A systematic review of electronic patient records using the meta-narrative approach: Empirical findings and methodological challenges

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Traditional systematic review

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<thead>
<tr>
<th>Study</th>
<th>Odds ratio (95% CI)</th>
<th>% Weight</th>
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<tr>
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<tr>
<td>Morton</td>
<td>1.07 (0.82, 1.40)</td>
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<td>Freer</td>
<td>1.19 (0.79, 1.81)</td>
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<tr>
<td>Dean</td>
<td>1.13 (0.69, 1.86)</td>
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<td>Ko</td>
<td>1.05 (0.69, 1.59)</td>
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<td>Birdwell</td>
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<td>Georgian-Smith</td>
<td>1.00 (0.46, 2.16)</td>
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<td>Subtotal</td>
<td>1.09 (0.92, 1.29)</td>
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<th>Study</th>
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<td>Fenton</td>
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<td>Gur</td>
<td>1.02 (0.84, 1.24)</td>
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<td>Cupples</td>
<td>1.16 (0.76, 1.77)</td>
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<td>Gromet</td>
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<td>Subtotal</td>
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<td>Overall</td>
<td>1.04 (0.96, 1.13)</td>
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From Taylor & Potts (2008), *Eur J Cancer* 44(6):798-807
Traditional systematic review

- Now well established as a central method in evidence-based medicine (EBM)
- Quantitative outcomes fit meta-analysis and illustrated with the familiar forest plot
- Works best when comparing like with like
- Small amounts of methodological heterogeneity can be handled with sub-group analyses
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

• 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”)

- 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’?

Application more post-Kuhnian than Kuhnian
Rise and fall of diffusion research in rural sociology
Rise and fall of diffusion research in health related fields
Explore the literature

Open-ended question

Meta-narrative map of underpinning traditions

Research tradition A
- Theoretical basis
- Quality criteria
- Evaluate, summarise

Research tradition B
- Theoretical basis
- Quality criteria
- Evaluate, summarise

Research tradition C
- Theoretical basis
- Quality criteria
- Evaluate, summarise

Meta-narrative review (how to get started)
Synthesis phase

- Highlight similarities and differences in the findings from different traditions
- Contestation between the disciplines is data (and leads to higher order constructs)
- Offer conclusions of the general format “in circumstances such as X, don’t forget to think about Y”
How did meta-narrative approach perform?

- With that first meta-narrative review and a small second review (on direct observation of medication delivery), papers/studies fell reasonably neatly into distinct ‘piles’
  - different research traditions were largely separate and did not cite each other
- Proved useful way of making sense of diverse literatures
New review: electronic patient records in organisations

Preliminary findings – thoughts welcome!

- Number of traditions were apparent
  - Biomedicine
    - Health informatics
    - Quality & safety
    - Healthcare information systems/change management in health services
  - Computer supported cooperative work (and HCI more generally)
  - Information systems
  - Science & technology studies

- However, more complicated interrelationship between these
  - Cross-talk between different traditions
Biomedicine
- Hopeful literature
- Technological determinism & utopianism
- System as ‘black box’
- Little more than lip service to a socio-technical perspective

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

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

STS
- Critical perspective
- ANT/sociology of translation
- Beyond dualism of reality vs. record-as-model
- SCOT: how codes & categories shape interpretation and use of technologies
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Interrelationships or silos?

Silos
- Most health informatics literature ignores socio-technical perspectives
- Technology structuration (Orlikowski) 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
  - Technology structuration meets ANT with “narrative networks” (Pentland & Feldman)

Berg & Bowker (1997), Sociol 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
Why? What does it mean?

- Common roots (like ANT) perhaps made it easy for CSCW and STS to come together
- A result of the greater accessibility of academic writing through the Internet?
- Repeated overtures from more socio-technical researchers to biomedical informatics up against an optimistic political rhetoric and a naïve, simplistic and fallacious view of EBM
THANK YOU FOR YOUR ATTENTION