

# SYSTEMATIC REVIEW: AND META-ANALYSIS: THE CLINICAL OUTCOMES OF LASER DOPPLER IMAGING FOR BURNS

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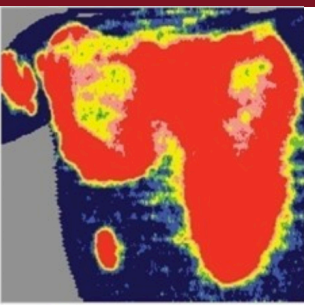
## Introduction



Laser Doppler Imaging (LDI) is a computerized assessment tool for burn depth. The Royal Darwin Hospital Burns Unit wanted to ascertain if there was a benefit to patient outcomes from LDI.

## Methods

- Literature review
- Analysis according to PRISMA guidelines
- Included: 3 cohort studies, 1 RCT, 1 set of guidelines

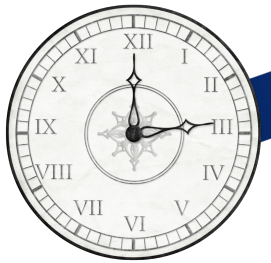
## Results

### TIME TO HEALING

Reduced time to healing of 3.9 days (p = 0.022) in the subset of patients admitted for surgery.

### LENGTH OF STAY

Two studies that show an actual reduction in the length of stay for patients of between 1.3-5 days.



### TIME TO SURGICAL DECISION

Reduction in the time to reach a decision on surgery by 2.19 days (95% CI, 0.71-3.68, p = 0.004).

### NUMBER OF OPERATIONS

Meta-analysis showed there is a likely but non-significant reduction in the number of surgical interventions when using LDI: OR 0.75 (p = 0.14) with Petrie et al finding a reduced surgical rate of 4.6% (p = 0.029) without and with LDI.

### 'OTHER'

No demonstrable effect on improving quality of life, scar quality, nor decreasing prescription of pressure garments for scar prophylaxis.

### COST

There was **no demonstrable effect** of cost saving, but potential savings are likely, and adaptations made subsequent to using LDI should increase savings.

## Conclusion

LDI reduces time to surgical decision and decreases healing time in surgical inpatients. It can potentially reduce length of stay and costs. There may be benefit in using LDI in the Northern Territory, relating of patient demographics. Further research on cost modelling, while related to time and place, would be beneficial.

PAPERS USED IN ANALYSIS

- Petrie et al "The use of LDI to reduce operative intervention in the treatment of paediatric burns" ISBI 2004.
- *Jenda Hop et al "Cost-effectiveness of Laser Doppler Imaging in Burn Care in the Netherlands: A RCT". Plastic Reconstructive Surgery Journal. 2016*
- *"MoorLDI2-BI: a laser doppler blood flow imager for burn wound assessment" National Institute for Health and Care Excellence. NICE 2011*
- *Kim et al "The impact of LDI on time to grafting decisions in pediatric burns" Journal of Burn Care & Research. 2010*
- *Jeng et al "LDI determines need for excision and grafting in advance of clinical judgment: a prospective blinded trial" Burns. 2003*