

Brrr I Said It's Cold In Here: Maintaining Perioperative Normothermia with Interprofessional Collaboration and Multifactorial Interventions

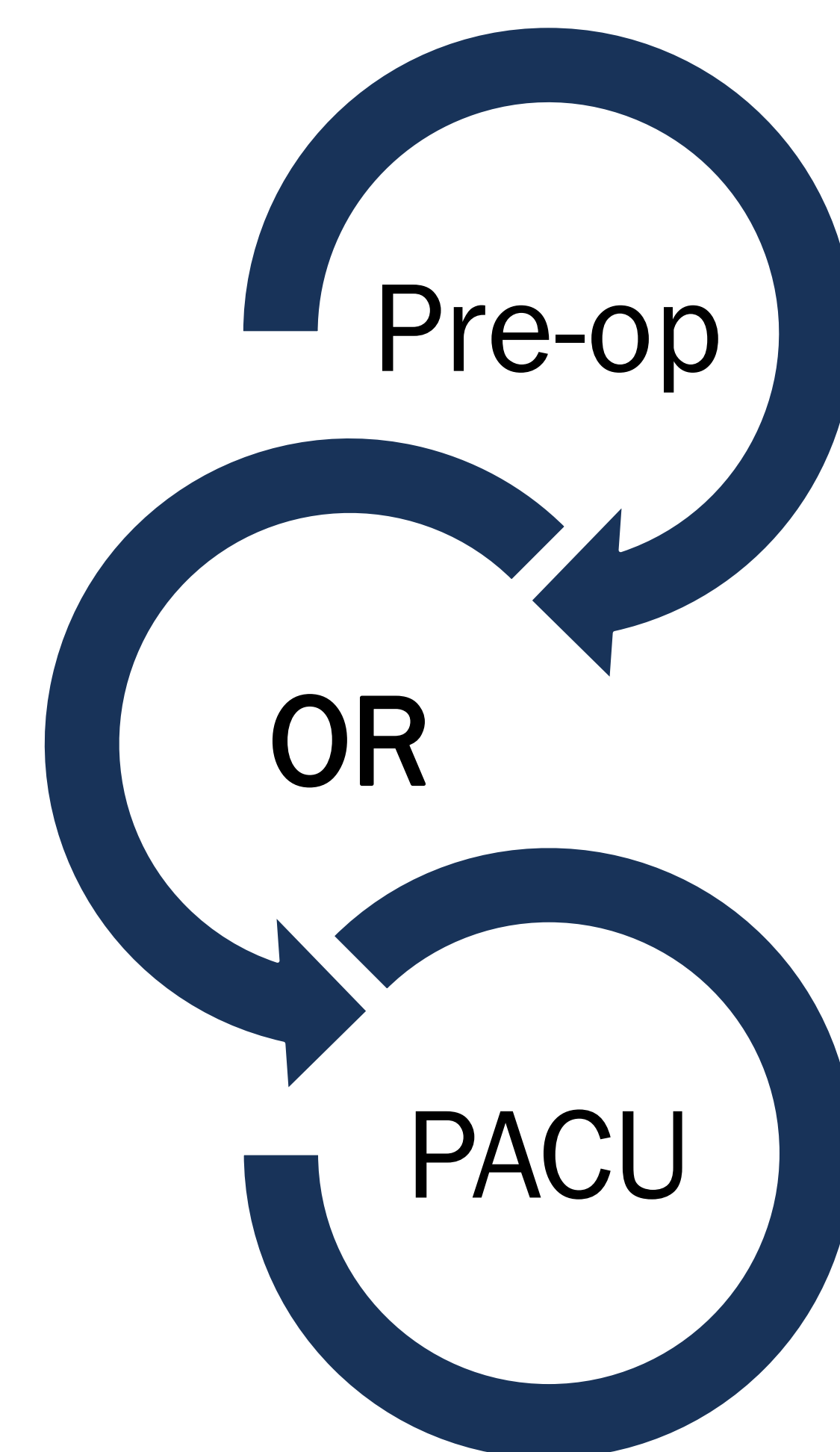
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Background/Introduction

