

# Digital versus paper-based consent from the UK NHS perspective: A cost-consequence analysis

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## Background

- In the UK NHS, a patient-centered consent process requires the clinician communicates relevant information about the condition and treatments in an accessible manner and provides the patient with sufficient time to make their decision<sup>1</sup>
- The introduction of digital consent and displacement of paper-based consent would present a significant change to processes and ways of working<sup>2</sup>
- Litigation claims associated with 'failure to warn – informed consent' have increased from 128 to 248 claims per year (between 2011/12 and 2021/2022)
- Cost impact of switching to a digital consent pathway is not well understood
- The objectives of this study was to compare the relative costs and benefits of digital consent pathways with paper-based consent pathways**

## Methodology

### Model overview

- Micro-costing approach adopted to measure healthcare costs from the UK NHS perspective and considered: staff time, operational resources needed, and implementation costs
- A decision tree model structure to estimate cost per consent episode (see Figure 1)

### Resource utilization and cost data

- Staff members responsible for the task, duration of the task, and frequency of the task (per week/month or per consent form) were estimated using PSSRU costs
- Cost of change management (digital readiness) and implementation were considered
- Average damages for 'Fail to warn - Informed consent' claims were estimated<sup>3</sup>

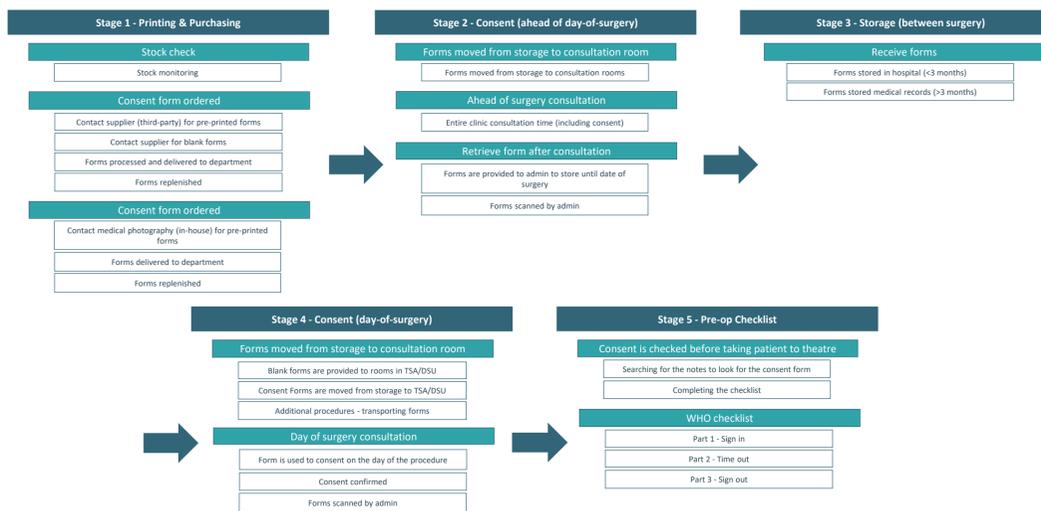
### Base case assumptions

- Based on the experience of the breast surgery department at Portsmouth Hospital NHS Trust which has an average size department with 110 consent episodes completed per month
- Equal consultation duration (25 mins) and consent reconfirmation on the day of surgery (5 mins)
- No additional infrastructure, software, and maintenance costs were assumed

### Sensitivity and scenario analyses

- OWSA and PSA conducted to explore overall uncertainty in the estimated costs
- Consent timing: assuming all patients were consented on the day of surgery
- Digital readiness:
  - Inclusion of product license fee and software maintenance
  - Semi-digitally mature department where only one electronic tablet was needed
  - Immature department where four trackpads and one electronic tablet needed
  - Digitally naive hospital department where six track pads and two electronic tablets needed
- Scanning: scan immediately, after procedure (consented prior and consented on procedure day)

Figure 1. Paper consent pathway



Note: This figure illustrates an example of the paper consent pathway separated into stages 1 to 5. It is important to note that parts of this pathway occur with each consent episode and other parts happen irregularly.

