CLINICIAN VERSUS ARTIFICIAL INTELLIGENCE ASSESSMENT OF WOUND SIZE AND TISSUE COMPOSITION IN A SIMULATED WOUND MODEL

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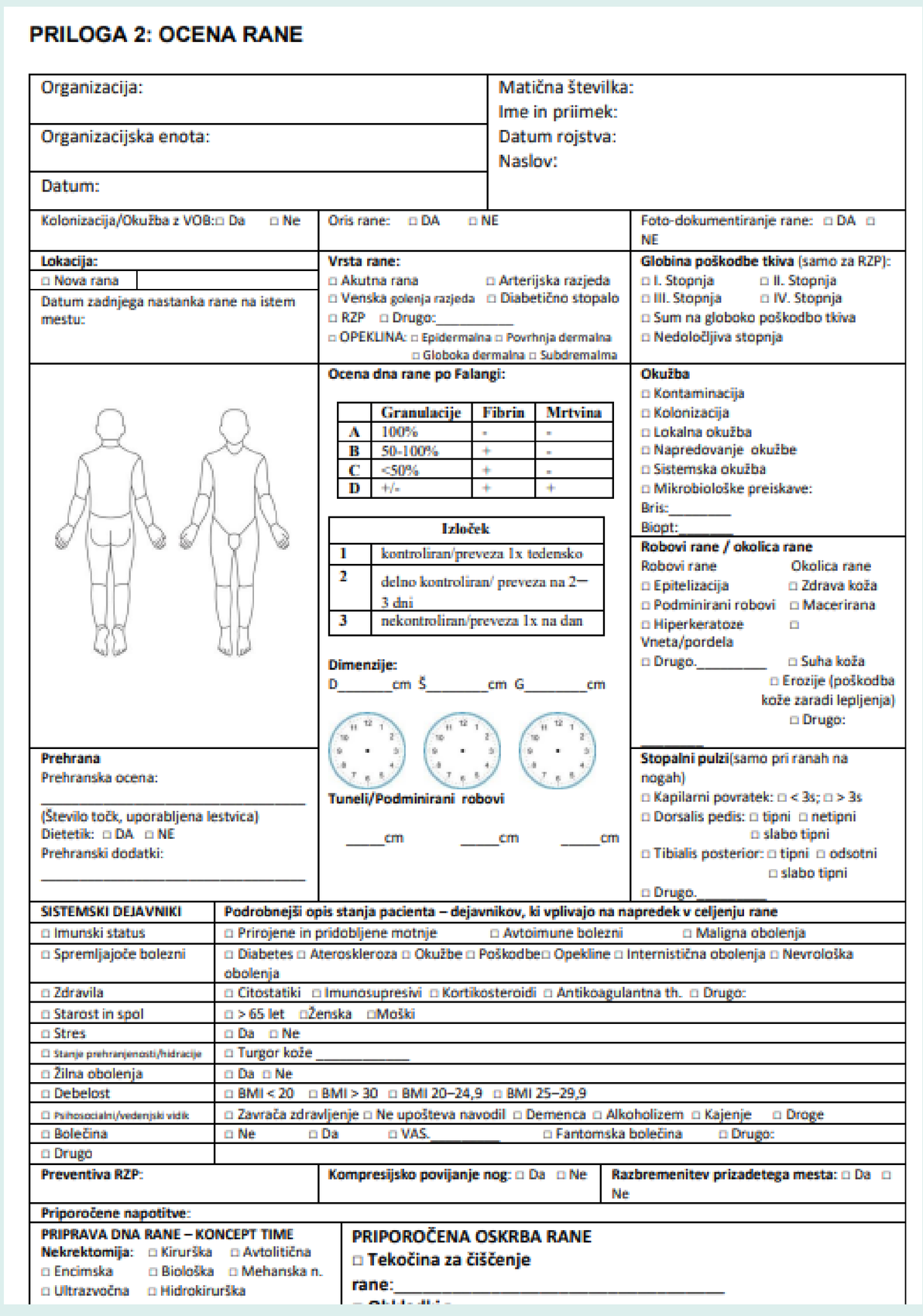
Introduction: Accurate wound assessment is essential for guiding treatment decisions and monitoring healing progress, yet it often varies due to subjective clinician judgement and experience. Inconsistencies in measuring wound size and estimating tissue types can affect care outcomes. AI handheld devices offer objective, standardised measurements that may reduce variability and improve reliability.

The aim of this pilot study was to evaluate the relationship between clinician wound assessments, including wound size and wound bed tissue types, and the assessments generated by an AI handheld medical device.

Method: A cross-sectional design was employed, using purposive, non-random sampling to recruit 20 registered nurses with relevant clinical experience in wound care. Participants were asked to assess a standardised wound model using their clinical judgement, guided by a structured wound care assessment form to ensure consistency in data collection. Following this, each participant repeated the assessment using an AI handheld medical device.
For both assessment methods, participants recorded wound dimensions, including length, width, and depth, and estimated the proportion of wound bed tissue types, specifically granulation tissue, slough, and eschar. All measurements were documented independently for each method to allow direct comparison between clinician-derived and AI-generated assessments.

Results / Discussion: Clinician measurements showed greater variability across all aspects of wound assessment than the AI device, which produced more tightly clustered values. This pattern was consistent for both wound size and tissue-type estimates. Consistency between the two methods was further examined using the Wilcoxon matched-pairs test, which indicated no significant differences for wound length, width, depth, or granulation ($p > 0.05$). However, slough and eschar measurements differed significantly between clinicians and the AI ($p < 0.05$). Overall, clinician and AI assessments were similar for most parameters, with notable discrepancies for slough and eschar.

Conclusion: While this consistency suggests potential for AI to support more standardised wound evaluation, the findings should be interpreted with caution. Further research with multiple wound types and validated reference standards is needed to determine the tool's accuracy and clinical usefulness.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