Matroneé

Mati - the solution for Scalp IV in NICU-PICU

White Papers

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www.matronee.com

PRODUCT OVERVIEW

At present there are NO solutions of scalp IV caps in the Neonatal Intensive Care Unit. The Mati Cap is first to market, propriety design and patent pending.

Six panel design with one panel removed allows for ease of access as well as monitoring of IV

Seams on exterior of cap reduce irritation on delicate scalp

10-12 oz. 100% interlock cotton (USA sourced) allows for less stitching, fewer seams, and no fraying

Cotton used due to its ability to breathe - allowing for much needed warmth with less chance of irritation, static charge and less time in isolette.

Delightful, bright patterned fabric lessens impact of IV

Colored bands denoting size make it easy for hospital staff to choose proper fit

Soft hook and loop closures on the band allow easy placement and adjustment

Hook and loop tabs on sides of cap opening allow tubing to be directed away from the infant's face for ease of nursing, bottle feeding and much needed skin-to-skin contact.

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Clinical Need/ Body Temperature

Table 5.1: Life-saving essential and extra newborn care

Risk for all babies, especially those who are preterm	Essential care for all babies	Extra care for preterm babies
Hypothermia = low body temperature (increased risk of infections, mortality, and for preterm babies increased risk of RDS)	***Thermal care*** Drying, warming, skin-to-skin and delayed bathing	***Extra thermal care*** Kangaroo Mother Care, baby hats, blankets, overhead heaters, incubators
Cord and skin infections, neonatal sepsis	***Hygienic cord and skin care at birth and home care practices*** Hand washing and other hygiene Delayed cord clamping Consider chlorhexidine	***Extra attention to infection prevention and skin care*** Consider chlorhexidine and emollients
Hypoglycemia = low blood sugar (Increased risk of impairment or death)	***Early and exclusive breastfeeding***	***Extra support for breastfeeding*** e.g., expressing and cup or tube feeding, supplemented breast milk if indicated Lack of breast milk is a risk factor for necrotising enterocolitis in preterm babies
Hypoxia = low oxygen levels, (Increased risk of impairment or death and for preterm babies, higher risk of RDS and intracranial bleeding)	***Neonatal resuscitation if not breathing at birth*** Bag-and-mask resuscitation with room air is sufficient for >99% of babies not breathing at birth	***Safe oxygen use*** Monitored oxygen use e.g., in head box or with nasal cannula, routine use of pulse oximeters

March of Dimes, 2012

"In newborns, large amounts of heat are lost from the head, due to its high skin surface area. Insulating the head (for example, with a hat or bonnet) can be a simple and effective method of reducing dry heat loss....As regards the dry heat exchange from the head, wearing a bonnet decreases the local heat loss by an average of 18.9% in all clothed and thermal conditions."

"Head insulation and heat loss in naked and clothed newborns using a thermal mannequin." 2002

"The smaller or more premature the newborn is, the greater the risk of heat loss. When heat loss exceeds the newborn's ability to produce heat, its body temperature drops below normal range and the newborn becomes hypothermic."

"Newborn Thermoregulation" 2013

Clinical Need/ Body Temperature, Our Response

It has been proven that skin-to skin contact between and parent is extremely beneficial. Some of the benefits include: improves heart and lung function, stabilizes body temperature, regulates blood sugar, initiates breast feeding and assists in pain relief. Mati Cap allows an infant with a scalp IV more time out of the isolette and more time in skin-to-skin contact with parents.

Patient:
Provides warmth
More time out of isolette
IV lines directed away form face

Family:
Lessens and normalizes impact of IV
Time for bonding and skin-to-skin
Sense of comfort

Medical staff:
Ease of placement
Visual monitoring

Providing a deep breath moment for families.

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Table 5.3: Tools, technologies, and innovations required for the care of preterm babies

