



# Too Cool for Delivery? Not in our OR!

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## Background

In April 2025, the Enhanced Recovery After Surgery (ERAS<sup>®</sup>) Society updated the evidence-based perioperative care pathways that promote optimal outcomes for patients undergoing cesarean delivery. A key recommendation within this framework is the prevention and management of perioperative hypothermia. Hypothermia is associated with increased surgical site infections, impaired wound healing, increased blood loss and patient discomfort. Standard measures to maintain normothermia include continuous patient temperature monitoring, the use of forced air warming (FAW), administration of warmed IV fluids and ensuring a temperature controlled operating room.

## Situation

At Norfolk General Hospital, a 120-bed rural facility located on shores of Lake Erie, cesarean deliveries are routinely performed in one of three operating rooms, which is specifically dedicated to cesarean deliveries.

In 2024/25 95 scheduled and unscheduled cesarean deliveries were performed. A multi-disciplinary perioperative team supports this care. The perioperative team is composed of anesthesiologists, obstetricians, general surgeons, registered nurses, registered practical nurses, respiratory therapy general physician assists, and occasionally midwifery support.

In September of 2023, the OR and Surgical Day Care (SDC) charge nurses identified a significant gap in compliance with ERAS<sup>®</sup> normothermia guidelines.

Observations revealed four primary concerns:

- \* absence of preoperative warming in SDC
- \* inconsistent intraoperative temperature monitoring practices
- \* variable warming procedures in the post anesthetic care unit (PACU)
- \* use of multiple, inconsistent temperature measurement modalities throughout the perioperative period

## Assessment

A retrospective quality improvement initiative was launched to assess baseline adherence to ERAS<sup>®</sup> temperature management protocols.

A chart review of 10 cesarean sections was conducted to evaluate core temperature trends preoperatively, intraoperatively and postoperatively in the absence of FAW. The review confirmed significant variability in core temperature maintenance and highlighted opportunities for improvement in equipment standardization and process consistency.

## Results



In the absence of FAW, the data demonstrated an average temperature drop of 0.82 °C with an average surgical time of 59 minutes.

Date	Patient	Cesarean Delivery Elective / Urgent	Preop Temperature Celsius	Temperature Modality	Postop Temperature Celsius	Temperature Modality	Temperature drop Celsius	Length of surgery, incision to close
11 17 2023		1 Urgent	36.8	Oral	35.8	Tympanic	1	42
11 06 2023		2 Urgent	38.2	Oral	38	Tympanic	0.2	110
11 28 2023		3 Urgent	37.3	Oral	36.7	Tympanic	0.6	61
12 20 2023		4 Elective	36.5	Oral	36.3	Tympanic	0.2	55
12 10 2023		5 Urgent	37	Oral	35.6	Tympanic	1.4	29
01 25 2024		6 Elective	36.6	Oral	35.4	Tympanic	1.2	62
01 27 2024		7 Elective	37.8	Oral	36.6	Tympanic	1.2	65
01 26 2024		8 Urgent	37.1	Oral	36.2	Tympanic	0.9	45
02 27 2024		9 Elective	36.8	Oral	36.1	Tympanic	0.7	48
02 07 2024		10 Urgent	37.7	Oral	36.9	Tympanic	0.8	75

## Implementation

In response, charge nurses initiated a perioperative process improvement project. Beginning in March 2024, the OR and SDC teams piloted the use of zero-heat-flux temperature monitoring devices and introduced FAW gowns to standardize warming practices across all perioperative phases. These interventions were trialed to improve the consistency of normothermia maintenance in all cesarean patients.



## Recommendations and Outcomes

As a result of the pilot, a formal warming policy was implemented across perioperative services mandating the use of FAW gowns for all cesarean deliveries and consistent temperature monitoring modality throughout the surgical journey. Early outcomes suggest improved temperature stability and enhanced patient comfort.



## Results



Post implementation of FAW gowns, the data demonstrated an average temperature increase of 0.51 °C with an average surgical time of 59 minutes.

Date	Patient	Cesarean Delivery Elective / Urgent	Preop Temperature Celsius	Temperature Modality	Forced Air Warming	Postop Temperature Celsius	Temperature Modality	Temperature drop Celsius	Length of surgery, incision to close
01 10 2025		1 Urgent	36.7	oral	Gown	36.7	Core	0	47
01 27 2025		2 Urgent	37.1	oral	Gown	37.8	Core	0.7	70
03 20 2025		3 Urgent	36.6	oral	Gown	38	Core	1.4	41
04 10 2025		4 Elective	36.6	oral	Gown	37.1	Core	0.5	53
04 19 2025		5 Urgent	36.8	oral	Gown	38	Core	1.2	79
08 05 2025		6 Urgent	36.4	oral	Gown	37	Core	0.6	65
09 11 2025		7 Elective	36.6	oral	Gown	36.6	Core	0	46
12 01 2025		8 Urgent	37.2	oral	Gown	36.9	Core	-0.3	70

By implementing FAW gowns to patients undergoing cesarean sections, all patients maintained normothermia and their core temperature increased; comparatively in the absence of FAW gowns all patients temperature decreased, with 3 patient experiencing hypothermia in PACU.

## Implications for perioperative nursing

This initiative demonstrates the critical role perioperative nurses play in identifying clinical practice gaps and leading change. Standardizing perioperative temperature monitoring and maintaining normothermia practices not only increases ERAS<sup>®</sup> guidelines compliance, but will also directly enhance maternal outcomes.

Identified barriers and gaps:

- \* Current findings are limited by the small sample size.
- \* Inconsistent documentation of clinical indicators, notably initiation of FAW, patient pain scores and comfort level

These deficiencies highlight the need for improved documentation practices and future research with a larger dataset to strengthen analysis and outcomes.

## References

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