

# Exploring Patient Experiences of Decision-making Around Skin Graft Surgery Using an AI Burn Assessment Tool

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**Introduction:** Artificial intelligence (AI) is increasingly used in burn care to assist clinical decision-making. An AI wound diagnostic device helps assess burn depth and predict healing potential, but there is limited research on how the use of such technology may impact patients surgical decision-making. This evaluation explored patient experiences of decision-making around skin graft surgery where AI-supported assessment was used.

**Methods:** 10 adult inpatients at a regional burns centre who received an AI wound diagnostic scan were invited to complete a questionnaire and participate in a brief semi-structured interview. 5 of the patients went on to have surgery. Quantitative data assessed understanding, confidence, and concerns around surgery and AI. Qualitative data were analysed using reflexive thematic analysis

**Results:** Patients demonstrated limited understanding of AI, limited awareness of the role of AI in surgical decision-making and some patients expressed reservations regarding its use. The surgeon's recommendation around the need for surgery was identified as the most important factor in the patients' decision making. Healing time, pain, and long-term recovery were also identified as important factors influencing surgical choices for patients. Importantly, patients had mixed views regarding the impact AI may have on their decision. The relationship between the surgeon and the AI device was a central theme, and patients emphasized the need for transparency regarding the extent to which AI informed the surgeon's recommendation.

**Conclusions:** Initial findings suggest that integrating AI into clinical pathways prompts varied emotional and cognitive responses, with implications for consent and confidence. Patient perspectives offer valuable insight into how technology shapes decision-making and can inform best practice in discussing the use of such technology with patients.

**Applicability of Research to Practice:** This evaluation will inform safe, patient-centred implementation of AI in burn surgery pathways. Findings may guide clinician communication strategies and shared decision-making frameworks.

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## Background

- Accurate assessment of burn depth is critical in determining whether wounds will heal conservatively or require skin graft surgery.<sup>1</sup>
- Clinical judgement remains the primary method of burn depth assessment but can be challenging for burns of intermediate depth.<sup>2</sup>
- Artificial intelligence-enhanced multispectral imaging (MSI) systems such as DeepView<sup>®</sup> have been developed to support burn assessment by estimating healing potential and likelihood of surgical intervention.<sup>3,4</sup>
- While diagnostic performance of these technologies is increasingly studied, little is known about how patients experience AI-supported imaging during surgical decision-making.

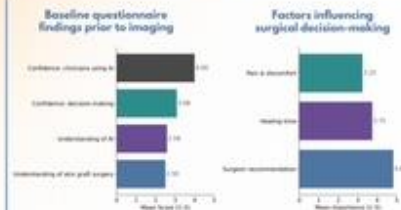
## Aim

To explore patient experiences of AI-enhanced multispectral imaging (MSI) during burn assessment and its perceived role in decision-making around skin graft surgery.

## Methodology

- Qualitative-dominant mixed-methods service evaluation.
- 12 adult burn patients undergoing assessment using the Spectral DeepView<sup>®</sup> MSI device.
- Age range: 18-75 years
- TBSA: 1-25%
- 5 patients underwent skin graft surgery
- 7 managed conservatively
- Data Collection: Pre-scan questionnaire; Semi-structured interviews.
- Analysis: Questionnaire data: descriptive statistics.
- Interview data: reflexive thematic analysis.

## Results



## Qualitative findings

- Theme 1: Trust in clinician expertise**  
 Confidence primarily in clinicians' judgement. AI was acceptable only as a supportive tool, not a decision-maker. During acute care, patients delegated decisions due to pain/distress.
- Theme 2: MSI as a background component of care**  
 Patients were not highly aware of the technology, but visual scan images improved understanding and reassurance.
- Theme 3: Outcome-focused information needs**  
 Patients prioritised healing time, recovery and treatment decisions, rather than technical explanations of AI.

## Conclusions

- Patients accepted AI-enhanced imaging when used to support clinician expertise.
- Patient confidence in clinicians using AI was high, despite limited technical understanding of the technology.
- Surgical decision-making was driven mainly by surgeon advice and expected healing outcomes, rather than the technology itself.

## Clinical Implications

- As AI technologies are introduced into burn care:
- Clear clinician explanation remains essential for patient understanding.
  - AI tools should be framed as adjuncts to clinical expertise.
  - Focus on outcomes and recovery, not technical details.
  - A short information leaflet before imaging can improve understanding.
  - Consider timing and patients' capacity during care.
  - Visual MSI images may help some patients make sense of their injury and treatment pathways, particularly when early experiences of trauma and treatment feel fragmented.



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