Prevention of Intraoperative Hypothermia in Breast Surgery Patients

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Problem Statement

Incidence: Approximately 50% of breast surgery patients at a teaching hospital in Baltimore, Maryland experience intraoperative hypothermia
Significance: Core temperature of less than 36 degrees Celsius during surgery can result in cardiovascular events, perioperative hemorrhage, alterations in drug metabolism, decreased wound healing, prolonged stays in the post anesthesia care unit, decreased patient comfort, and increased hospital costs
Evidence-based practice: Evidence supports the implementation of a preoperative warming protocol to decrease rates of intraoperative hypothermia in patients receiving general anesthesia

Purpose of Project & Goals

Purpose statement: To implement and evaluate compliance of a preoperative warming protocol among patients undergoing breast surgery

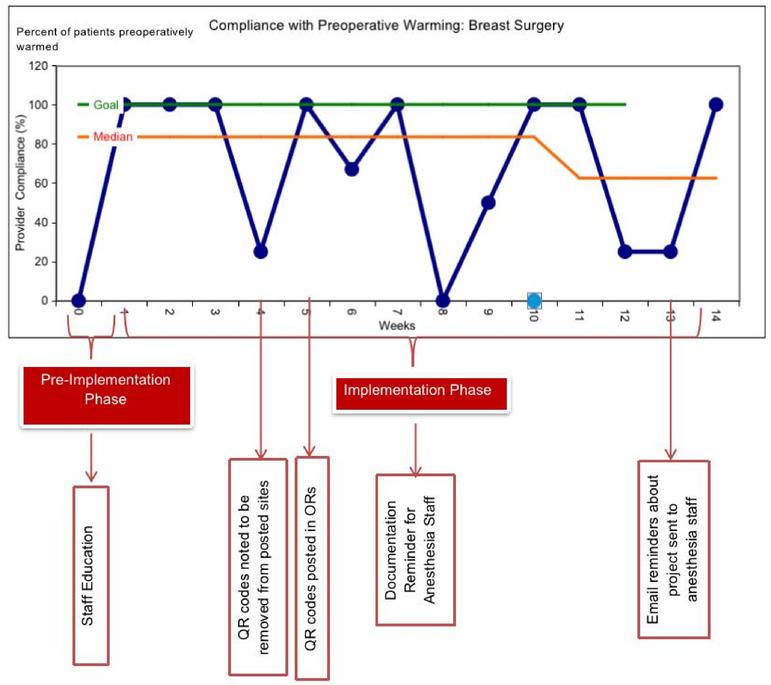
Process goal: 100% of providers will implement the preoperative warming protocol on eligible patients
Outcome goal: 100% of patients who receive the preoperative warming protocol will not experience intraoperative hypothermia

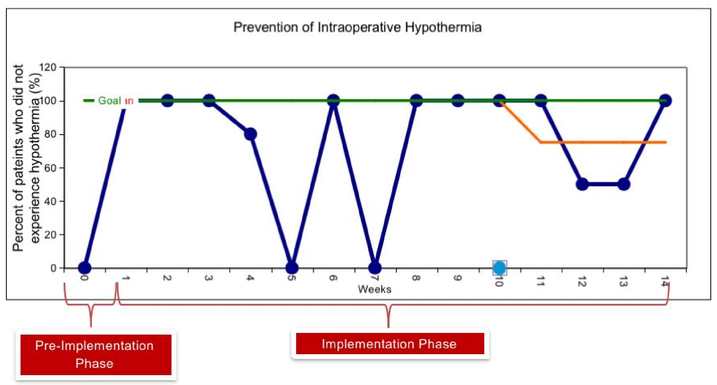
Methods

Setting: Community hospital in Baltimore, Maryland
Population: Patients undergoing breast surgery under general anesthesia with core temperature monitoring
Mobilization of an interdisciplinary team, education delivery during anesthesia staff meetings and nursing shift huddles & dissemination of educational materials
Assessment of the number of eligible participants
Implementation of the warming protocol: 30 minutes of warming via a forced air warming device in the preoperative area
Completion of the project audit tool via Quick Response (QR) code posted in operating rooms, break rooms, and preoperative areas, and weekly data collection using Research Electronic Data Capture (REDCap)

Preoperative Warming in Breast Surgery Patients

Results





Key Outcomes

Total participants: 38 surveys completed out of 66 eligible participants

Process goal:
57.6% (*n = 38*) of eligible breast surgery patients had a completed project survey
81.6% (*n = 31*) of surveys indicated adhering by the preoperative warming protocol

Outcome goal:
93.5% (*n = 29*) of patients who received the preoperative warming protocol did not experience intraoperative hypothermia
6.5% (*n = 2*) of patients who received the preoperative warming protocol did experience intraoperative hypothermia

Discussion

Goal achievement*:* 100% compliance was met at weeks 1-3, 5, 7, 10-11, & 14. Reminders to staff about project implementation and one-on-one discussions with the Clinical Site Representative were most effective in increasing compliance. Week 8 had 0% compliance due to lack of core temperature monitoring during breast surgery cases. 100% prevention of intraoperative hypothermia was met at weeks 1-3, 6, 8-11, & 14.
Impact:
- When the preoperative warming protocol was used, patients rarely experienced intraoperative hypothermia
- Findings consistent with evidence found in the literature

Limitations:
- Hesitancy to utilize core temperature monitoring from anesthesia providers
- Many breast surgery cases are done under general anesthesia with a laryngeal mask airway, eliminating the possibility of esophageal temperature monitoring
- Patient refusal to preoperative warming

Conclusions

Usefulness: The use of a forced air warming device in the preoperative area provides a means of thermoregulation prior to surgical exposure. Nursing staff and anesthesia staff work collaboratively to maintain patient temperature in this area.
Spread: A preoperative warming protocol can be used in gynecologic, orthopedic, pediatric, cardiac, and other surgeries.
Sustainability: Continue education on the utilization of forced air warming devices in the preoperative area. Strong buy in from anesthesia leadership will ensure QR codes continue to be posted in preoperative areas.
Return on investment: No additional cost to the hospital.

Findings suggest that the preoperative warming protocol is a feasible, low cost, team-based, and evidence-based protocol that supports the prevention of intraoperative hypothermia.

References & Acknowledgement

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