Hypothermia is a preventable side-effect of the surgical experience. Perioperative normothermia is defined as a patient core temperature of ≥ 36 degrees C. The effects of inadvertent perioperative hypothermia on postoperative recovery are extensive and have negative effects on surgical site infections, wound healing, myocardial ischemia events, length of hospital stay, and patient comfort (Russell 2022). Thirty minutes was found to be the average suggested amount of time for prewarming among the literature; however, a minimum of 10 minutes of prewarming was suggested to significantly reduce rates of hypothermia in perioperative patients and decrease the adverse effects of hypothermia (Connelly 2017). Many institutions grapple with maintaining intraoperative normothermia as a patient's core temperature struggles to withstand the constant bombardment of routine interventions in the perioperative environment. Complications from hypothermia increases costs by \$2,500 to \$7,000 per patient (Rosenkilde 2017).

Purpose/Objectives/Hypothesis

The purpose of this project was to increase perioperative normothermia compliance by increasing staff knowledge of key interventions and methods to overcome detractors for maintaining patient normothermia throughout the perioperative continuum. By using direct observation, data analysis, current technological tools, an extensive search of the literature, and a collaborative interprofessional approach, we tailored an education plan to address gaps and ongoing modifications of key interventions. The objective was to increase perioperative normothermia compliance throughout the patient experience and regularly share these results with all staff.



Method

Using a reliable electronic data collection tool, and after designing a data report, we evaluated our initial and ongoing compliance percentages for each of the perioperative areas including pre-operative, intraoperative and post-operative units. We excluded cardiovascular and ophthalmology service lines as well as pain or straight local anesthesia procedures. The perioperative unit consisted of both inpatient and outpatient surgical population in a community hospital with 25 operating rooms and volumes of >900 surgical procedures per month. An interprofessional committee was established with one to two representatives from each of these areas including perioperative leadership and one to two anesthesia partners. Guests of the committee meetings included pharmacy, biomedical partners, materials management and vendor representatives as needed. The committee gathered monthly to review the data, current state of interventions and detractors as well as to discuss possible additional interventions and established a threshold temperature of 36 degrees C, a benchmark goal of 70% for intraoperative normothermia compliance and a superior goal of 75%. Goals were shared with the perioperative unit on a weekly and monthly basis. Staff education was initiated for each of the perioperative areas and repeated when new interventions were implemented. Direct patient follow-through was also utilized in the gap analysis and these observations were brought to the group. Interventions were implemented including patient and family education about normothermia, initiation of a patient-controlled forced air warming gown, warm linen blankets, a core temperature measuring device, and warming the pre-operative room to 72 degrees F. Key interventions in the intraoperative phase of care included pre-warming the operating room, pre-warming the bed, infusing warm intravenous (IV) fluids during induction of anesthesia, using a continuous IV fluid warmer, limiting patient exposure during positioning, preparation, and conclusion of the procedure, using forced air warming tools on the patient, and having warm irrigation including warm irrigation bags for various scope cases. Patient normothermia was maintained in the post-operative unit by means of the forced air warming gown or blanket, warm linens and continuing the warm IV fluids as needed. Ongoing communication was presented by means of sharing project information and education at daily unit huddles, monthly unit staff meetings, and hospital quarterly department of surgery meetings.

Results/Implications

After nine months of project implementation the intraoperative normothermia compliance rate increased from 56% compliance in September 2021 to 72% in May 2022. There was a sustained intraoperative normothermia compliance at or greater than the 70% benchmark including three months where the rate was above the 75% superior goal. Additionally, there was an increase in patient satisfaction. During the nine months of the project implementation the patient satisfaction average was 91.41% compared to the previous nine months average of 88%.

Future Actions

Because many interventions were used simultaneously, one could parse out specific tools from this project for individual intervention validation against ongoing data. Adding or removing a singular tool or intervention would validate the individual tool and potentially reduce costs associated with normothermia compliance interventions. The strategies used in this project have been inserted into an enhanced recovery after surgery (ERAS) program with potential additional future implications.

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Results