Priority packages and interventions	Current technology/Tools	Technological innovations required
ALL BABIES		
Essential newborn care and extra care for preterm babies • Thermal care (drying, warming, skin-to-skin and delayed bathing) • Early initiation, exclusive breastfeeding • Hygienic cord and skin care	• Protocols for care, training materials and job aids • Materials for counselling, health education and health promotion • Weighing scales • Cord clamp and scissors, clean birth kit if appropriate • Vitamin K for LBW babies	• Generic communications and counselling toolkit for local adaptation • Generic, modular training kit for adaptation, novel methods eg cell phone prompts • Birth kits for frontline workers • Chlorhexidine preparations for application to the umbilical cord • Simplified approaches to identifying preterm babies such as footsize
Neonatal resuscitation for babies who do not breathe at birth	• Materials for training and job aids • Training manikins • Newborn resuscitation devices (bag-and-mask) • Suction devices • Resuscitation stations with overhead heater • Clock with large face and second hand	• Wide scale novel logistics systems to increase availability of devices for basic resuscitation and training manikins • Additional innovation for resuscitation devices (eg upright bag-and-mask, adaptable, lower cost resuscitation stations)
PRETERM BABIES		
Kangaroo mother care for small babies (birthweight <2,000 g)	• Cloth or wrap for KMC • Baby Hats	Generic communications and counselling toolkit for local adaptation, innovation to address cultural, professional barriers Generic, modular training kit and job aids for local adaptation
Care of preterm babies with complications including: • Extra support for feeding preterm and small babies • Case management of babies with signs of infection • Safe oxygen management and supportive care for RDS • Case management of babies with significant jaundice • Managing seizures	• Nasogastric tubes, feeding cups, breast milk pumps • Blood sugar testing sticks • IV fluids including glucose and more accurate giving sets • Syringe drivers • Injection antibiotics, 1 cc syringes/27G needles, preloaded syringes • Oxygen supply/concentrators • Nasal prongs, headboxes, other O2 delivery systems • Pulse oximeters to assess blood oxygen levels with reusable cleanable neonatal probes. • Bilirubinometers (table top and transcutaneous) • Phototherapy lamps and eye shades • Exchange transfusion kits • Hot cots, overhead heaters	Lower-cost and more robust versions of: • Blood sugar testing for babies on low volume samples, heel pricks • Oxygen condensers, including portable options • Pulse oximeters and robust probes, including with alternative power options • Syringe drivers able to take a range of syringes • Bilirubin testing devices including lower cost transcutaneous devices • Haemoglobin and blood Grouping, Rhesus Point of Care • Point of care for C-reactive protein/procalcitonin • Apnoea alarm • Phototherapy devices such as portable "bilibed" to provide both phototherapy treatment and heat
Neonatal intensive care	• Continuous Positive Air Pressure (CPAP) devices with standardized safety features	• Lower-cost robust CPAP equipment with standardized settings • Neonatal intensive care context specific "kits", e.g., district hospital with ongoing support for quality use and for equipment maintenance • Surfactant as more stable, lower cost preparations

Note this table refers to care after the baby is born so does not include other essential tools and technologies such as antenatal steroids, or critical commodities for the woman
Sources: (East Meets West; WHO et al., 2003; Lawn et al., 2006; 2008a; PMNCH, 2011)

Clinical Need/ Scalp IV

The scalp veins are commonly used to secure access in neonates and infants often after unsuccessful attempts at cannulation of upper and lower limb veins. Scalp veins offer ease of stabilization and ease of access in this age group.Scalp veins in neonates/infants typically have less subcutaneous fat compared to peripheral sites to allow easier visualization and cannulation.

