervention results in an effect that has already been specified as part of the study design. In health care the randomised controlled clinical trial is seen as the gold standard of evaluation. However, two problems arise. It has been shown that it is extremely difficult to randomise, identify measurable variables in an intervention (in this case the introduction of the summary care record) and hypothesise its effects in a complex socio-organisational context.

An attempt to evaluate the introduction of a hospital information system in South Africa failed, because it proved to be impossible to randomise hospitals that would get the system and hospitals that would continue working in the old fashioned way.[16] Moreover, in order for a quantitative study to be manageable and effective, a complex intervention has to be reduced to a linear model with identifiable stages in which one provides the input for the other. It has been shown that such a reductionist approach may ignore the contingent and collaborative nature of healthcare work.[17] By necessity outcome variables in such a study would be crude. For example, one could look at morbidity and mortality. But such effects would manifest after some time and involve a large number of participants, and will not necessarily help to assess the success or failure of introducing the summary care record.

Conclusions

The Greenhalgh report will hopefully lead to a change in CfH's approach to implementation. Top down implementations like CfH are not in themselves a bad thing. However, the role of the top down strategy should be to provide coherence and direction whilst recognising that pre-specifying the details of the process of implementation is unrealistic.[18]

We hope in welcoming this report[19] the CfH programme will reduce target-focused monitoring and instead observe how top down implementations have unexpected and unintended consequences. An evaluation of this sort is important because it may identify any unintended consequences and workarounds are noted and learned from – so that this programme is to achieve its widely desired aims. We hope the positive response of CfH to the Greenhalgh evaluation leads to a more sociotechnical approach to the implementation, as well as the evaluation, of the UK's national programme for IT (Box 1).

Box 1 The summary care record evaluation reports

NHS CFHEP 002 – Evaluating the 'Early Adopter' implementation of the NHS Summary Care Record

Executive summary www.pcpoh.bham.ac.uk/publichealth/cfhep/documents/CFHEP_002_SCRIE_Executive_Summary_2008.pdf

Final report
www.pcpoh.bham.ac.uk/publichealth/cfhep/documents/CFHEP_002_SCRIE_Final_Report_2008.pdf

***BMJ* paper describing the evaluation**
Greenhalgh T, Wood GW, Bratan T, Stramer K and Hinder S. Patients' attitudes to the summary care record and HealthSpace: qualitative study. *BMJ* 2008;336(7656):1290–5. www.bmj.com/cgi/content/full/336/7656/1290

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CONFLICT OF INTEREST

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