## Results

- The paper-based consent pathway and the digital consent pathway were associated with an estimated cost of £70.99 and £68.81 per consent episode, respectively
- A digital consent product would need to cost less than £2.18 per consent episode to be considered cost-saving (see Figure 1)
- Per litigation claim prevented, an average of £201,568 savings could be provided
- Non-tangible benefits include: increased safety (reduction in lost forms and surgical delays), improved efficiency (form population), ensuring accreditation (easier to ensure compliant documentation) and greater patient-centricity (improved legibility and personalized content)

Table 1. Cost inputs

	Base case estimates	Paper consent		Digital consent	
		Total duration in pathway (mins per form)	Cost per form	Total duration in pathway (mins per form)	Cost per form
<b>Staff costs (unit costs per hour)</b>					
Consultant medical	£123.03*	1.0	£2.05	1	£2.05
Consultant surgical	£121.74*	31.0	£62.90	31	£62.90
Staff nurse, midwife (entry level), theatre nurse	£41.14*	1.0	£0.69	1	£0.69
CSWN	£31.74*	0.0	£0.01	0	£0.00
CSWN higher level, Nurse associate practitioner acute	£31.74*	6.0	£3.17	6	£3.17
Porter	£10.93**	1.5	£0.27	0	£0.00
Medical secretary/ personal assistant	£10.93**	0.0	£0.00	0	£0.00
Receptionist	£10.93**	1.0	£0.18	0	£0.00
HCA	£10.93**	7.2	£1.31	0	£0.00
<b>External provider of consent forms</b>					
Ordered forms (external) - pre-printed	£0.46	88 forms			
Ordered forms (external) - blank template	£0.22	22 forms			
% pre-printed forms	80%		£0.41		£0.00
<b>Total costs per form</b>			<b>Paper consent £70.99</b>		<b>Digital consent £68.81</b>

Abbreviations: CSWN, clinical support worker nursing; FY, foundation year; HCA, Healthcare assistant  
Note: \*PSSRU (2021)  
\*\* NHS band 2 with 2+ years' experience based on 37.5-hour week

Figure 2. OWSA results for total cost of alternative consent pathways

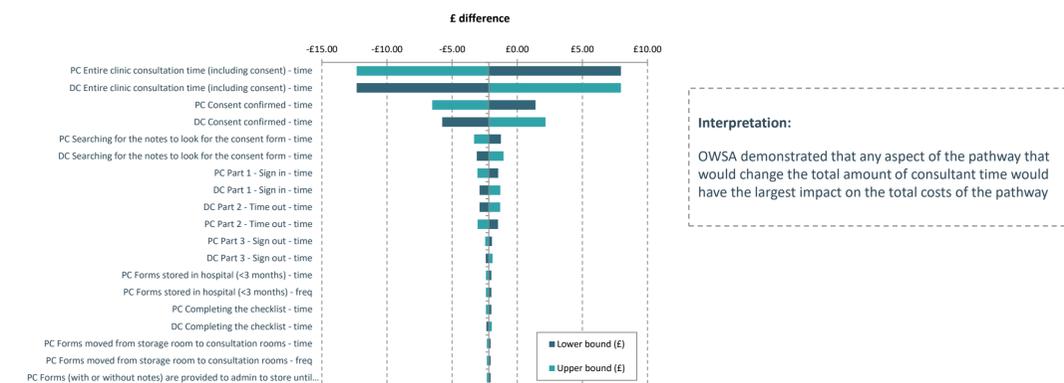


Table 2. Scenario analysis results

Pathway	Total costs per consent episode (excluding consultation time)		
	Paper consent	Digital consent	Costs diff.
<b>Consent scenarios</b>			
All consent prior	£70.99 (£10.12)	£68.81 (£7.94)	-£2.18
All consent on the day of surgery	£69.32 (£8.54)	£68.81 (£7.94)	-£0.51
<b>Digital readiness scenarios</b>			
Digitally mature (incl. license software maintenance)	£70.99 (£10.12)	£70.18 (£9.31)	-£0.81
Semi-digitally mature	£70.99 (£10.12)	£70.21 (£9.34)	-£0.78
Digitally immature	£70.99 (£10.12)	£70.29 (£9.42)	-£0.70
Digitally naive	£70.99 (£10.12)	£70.36 (£9.49)	-£0.63
<b>Scanning scenarios</b>			
Scan immediately - consented prior	£70.36 (£9.50)	£68.81 (£7.94)	-£1.56
Scan after procedure - consented prior	£71.35 (£10.49)	£68.81 (£7.94)	-£2.55
Scan after procedure - consented on the day	£69.68 (£8.81)	£68.81 (£7.94)	-£0.88

**Interpretation:**  
For all scenarios (assuming equal consultation and consent reconfirmation on the day of surgery), the digital consent pathways was associated with resource savings

## Conclusions

- Digital consenting has the potential to streamline the paper-based consent pathway
- A digital consent pathway costs approximately £2.18 less than a paper-based consent pathway per consent episode
- Consultation time has the greatest impact on the relative costs of both pathways

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