

Title: Comparison of Esophageal Temperature and Infrared Thermometry in Surgical Patients

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Background: General anesthesia and certain paralytics inhibit activation of heat-preserving mechanisms, putting surgical patients at risk for hypothermia. Nursing staffs in Pre-Op and PACU use temporal artery thermometers to measure temperatures. Anesthesia staff monitor temperatures during surgical cases with esophageal probes. Core temperatures obtained via esophageal temperature probe and patient's PACU arrival temperature, using infrared scanner thermometers, conflict.

Purpose: Compare esophageal core temperature (gold standard) and temperatures taken with infrared thermometer in patients undergoing general anesthesia. The research question was: How well do the infrared temperature scanners correlate with the esophageal temperature?

Methods: While subjects were in the OR and under anesthesia, temperatures were measured at four accepted sites based on sterile field and procedure. Pearson's rho was used to determine how well infrared sites correlated with the esophageal temperature.

Results/Outcomes: Infrared thermometer performed consistently across sites, but overestimated temperatures 0.5-0.6°C, compared to gold standard. Clinical relevance lies in patients at extreme ends of normothermic range. Practitioners should consider additional measurements for patients at higher or lower ends of normothermic temperature range.

Implications for Practice: PACU discharge criteria includes temperature stabilization. If the accuracy of temperature measurement can improve, their length of stay might decrease. When a PACU patient is reported hypothermic, cost of care increases \$2,500 to 7,000. Patients benefit from reduced stay, costs, and accurate temperature measurements.