

AI-ENHANCED MULTISPECTRAL IMAGING FOR BURN WOUND ASSESSMENT: PILOT EVALUATION OF COMPLEX ANATOMICAL SITES



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Introduction

- Clinical burn depth assessment is only 60–80% accurate, with $\geq 50\%$ size overestimation between centres
- AI-enhanced MSI is emerging as an objective tool, validated by Tan et al. on standard sites (95.3% accuracy)
- First pilot evaluation of AI-MSI in non-validated, anatomically complex burn sites



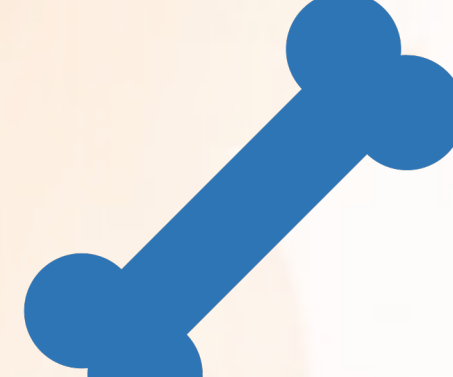
Hand



Face



Feet



Joints

Methods

Design

Single-Centre evaluation
Regional Burns Centre

Inclusion

Adults ≥ 18 yrs
Superficial $\rightarrow$ Full thickness

Exclusion

Chemical / Electrical burns
Surgery <21 days

Analysis

AI vs 21-day healing
ImageJ & JASP; Wilson 95% CIs

Aims & Objectives



Primary Aim

AI-MSI performance in non-validated sites



Objective 1:

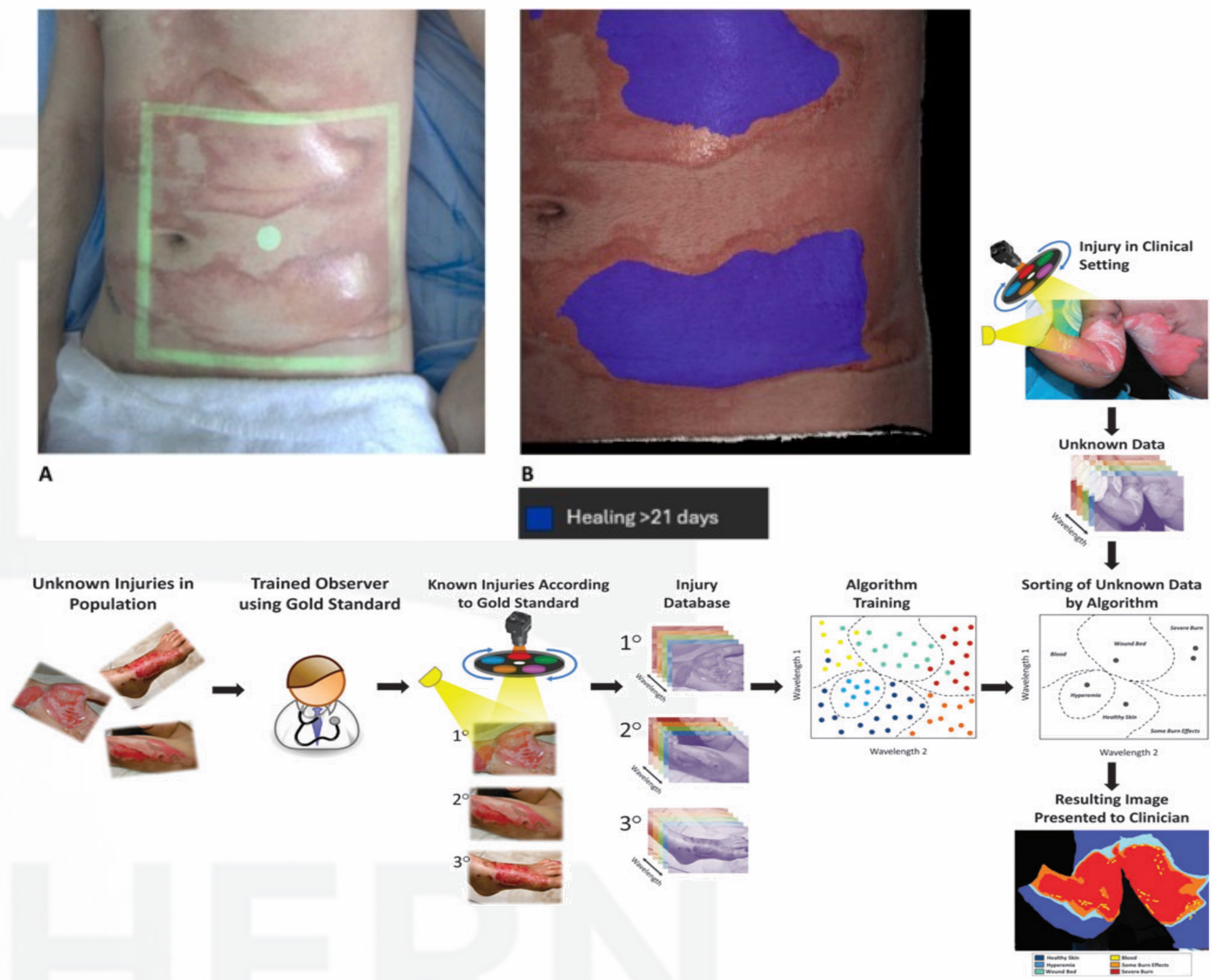
Evaluate Sensitivity, Specificity, Accuracy, Positive Predictive Value, Negative Predictive Value



Objective 2:

Compare AI predictions with 21-day clinical healing

AI-MSI Workflow



Results

Patients

33

Enrolled in study

Images

37

Analysed

Data Points

~2.4M

Pixel-level samples

Sensitivity

79.0%

Specificity

91.4%

PPV

31.4%

NPV

98.9%

Accuracy

90.8%

Take Home Message

- AI-MSI maintains strong overall performance in complex anatomical sites (90.8% accuracy, 98.9% NPV)
- Lower PPV (31.4%) vs validated sites reflects skewed cohort and limitations with pre-existing tattoos
- Reliable screening capability supports future use in objective burn assessment of anatomically complex regions
- Larger multi-centre studies underway, spearheaded by Northern Regional Burns Centre