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# A mixed methods study of the operational impact of digitized hospital records

**Dr Philip Scott**

Centre for Healthcare Modelling & Informatics

University of Portsmouth, UK

Email: [Philip.scott@port.ac.uk](mailto:Philip.scott@port.ac.uk)



# Background

- Digitized (scanned) medical records have been seen as a means for hospitals to reduce costs and improve access to historical records.
- This can be part of an EPR programme or independent.
- Clinical usability of digitized records can potentially have negative effects on productivity.
- Two NHS hospitals collected data on outpatient clinic timings as part of their implementation.

DATE/TIME	DESCRIPTION	REMARKS
17.9.11	Fluoridated water... (handwritten notes describing a patient's condition and treatment)	
19.10.11	At 19.10... (handwritten notes regarding a patient's symptoms and diagnosis)	
21.10.11	At 21.10... (handwritten notes about a patient's condition and treatment)	
23.10.11	At 23.10... (handwritten notes regarding a patient's condition and treatment)	
25.10.11	At 25.10... (handwritten notes about a patient's condition and treatment)	

# Objectives

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- How do consultation timings vary by site and specialty?
  - Paper records
  - Digitized records
- How do clinicians perceive the change?
- Mixed methods approach:
  - Quantitative work sampling by non-clinical observer
  - ANOVA and Mann-Whitney U
  - Qualitative focus group (1 site)



# Quant findings

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- Paper records (n=280): significant difference in median consultation times between sites ( $p=0.016$ ) and between specialties within a site ( $p=0.003$ ).
- Digitized records (n=126): no significant difference in median consultation times between sites ( $p=0.166$ ) but there is between specialties within a site ( $p=0.001$ ).
- Excluding outliers, no significant difference between paper and digitized records at the level of site ( $p=0.935$ ,  $p=0.285$ ) or specialty ( $p=0.122$ ,  $p=0.685$ ).
- Tasks: both sites swap time between search types; site B also increased time in direct patient care



# Qual findings

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- About half said latest clinic letter provided most information required for consultation.
- Overall standard of clinical letters had improved due to increased reliance on them in the digitized record.
- General perception that clinics take longer.
- Also having to adapt to online lab requesting/reporting.
- No obvious analogue to nurse doing 'clinic prep'.
- Most agreed that benefits of scanned records outweighed the disadvantages.



# Synthesis

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- On average, clinics don't take longer with scanned records but they feel as though they do.
- Specialty has more effect on timing than digitized record.
- Simultaneous adoption of other EHR solutions adds to sense of disorientation; processes don't change smoothly.
- Some unexpected benefits of digitized record: remote handover, timeline in record, (indirectly) improved letters.

