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Infant Warming Pad Specifications
Maine EMS Protocols
Effective December 1, 2021

- a. FDA approved
 - b. Non-electric
 - c. Non-toxic, latex free
 - d. Disposable, single use
 - e. **Maximum achievable temperature is 40°C (104°F)**
- Do not use multiple heating mattresses, or other heat sources, at the same time.
 - Monitor patient frequently for changes in condition, temperature, and skin redness/irritation/other changes.
 - Infant warming pads are *MRI-conditional*, consult manufacturer's instructions prior to use in an MRI facility.
 - This is NOT the typical heat pack sold for EMS application for muscular injuries. Examples of devices that can be used include:
 - Transwarmer Infant Transport Mattress (Cooper Surgical)
 - PortaWarm Mattress (Cardinal Health)
 - Infatherm (Phillips Healthcare)
 - Infant Transport Mattress (DeRoyal Industries)

References

Jean P L, Stéphane D, Véronique B. (2017). Warming mattresses for newborns: effectiveness and risks. *Biomed Journal of Science & Technical Research* 1(7). <https://doi.org/10.26717/BJSTR.2017.01.000608>

- Body temperature control is particularly important for preterm and/or low-birth-weight newborns because their thermoregulatory processes are inefficient and their body heat losses to the environment are greater
- The greater the contact surface area between an infant's skin and the mattress, the greater the conductive heat exchange. Hence, conductive warming only occurs when the mattress's surface temperature is higher than that of the infant's skin. The mattress temperature must be maintained at between 35°C and 40°C; at these temperatures, no cases of burns have been

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reported. A warming mattress can also supply radiant heat to skin surfaces that are not in direct contact with it.

- Most of the literature data show that the warming mattress is an effective device for preventing hypothermia in preterm neonates. A notable exception is the study by Boo et al. [5], in which 71 out of 119 initially hypothermic neonates (axillary temperature: 36.5°C) treated with a heated water-filled mattress (KanMed, Bromma, Sweden kept at a constant temperature of 37°C; room air temperature: 20°C) remained hypothermic.
- The warming mattress is an easy-to-use means of warming ill or low-birth-weight newborns and is less costly than an incubator.
- The use of a warming mattress should thus always be accompanied by continuous monitoring.

Chawla, S., Amaram, A., Gopal, S.P., & Natarajan, G. (2011). Safety and efficacy of Trans-warmer mattress for preterm neonates: results of a randomized controlled trial. *Journal of Perinatology* 31, 780–784. <https://doi.org/10.1038/jp.2011.33>

- Transwarmer use was not associated with any adverse effects.
- Admission temperatures of preterm neonates on whom Transwarmer was used were significantly higher compared to controls with a reduction in the incidence of hypothermia. A Transwarmer...may be a simple efficacious method of reducing hypothermia in preterm neonates.
- Use of Transwarmer was not associated with significant risk of hyperthermia or skin reaction and was not perceived to interfere with resuscitation.

Almeida, P.G., Chandley, J., Davis, J., & Harrigan, R.C. (2009). Use of the Heated Gel Mattress and Its Impact on Admission Temperature of Very Low Birth-Weight Infants. *Advances in Neonatal Care* 9(1), 34-39.

- Infants continue to be at increased risk for hypothermia even when treated according to current recommendations to dry, remove wet linen, and place on a radiant warmer.

Use of the TransWarmer Infant Transport Mattress was beneficial in decreasing hypothermia of the VLBW infant in our study. A primary benefit of the mattresses was that these could be activated within 1 minute prior to the delivery, making them useful in emergency deliveries.