

# Decreasing Neonatal Hypothermia to Optimize Post Operative Outcomes

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## Background

Neonates are at a higher risk of unintended hypothermia due to immature thermoregulation. Hypothermia is associated with adverse postoperative complications, including increased length of stay, delayed wound healing and risk of mortality. Transport between our off-site NICU and the pediatric OR pose further risk of unintended hypothermia due to environmental variability.

## Methods

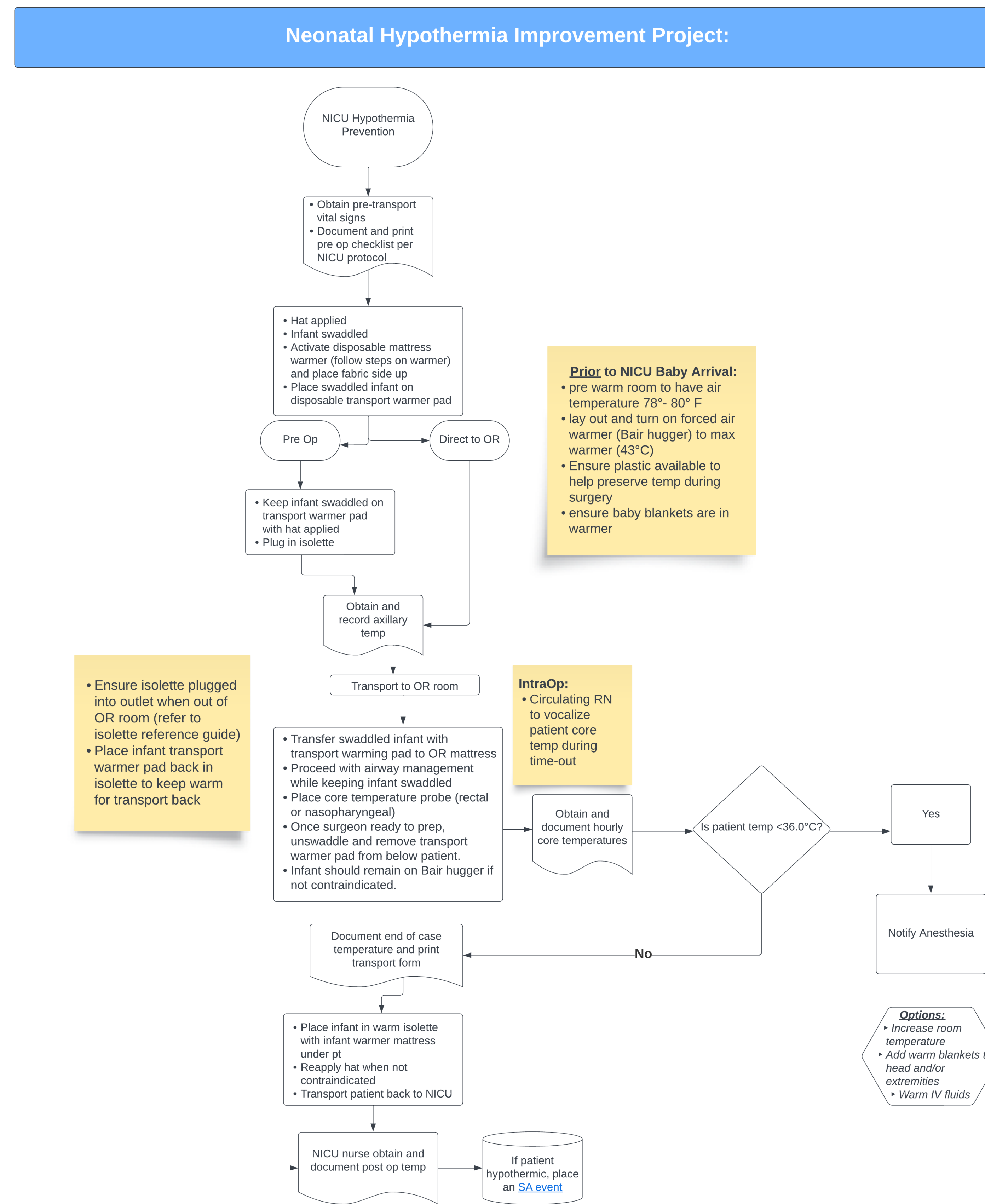
To reduce the incidence of hypothermia in NICU patients undergoing surgery, a multidisciplinary team created a standardized algorithm for perioperative temperature management. The algorithm focused on temperature monitoring, staff education and warming techniques such as warming mattresses, hats, isolettes, increased room temperature and forced air warmers. To assess performance, patient temperatures were assessed both before and after surgery, with hypothermia defined as a core temperature  $\leq 36.0^{\circ}\text{C}$ .



Purchased infant transport warmers are activated and utilized for transport to and from off site NICU facility

## Results

In the 4-month period prior to implementation of the algorithm, 21 babies underwent surgery, of which 52% were hypothermic pre-operatively and 38% were hypothermic post-operatively. In the post implementation cohort, 25 neonates underwent surgery, where 20% started surgery hypothermic and none were hypothermic at completion. Providing a >50% reduction in unintended hypothermia.



Algorithm created and implemented in collaboration with NICU staff, pediatric peri-operative staff and pediatric anesthesia team

## Discussion

A checklist was utilized to assess patient temperature and document the use of warming techniques during interfacility transport. We determined that the most significant limitation to our algorithm was requiring the use of an isolette for transport. Due to the limited number of isolettes available in the NICU, one is not always readily available. This provided an opportunity for education surrounding the use of other identified warming techniques.

## Conclusions

Implementation of a standardized algorithm for perioperative temperature management in NICU patients is highly effective in reducing hypothermia, requires minimum resources to effectively implement and is widely accepted by the care team. The algorithm has proved to have a significant impact on hypothermia reduction both pre-operatively and post-operatively. Further work is being conducted to assess effect of temperature control on observed complications.

## References

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