Title: Perioperative Temperature Monitoring in Paediatric Anaesthesia

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Introduction: Studies have shown that perioperatively, paediatric patients are susceptible to greater temperature instability due to their unique physiology (1, 2, 3, and 4).Temperature is an important variable to maintain homeostasis and both hypo and hyperthermia can have adverse consequences (4). Studies have shown hypothermia constitutes a stress associated with periodic breathing, apneas, bradycardias, metabolic abnormalities and an increased risk of wound infection (2, 4).
We decided to undertake an audit of our practice of monitoring temperature perioperatively. Indicators of good clinical practice that were audited were, the percentage of patients undergoing surgery who had

- Temperature monitoring instituted
- Warming devices used intraoperatively
- Recovery room temperatures > 36 degrees

On a review of literature, we were unable to find paediatric specific guidelines for monitoring. Therefore, we proposed that100% of patients must meet proposed standards for temperature monitoring and must have a recovery room temperature > 36 degrees on arrival to recovery room as evidence of Good Practice.

Methods: Following Hospital Ethics committee approval, a Retrospective chart review of 347 patients was done to review our practice of monitoring temperature in paediatric patients undergoing surgery and the use of warming devices to maintain normothermia. A literature search was done for standards of best practice and the data was compared against the standards to evaluate our own practice. The results were presented for departmental audit.

Results: Of the all the patients undergoing surgery, 72% had temperature monitoring instituted. Warming devices were used in only 19% of patients which was disturbingly low. Only 38% of patients had a recovery room temperature > = 36 degrees Celsius. The most commonly used warming device was a Bair Hugger .Temperatures were below 36 degrees in 68% of patients when warming devices were not used versus 32% when they were used. We also observed that a significant proportion of patients were hypothermic (temp< 36 in recovery) despite use of warming techniques and this was unrelated to type or duration of surgery or degree of exposure and the use of warming devices.

Discussion: In conclusion, we found that our practice did not meet the standards of best care as established by anaesthesia guidelines for adult practice. Simple monitors of practice like audits can expose serious deficiencies in practice. Following the audit, as a department we are more proactive in instituting monitoring and conserving the temperature of our patients undergoing anaesthesia. The lack of paediatric specific guidelines for practice however is a serious drawback. The deficiency of literature on Standards of Best Practice for paediatric anaesthesia needs to be addressed at meetings of paediatric anaesthetists to improve care of our patients. Simple measures like the use of Bair Huggers were effective in keeping our patients warm. However, there are other factors which may have contributed to temperatures less than 36 degrees Celsius in recovery in patients who had warming devices instituted.

References:

1) Body temperature regulation in newborn infants, Neurophysiol Clin 26:379, 1996
2) The range of thermal insulation in the tissues of newborn baby, J physiol 207: 667, 1970
3)Pediatric Anesthesia, Gregory A Gregory 4th Edition
4) Non Pharmacological prevention of wound infection, Anesthesiology Clin N America 24 (2006) 279-297