The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynyk and Fineout-Overholt (2011).

I Evidence obtained from a systematic review of all relevant randomised control trials.

II Evidence obtained from at least one well designed randomised control trial.

III Evidence obtained from well-designed controlled trials without randomisation.

IV Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case- series

V Evidence obtained from systematic reviews of descriptive and qualitative studies

VI Evidence obtained from single descriptive and qualitative studies

VII Expert opinion from clinicians, authorities and/or reports of expert committees or based on physiology

Melynyk, B. & Fineout-Overholt, E. (2011). *Evidence-based practice in nursing & healthcare: A guide to best practice (2nd ed.).* Philadelphia: Wolters Kluwer, Lippincott Williams & Wilkins.

National Health and Medical Research Council (2009). *NHMRC levels of evidence and grades for recommendations for developers of guidelines* (2009). Australian Government: NHMRC. http://www.nhmrc.gov.au/_files_nhmrc/file/guidelines/evidence_statement_form.pdf

OCEBM Levels of Evidence Working Group Oxford (2011).*The Oxford 2011 Levels of Evidence*. Oxford Centre for Evidence-Based Medicine. http://www.cebm.net/index.aspx?o=1025

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Reference ***(include title, author, journal title, year of publication, volume and issue, pages)***	**Evidence level (I-VII)**	**Key findings, outcomes or recommendations**
Allwood, M. (2011). Skin care guidelines for infant's 23-30 week 'gestation: a review of the literature. *Neonatal, Paediatric and Child Health Nursing, 14(1),* pp. 20-27.	II	• Underdeveopled stratum corneum in neonates 23-30 weeks • By 32 weeks epidermal development is mainly complete • In the first 2 weeks of life the stratum corneam matures at an accelerated rate for premature neonates; this development is less rapid for gestations below 27 weeks • Humidity decreases transepidermal water loss in premature neonates • Summary of small randomized controlled trial which showed that nursing neonates in humidity greater than 75% beyond 14 days of life may slow stratum corneum formation, and ideal humidity is 85% in first week followed by 50% humidity, adjusted over 12- 24 hours, to allow stratum corneum formation
Association of Women's Health, Obstetric and Neonatal Nurses (2013). Neonatal Skin Care (Third Edition) – Evidence Based Clinical Practise Guideline.	VII	• Comprehensive evidence based guideline developed by the Association of Women's Health, Obstetric and Neonatal Nurses • Detailed description on Bathing, Umbilical Cord Care, Disenfectants, Perineal Dermatitis & Wipes, Medical Adhesives, Emollients, Transepidermal water loss & Skin Breakdown. • Supports the use of emollients in the preterm infant with identification of the slight increased risk of infection • Identification of best practice disinfectant use – 0.5% Chlorhexidine in 70% Isopropyl Alcohol for Term Infants and 0.1% Chlorhexidine Gluconate in Preterm Infants • Supports the use of water and paraffin or silicone based adhesive removers over the use of solvent based adhesive removers.

Blackburn, S. (2007). Maternal, Fetal & Neonatal Physiology: A clinical perspective. Missouri: Saunders Elsevier.	VII	• The natural maturation process of the SC is dependent on the skin drying out after birth the use of emollients may delay this process. Vernix caseosa may assist in the development of the SC
Clemison, J., & McGuire, W. (2016). Topical emollient for preventing infection in preterm infants (review). Cochrane Database of Systematic Reviews 2016, Issue 1. Art. No.: CD001150. DOI: 10.1002/14651858.CD001150.pub3.	I	• Topical emollients are moisturising treatments applied directly to the skin to protect the stratum corneum, enhance epidermal barrier function and reduce evaporative water loss • The available data reviewed did not provide any evidence that routine use of emollient ointments reduces the incidence of invasive infection in preterm infants • Review of the available data found that routine use of emollients in the preterm infant may increase the risk of infection • Routine application of topical emollients in preterm infants improved skin condition as measured by skin score and evaporative water loss
Expert Forum: Neonatal Skin Health and Skin Care Symposium 2015. www.researchreview.com.au	VII	• Protecting newborn skin is a challenging but important aspect of neonatal care • Discussion of the defective skin barrier present in infants during the first few weeks of life • Importance of maintaining and promoting development of the newborns skin 'acid mantle', which inhibits the growth of pathogenic microorganisms and gives immunological properties to the skin • Importance of conducting a 'skin assessment' in addition to a 'risk assessment' • Advocated the use of the NEONATAL SKIN CONDITION SCORE • Prevention of atopy

