

## A meta-narrative review of electronic patient records

Henry W W Potts, Trish Greenhalgh, Deborah Swinglehurst,  
Pippa Bark & Geoff Wong  
UCL Medical School

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e-mail: [h.potts@chime.ucl.ac.uk](mailto:h.potts@chime.ucl.ac.uk)

## **23 systematic reviews on the electronic patient record, so why do another one?**

- No clear messages for practice and policy
- Research evidence growing, yet conclusions still:
  - evidence is conflicting
  - no definitive solutions
  - more research needed
- Gap between the rhetoric (be it Tony Blair ten years ago, or Barack Obama today) and the reality of ‘failed’ programmes
- Awareness of a broader literature, not indexed on Medline, not generally covered by existing reviews

## 20 THE SLIGHT SURPRISE OF INTEGRATION

□ FLIS HENWOOD

*University of Brighton*

# Not just heterogeneity, not just mixed methods, but incommensurability

The article explores information and communication technology (ICT) and how gender studies combine to produce development of electronic services. In particular, seeing IT philosophy of midwifery

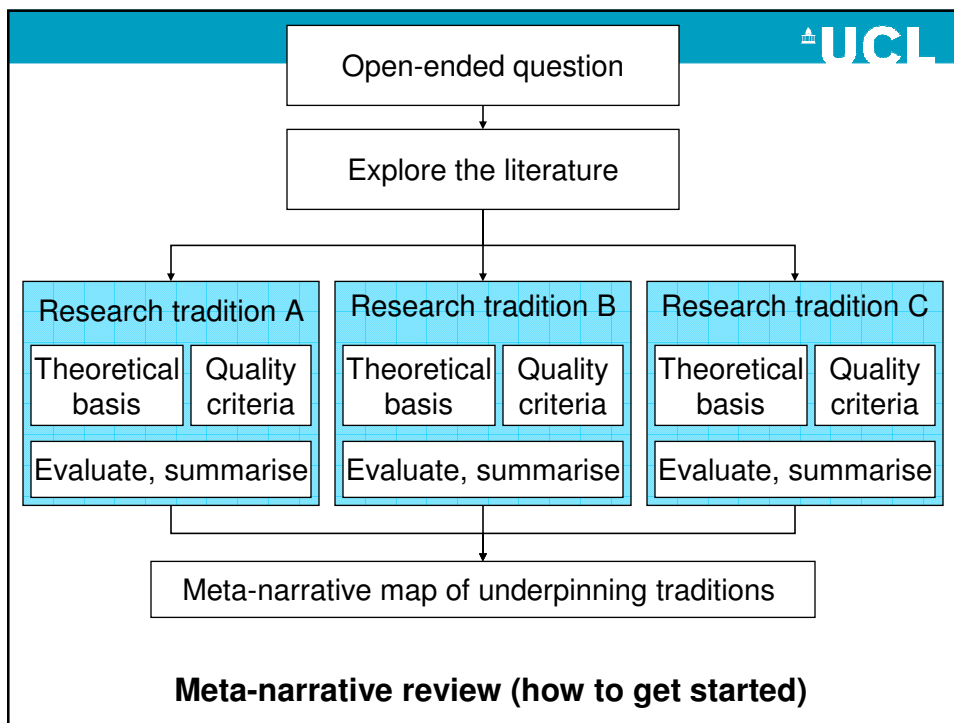
*been many integration efforts. Such efforts typically include some or all of the four principle classes of hospital-based systems: electronic patient records, laboratory systems, radiology systems and patient administrative systems. In this study, we trace the implementation process during most of 2004 at the University Hospital of North Norway, where these systems were part of a larger replacement project. We analyze the images and visions of order and perfection serving as a foundation for the decision to replace the existing IT portfolio. Furthermore, we analyze the manner and form in which unintended consequences of the integrated solutions appear and, finally, how the very act of integration may indeed produce rather than curb disorder. As a result, a lack of integration of any reasonably complex information system is an immanent feature.*

