# Comparison of Burn Depth Assessment Between Clinical Diagnosis and Laser Doppler Imaging

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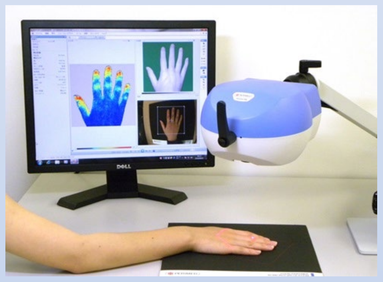
## BACKGROUND

- Accurate burn assessment and treatment and dependent upon provider experience and timing of diagnosis relative to the burn injury evaluation.
- Differentiating between a deep partial thickness and full thickness burn may not be easily discernible.
- To augment the clinical diagnosis of burn depth, a laser doppler image (LDI) measures the microvascular blood flow of injured tissue to predict burn wound healing.



## OBJECTIVE

- To evaluate the clinical assessment of burn wound depth by experienced burn providers compared to the laser doppler image assessment in predicting which burn wounds should heal spontaneously in 3 weeks.
- To evaluate the applicability of laser doppler imaging for evaluation in clinical practice.

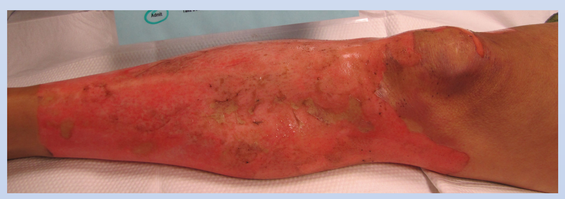
## METHOD

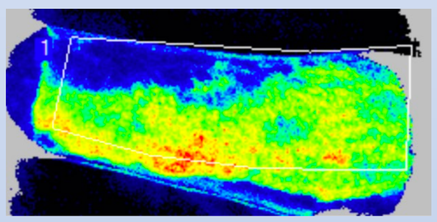
| | |
|---|---|
| Study Design | Retrospective Chart Review |
| Number of Subjects | 54 |
| Burn Assessment Variables | Clinical Assessment of burn depth (partial, deep partial, and full thickness)<br>Burn Outcome (Healed, Grafted, Lost to f/u) |
| Laser Doppler Assessment (Perfusion Index) | Perfusion Index: < 90 → Burn depth: Full Thickness<br>91-120 → Deep Partial Thickness<br>> 120 → Partial Thickness |
| Analysis | Chi-Square compare clinical diagnosis and laser doppler score<br>Correlation between clinical diagnosis compared to laser doppler score in predicting spontaneous burn wound healing |

## RESULTS

*The relationship between a clinical assessment and laser doppler assessment*

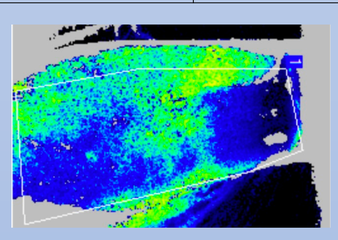
| | Partial Thickness | Deep Partial | Full Thickness | $\chi^2$ | P-value |
|---|---|---|---|---|---|
| Clinical Assessment | 38 | 9 | 7 | 26.884 | .000 |
| Laser Doppler Image Assessment | 38 | 10 | 6 | | |





*The relationship between clinical diagnosis and burn outcome*

| | Partial Thickness | Deep Partial | Full Thickness | $\chi^2$ | P-value |
|---|---|---|---|---|---|
| Healed | 34 | 8 | 4 | 14.246 | .007 |
| STSG | 0 | 0 | 2 | | |
| Lost to F/U | 4 | 1 | 1 | | |



*The relationship between laser doppler assessment and burn outcome*

| | Partial Thickness | Deep Partial | Full Thickness | $\chi^2$ | P-value |
|---|---|---|---|---|---|
| Healed | 34 | 8 | 4 | 17.748 | .001 |
| STSG | 0 | 0 | 2 | | |
| Lost F/U | 4 | 2 | 0 | | |

## CONCLUSION

Study confirms there is no difference between an experienced burn provider's clinical diagnosis of burn wound depth and prognosis for spontaneous healing compared to a laser doppler image prognosis of burn wound healing.