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Actively Pre-warming Surgical Patients to Prevent Inadvertent Hypothermia

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Actively Pre-warming Surgical Patients to Prevent Inadvertent Hypothermia

Previous Practice

• **Prewarmed** all surgical patients passively with a warm cotton blanket. • Intra-operatively warmed high risk surgical patients with a warm forced-air blanket.

Problem

- 68% of high risk patients became hypothermic after 15 minutes of induction. • Hypothermia leads to multiple complications:
 - Increased bleeding
 - Increased surgical site infections
 - Increased postop pain
 - Increased risk of cardiac arrhythmias
 - Delayed healing

- Decreased metabolism of anesthetic drugs
- Prolonged intubation time
- Increased recovery room time
- Increased healthcare cost
- Decreased patient safety and clinical outcomes

Evidence

- **Purpose:** To determine if pre-warming surgical patients with warm forced-air decreases the incidence of inadvertent hypothermia in the surgical patient.
- **PICO Question:** In adult surgical patients, does actively pre-warming a patient with warm forced-air compared to passively pre-warming a patient with a cotton blanket decrease the incidence of patients becoming hypothermic during the intraoperative and postoperative phase?
 - **P:** Adult Surgical Patients
 - : Active pre-warming with warm forced-air.
 - **C:** Passively pre-warming with a warm cotton blanket
 - **O:** Decrease the incidence of inadvertent hypothermia.
- **Evidence from Literature Review:** Actively Pre-warming with a forced-air warming system for at least 30 minutes is significantly more effective in keeping surgical patients normothermic and preventing hypothermia than passively pre-warming with a cotton blanket.

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Implementation Development

- Create Pilot Committee: Multidisciplinary Team
- **Literature Review:** Determine evidence for best practice.
- Evaluation & Purchase: Forced-Air Warming System
- Create: Policy and Standard Work for actively pre-warming high risk surgical patients with warm-forced air.
- Staff Education & In-servicing on: Inadvertent Hypothermia, high risk patients, policy, and standard work for pre-warming high risk surgical patients.
- Staff Training & Validations: Return demonstration and Validation Checklist for using forced-air system according to manufactures instructions.
- **Install:** Forced air-warming units.
- **Pilot Study:** Implemented active pre-warming at one campus.
- **Data collection and analysis:** Positive results
- **Disseminated Practice:** Throughout Network in periop.

High Risk Factors

- Age: The elderly and pediatric patients
- Size: Thin patients
- **Physical Status:** Patient's with pre-existing conditions.
- Length and Type of Surgery: Long, open cavity procedures.
- **ERAS Patients:** All GYN, GYO and Colorectal procedures.

Practice Change

- Baseline temperature on admission
- Actively pre-warming surgical patients, who are at high risk for inadvertent hypothermia, for at least 30 minutes with a forced-air warming system to preventing hypothermia throughout all phases of surgery

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- Increased patient comfort
- Increased patient satisfaction
- Increased patient's clinical outcome, safety and quality of care
- Decreased healthcare cost
- Cost of forced-air unit and supplies
- of using the forced-air warming system.



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Results

• Prevented high risk patients from becoming hypothermic after 15 minutes of induction. Decreased postoperative complication resulting from inadvertent hypothermia.

Challenge/Barriers

• Minimal barriers faced due to staff's involvement in the process change and the simplicity

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