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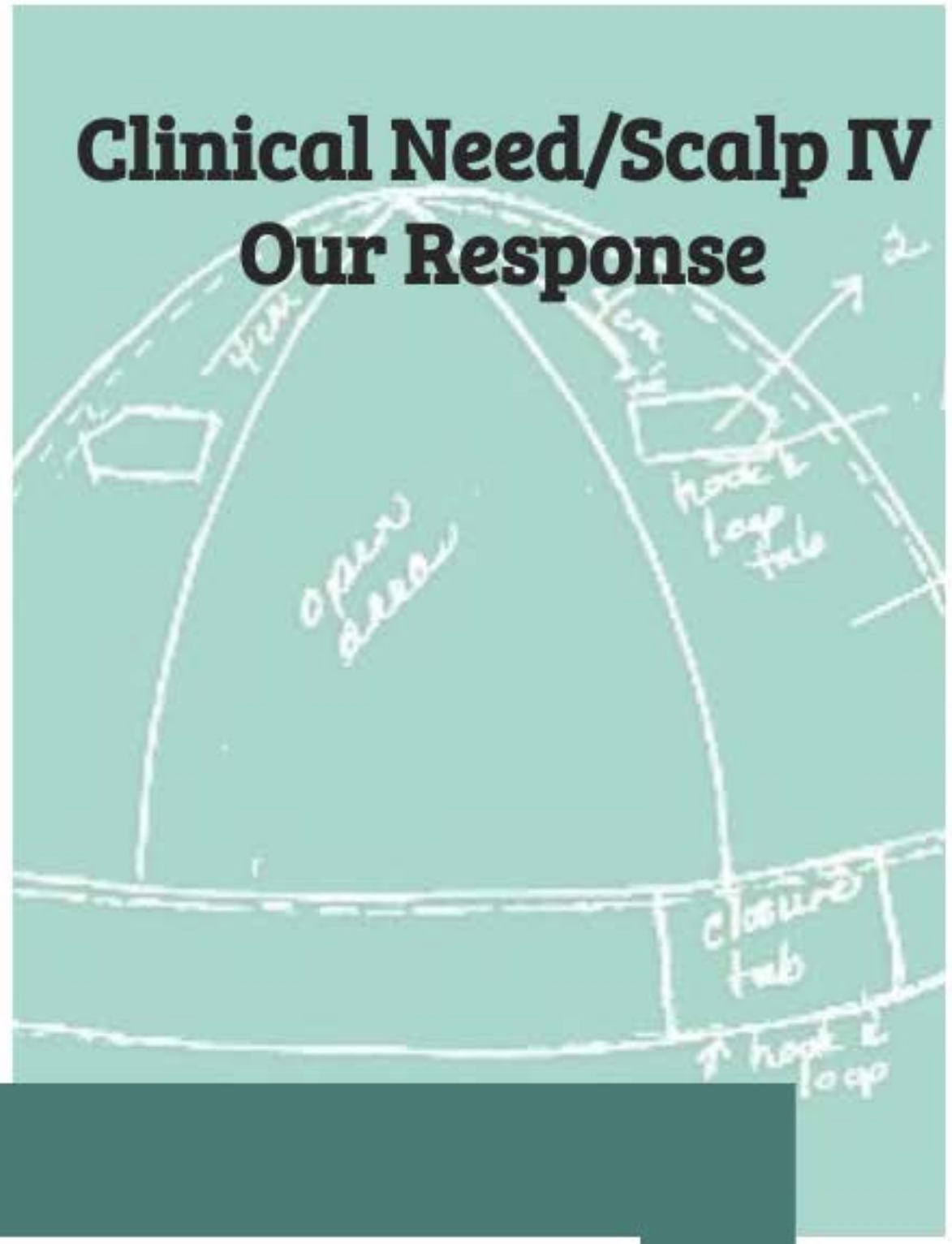
Clinical Need/Scalp IV Our Response

The Mati Cap adjustable band with hook and loop allows for ease of placement.

The hook and loop on each side provides a way to re-direct IV tubing away from the infant's face and facilitates nursing and skin-to-skin contact.

The panel design maintains an opening in any direction and allows for easy monitoring of the IV.



THE
MATI CAP

MADE WITH EMPATHY

PATENTED
DESIGN WITH
NICU & PICU
CHILDREN
IN MIND

In an era when change is so prevalent and so many hospitals are stepping away from the scalp IV, it is important to remember the scalp IV may be best for the infant. Mati Cap allows the medical staff to choose the more difficult "unicorn" knowing the impact can be lessened for the family.

References:

Doyle, Todd D., Anard, S.,Edens, M. A.,(2021). *Scalp Catheterization.* NCBI Bookshelf, https://ncbi.nih.gov/books/NBK507856

Elbassi, Elmounter Bilah, Charond, K., Bach, V., Telliez, F., Delanaud, S., Libert, J., (2002) *Head Insulation and Heat Loss in Naked and Clothed Newborns Using a Thermal Mannequin*, Med Phys: 1090-6.doi:1118/1.1481518, https://pubmed.ncbi.nih.gov/12094978/

Hartley, Patricia (RNC,MSN), *Neonatal Thermoregulaton* ,https://ceufast.com/course/neonatal-thermoregulation.

Lawn, Joy E., Davidge, R., Paul, V., Von Xylander, S., Johnson, J., Costello, A., Kinney, M., Segre, J., Molyneux, L., (2012) *Born Too Soon, Care for the Preterm Baby.*, March of Dimes. org/materials/born-too-soon-the-global-action-report-on-preterm-pdf.

Newborn Thermoregulation (2013) Interprofessional Education and Research Committee of the Champlain Maternal Newborn Regional Program (CMNRP). https://cmnrp.ca/uploads/documents_Thermoregulation_SLM_2013_06.pdf.

Reynolds, Laura. (2017) *How Does Cotton Help Insulate?.https://oureverydaylife*.com/how-does-cotton-help-insulate-12150246.html.

Warmth and Temperature Regulation. Children's Hospital of Philadelphia. https://www.chop.edu/conditions-diseases/warmth-and-temperature-regulation.