Objective. To test the hypothesis that skin temperature differentials, between sacral versus remote skin, can detect patients with increased-risk for pressure injury due to vascular disease.

Background. Hospital-acquired pressure injuries (HAPI) affect about 2.5 million patients in acute-care hospitals annually. Patients with vascular disease are at greater risk of HAPI but no method can detect which patients with vascular disease are more likely to develop HAPI.

Methods. In 100 ICU patients, a commercial thermal imaging system was used to obtain simultaneous photographic and infrared thermal images (11 × 14 inches) of the patient's buttocks and a remote skin area. Images were processed to determine temperature differences $\Delta T = \text{sacral (at-risk)} - \text{remote (non-at-risk)}$ using a discrimination threshold $\Delta T$ of $-1.5^\circ C$. The vascular status of patients exceeding this threshold were compared with the remainder.

Results. Thirty-two patients exceeded the threshold with an average $\Delta T$ of $-1.92^\circ C \pm 0.62^\circ C$. In 6 patients, $\Delta T$ was greater than $+1.5^\circ C$, with average of $+1.98^\circ C \pm 0.49^\circ C$. The remaining 63 patients had an average $\Delta T$ of $0.13^\circ C \pm 0.58^\circ C$. Chi-square analysis of the proportions of patients exceeding or not exceeding thresholds in relation to their known vascular disease status revealed no significant difference between these subgroups.

Conclusion. Although infrared thermal screening may provide visually impressive and potentially useful images in some cases, the use of temperature differentials to detect patients at particularly high risk for pressure injury owing to local blood flow is not supported by results of this study.