Gephart, S., & Weller, M. (2014). Colostrum as Oral Immune Therapy to Promote Neonatal Health. *Advances in Neonatal Care, 14* (1). pp 44 – 51.	IV	• Early exposure to small amounts of Expressed Breast Milk (EBM) reduces the use of parenteral nutrition, decreased the risk of infection and reduces the duration of hospitilisation. • When healthcare providers convey the importance of EBM it empowers parents to maintain the production of breast milk. • Empowers parents in the care of their newborn within the NICU
Gregory, J., Anschau, N., McCutchan, D., Patterson, J., Martin, S., & Allwood, M. (2011). Skincare Guidelines for babies in NICU. Kaleidoscope, The Children's health network.	VII	• Recent studies indicate the routine use of emollients is contraindicated due to increased risk of infection Use pH neural cleansers when bathing. Water only for babies
Hall, K. (2008). Practicing developmentally supportive care during infant bathing: reducing stress through swaddled bathing. *Infant, 4* (6). pp. 198 – 201.	VII	• Tub bathing is a stressful experience for healthy newborn babies and is even more stressful for vulnerable preterm neonates with fragile physiological stability. • Sponge bathing preterm neonates poses significant risks due to heat loss. • The containment offered during swaddle bathing mimics the compact environment of the womb. • Swaddle bathing has been shown to reduce behavioural stress cues which normally occur during tub bathing.
Horimukai, K., Morita, K., Masami, N., & Mai, K., et al. (2014). Application of moisturizer to neonates prevents development of atopic dermatitis. *Journal Allergy and Clinical Immunology, 134*, pp. 824.	II	• Prevention of atopic dermatitis/eczema • Advocates for the daily application of an emollient in newborns at risk of atopic dermatitis/eczema

Lund, C., Nonato, L., Kuller, J., Frank, L., Cullander, C., & Durand. (2010) Disruption of barrier function in neonatal skin associated with adhesive removal. *Journal of Pediatrics, 131 (3),* pp. 367 – 372.	III	• Solvents are not recommended in premature neonates because of the increased risk of absorption through the underdeveloped SC
New Zealand Dermatological Society (NZDS), http://dermnetnz.org/, May 2013	VII	• Erythema toxicum neonatorum, Neonatal milia, Miliaria, Pitrosoprum folliculitus definitions.
Simpson, E., Chalmers, J., Hanifin J., & Thomas, K., et al. (2014). Emollient enhancement of the skin barrier from birth offers effective atopic dermatitis prevention. *Journal Allergy and Clinical Immunology, 134*, pp. 818 - 823.	II	• Prevention of atopic dermatitis/eczema • Advocates for the daily application of an emollient in newborns at risk of atopic dermatitis/eczema • Results show that daily application of an emollient is a safe and effective approach to prevention of atopic dermatitis/eczema
The Royal Children's Hospital. Clinical Practise Guidelines - Nappy Rash. Retrieved from: http://www.rch.org.au/clinicalguide/guideline_index/Nappy_Rash/	VII	• A kids health info factsheet for parents • Identification of nappy rash • Product recommendation for treating nappy rash

The Royal Women's Hospital (2016). Clinical Practise Guideline - Skin Care for Newborn Babies.	VII	• Supports the use of emollients to restore lipid levels, improve hydration, preserve natural moisturising factors and off significant buffering capacity to normalize skin pH and maintain the microbiome • Advocates for the use of pH neutral cleansers during bathing • Cleanse the perineal area with warm water soaked absorbent towels or cotton wool • Avoid using packaged baby wipes on the perineal area • Do not use solvent based adhesive removers due to toxicity from absorption through the skin • Regular 'skin assessment' in addition to pressure risk assessment
Varda, K., & Behnke, R. (2000). The effect of timing of initial bath on newborn's temperature. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 27 (32).	I	• Providing the neonate's condition is stable, newborns may be bathed after 1 hour of age when appropriate care is taken to support thermal stability. To minimize heat loss after the first bath, immediately put a nappy and hat on and wrap in warm blankets. When infant temperature is within normal limits(after approximately 10 minutes) dress and re wrap in dry warm blankets