INTRODUCTION:
The accurate measurement of core temperature is an essential aspect of perioperative management in the pediatric population. Invasive measurements (e.g. esophageal, nasopharyngeal, rectal) are accurate but carry inherent risks. A need therefore exists for a sufficiently accurate and reliable form of non-invasive thermometry.

PURPOSE:
A) Evaluate the accuracy of non-invasive skin surface temperatures relative to a reference invasive core temperature; and
B) Observe any associations between non-invasive temperature error and body morphology.

RESULTS:
Compared to T_{naso}, mean error (±SD) was -0.46±0.28°C for T_{carotid}; -0.96±0.45°C for T_{liver}; and -0.12±0.50°C for T_{axilla} (Figure 3). Adjusting T_{carotid}, T_{liver} and T_{axilla} by their respective mean error explained 75%, 40% and 27% of variation in T_{naso} (Figure 4).

No significant associations (all P>0.05) were found between body morphology and the error of T_{carotid}, T_{liver} or T_{axilla} relative to T_{naso}.

CONCLUSIONS:
Skin temperature over the carotid artery potentially provides a reliable prediction of core temperature using a simple correction factor of approximately +0.5°C. Validation against an independent data set is required.

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