## The meta-narrative approach

- Heterogeneity and pluralism
  - Problems of heterogeneity multiply with more complex questions, with multiple outcomes, varying systems and different methodologies – different **paradigms**
  - Various approaches developed to review broad methods
- Meta-narrative review (developed from the realist review)
  - Greenhalgh, Robert, Bate, Macfarlane & Kyriakidou (2005). *Diffusion of Innovations in Health Service Organisations: A Systematic Literature Review*. Blackwell BMJ Books.
- Use a historical and philosophical perspective as a **pragmatic** way of making sense of a diverse literature

**Key questions (from Kuhn, “The structure of scientific revolutions”, 1962)**

- What research teams have researched this area?
- How did they CONCEPTUALISE the problem?
- What THEORIES did they use to link problem with potential causes and impacts
- What METHODS did they define as ‘rigorous’ and ‘valid’?



## Meta-narratives on the EPR in an organisational context

- Health information systems (based in health informatics and EBM, literature generally covered in Cochrane-style reviews)
- Health services research (in the biomedical literature, but focus on change management)
- Patient safety (focus on error)
- Computer-supported cooperative work (developed from human-computer interaction)
- Information systems – positivist approaches
- Information systems – interpretivist approaches
- Information systems – technology-in-practice approaches (chiefly Orlikowski's technology structuration)
- Critical sociology (feminist and Foucauldian)
- Actor-network theory (recursive, post-structuralist approach, including work of Marc Berg and recent papers from Norway)

### Health information systems

- Hopeful literature
- Technological determinism & utopianism
- System as 'black box'
- Little more than lip service to a socio-technical perspective

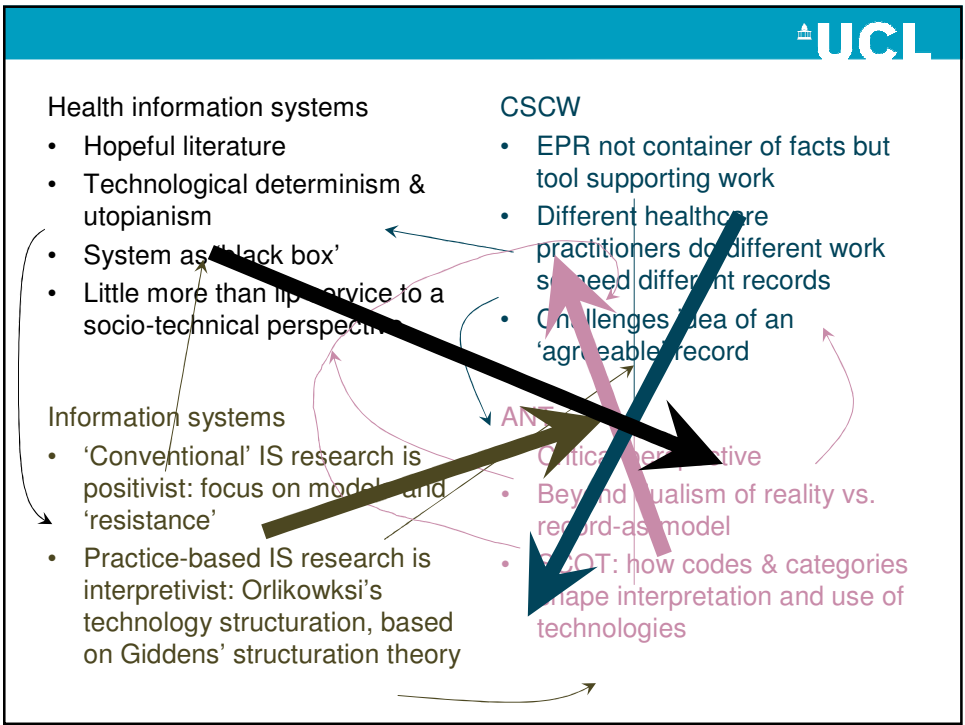
### CSCW

- EPR not container of facts but tool supporting work
- Different healthcare practitioners do different work so need different records
- Challenges idea of an 'agreeable record'

### Information systems

- 'Conventional' IS research is positivist: focus on models and 'resistance'
- Practice-based IS research is interpretivist: Orlikowski's technology structuration, based on Giddens' structuration theory

- AN
- Critical perspective
- Beyond dualism of reality vs. record-as-model
- ANT: how codes & categories shape interpretation and use of technologies



## Silos or interrelated?

### Silos

- Most health informatics literature ignores socio-technical perspectives
- Technology structuration largely US organisational sociologists and doesn't cite/is mostly not cited by European critical sociologists

### Not silos

- Biomedicine meets socio-technical approaches
  - Cross-disciplinary appeals (Pratt *et al.*)
  - 'Multilingual' researchers (*e.g.* Berg)
- Socio-technical approaches aligning
  - CSCW and STS have common roots in ANT, Zuboff *etc.*
  - Links between CSCW and STS over the years (*e.g.* Suchman)
  - Coming together of CSCW, STS and IS with newer researchers (*e.g.* Ellingsen)
  - Østerlund draws on Orlikowski and Berg + brings in social psychology

Berg & Bowker (1997), *Social Quart*, **38**: 513-37  
 Berg (1999), *Comp Supp Coop Work*, **8**: 373-401  
 Berg (2003), *Methods Inf Med*, **42**: 337-44  
 Ellingsen & Munkvold (2007), *Int J Integrated Care*, **7**  
 Østerlund (2004), *J Center Inf Studies*, **5**: 35-43  
 Pratt, Reddy, McDonald *et al.* (2004), *J Biomed Inform*, **37**: 128-37  
 Suchman (1994), *Comp Supp Coop Work*, **2**: 21-39

## De Vaujany's categorisation

François-Xavier de Vaujany (2005), "IT Conceptualization: Respective Contributions of Sociology and Information Systems", *Journal of Information Technology Impact*, **5**(1): 39-58

Causalist (*e.g.* technological determinism)



Integrative and recursive – technology affects context and context affects technology (*e.g.* technology structuration)

## Synthesis: A set of tensions

- EPR as tool or container vs EPR as actor
- Cognitive view of the human subject (user as an information-processor or decision-maker) vs. relational view (user defined primarily by their position within a social/socio-technical system)
- Context as setting within which EPR is implemented vs context as the EPR-in-use
- Clinical work as decision-making vs clinical work as situated practice; and knowledge as transferable facts vs knowledge as information-in-context
- Process of change: logic of determinism vs logic of opposition
- Success as objectively and prospectively defined vs success as socially negotiated and context-specific
- Scale: bigger the better vs small is beautiful

## Conclusions... and beyond the EPR?

- Techno-utopian dream: *a Big Computer solves everything*
- Gap between policymakers' perspective and 'coal face' workers
- Failure of evidence-based approach
  - Search for evidence can be very blinkered
  - Gap between policymakers' perspective and many researchers'
  - Gap between research results and conclusions
- Focus on outcomes is good, but can obscure details about how something works → Importance of the realist approach, of theory
- The RCT has limits, in treating the intervention as a 'black box' and in controlling for the context, when it's the details of the technology and the context that matter

## Or, as someone else recently put it...

- Anderson, Brown, Dowty, Inglesant, Heath & Sasse (2009), *Database State*, Joseph Rowntree Reform Trust, p. 47:

“We also need to wean Government off the idea that IT projects can substitute for effective policy action. For too long, ministers have used IT as a displacement activity. IT must rather be seen as just one of the tools of modern management; and often not be the most important tool (so neither ministers nor voters should expect too much).

“To paraphrase the late Roger Needham, **“if you think IT is the solution to your problem, then you don't understand IT, and you don't understand your problem either.”**”

(emphasis added)

## Reflection on the meta-narrative approach

- Very different picture to traditional Cochrane approach
- Rich array of theories and methods
- Systematic, but interpretive

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