

New Product Spotlight: Nurse Angele's Wipes™

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Nurse Angele's Adhesive Remover™ and skin massage wipes are 100% non-toxic, organic, medical-grade virgin coconut oil, individually packaged for single-patient use. (Table 1) Invented by a Neonatal Nurse Practitioner and a NICU RN, they are designed for the safe, easy, and pain-free removal of medical adhesives, such as tape, electrodes, stoma wafers, hydrocolloids, silicone adhesives, bandages, and wound or surgical dressings, while also minimizing the risk of epidermal stripping and medical adhesive-related skin injuries. Nurse Angele's Wipes™ are the only non-toxic adhesive remover on the market today. In addition to adhesive removal, Nurse Angele's Wipes™ may be used for infant massage, helping to decrease trans-epidermal water loss (TEWL), assist with weight gain, aid in the prevention of sepsis, and reduce medical device-related pressure injuries.

Virgin coconut oil (VCO) is an edible oil extracted from mature coconuts. It is a colorless, water-insoluble liquid obtained through both hot and cold extraction processes.²⁶ VCO is composed entirely of medium-chain fatty acids (MCFAs), which are a source of highly efficient cellular food: caprylic acid C-8:0 (8%), capric acid C-10:0 (7%), lauric acid C-12:0 (49%), myristic acid C-14:0 (8%), palmitic acid C-16:0 (8%), stearic acid C-18:0 (2%), oleic acid C-18:1 (6%) and 2% of C-18:2 linoleic acid.²² VCO is believed to have medicinal qualities, including but not limited to antifungal, antioxidant, antibacterial, antiviral, hepatoprotective, low glycemic index and immune system-enhancing properties.²³

The skin is one of the most important organs at birth, responsible for the following functions: (1) barrier protection against water loss and absorption control of substances, including light; (2) temperature regulation; (3) acid-mantle formation and infection control; (4) water and electrolyte regulation; and (5) tactile sensory function. Therefore, during the first days and months of life, neonatal skin care focused on protection and integrity is an essential component to nursing care for both healthy and sick newborns. The overall goal of skin care is to prevent skin alterations, including injury, and the accompanying morbidities, such as dehydration and nosocomial infection.¹

Topical oil massage is routinely practiced in many countries. For hundreds of years, populations, especially in the Indian subcontinent, have routinely applied natural oils to the skin of newborns. The practice of oil massage has also gained favor in

neonatal intensive care units in the developed countries.² The putative benefits to the newborn are twofold: those related to the oil application itself, and those related to the tactile kinesthetic stimulation from the massage. Topical oil application has been shown to improve skin barrier function, thermoregulation and is also suggested to have a positive effect on growth.^{3,4}

Topical emollient application is known to reduce TEWL in preterm neonates. Results from a study conducted by Nangia et al. (2015) support this claim. Based on significantly lower TEWL, favorable skin scores, and low colonization rate in the oil group in this study population of preterm VLBW neonates, it can be concluded that coconut oil application reduces TEWL, improves skin maturity and integrity without compromising the sterile milieu of the baby and thus can be recommended to be used in small preterm neonates in the NICU.¹²

When coconut oil is applied topically, the cells absorb the MCFAs, converting them into energy, thus promoting weight gain. Therefore, it can be used for nutritional purposes and faster weight gain in low-birthweight (LBW) infants.¹¹ Oil massage for newborns has been reported to improve weight gain by enhancing thermoregulation, with transcutaneous absorption suggested as a possible mechanism. A recent study compared the effects of massage with coconut oil versus mineral oil and placebo (powder) on growth velocity and behavior in preterm infants.⁶ Coconut oil massage resulted in significantly greater weight gain velocity as compared to mineral oil and placebo in the preterm infants' group. The preterm infants receiving coconut oil massage also showed a greater length gain velocity compared to the powder group. A similar study compared the effects of essential fatty acid (EFA)-rich safflower oil and saturated fat-rich coconut oil on the fatty acid profiles of massaged infants.¹⁰ Post-oil triglyceride values were significantly increased in both oil groups and the control group. However, the increase was significantly greater in the oil groups as compared to the control group. Fatty acid profiles (gas chromatography) suggested a significant increase in EFAs (linoleic acid and arachidonic acid) in the safflower oil group and saturated fats in the coconut oil group. This study showed that topically applied oil could be absorbed in neonates and is probably available for nutritional purposes. The fatty acid constituents of the oil can influence changes in the fatty acid profiles of the massaged babies.⁵ The skin of a preterm baby allows significant absorption of fat, as it is thinner and more vascular.^{7,8} This may also result in greater caloric intake and hence better weight gain.⁹ The greater weight gain documented by several investigators is associated

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with 3-6 days' shorter hospital stays. A recent cost-benefit analysis suggested a hospital cost savings of approximately \$10,000 per infant (or 4.7 billion dollars across the 470,000 preterm infants born each year).²¹

The structure and function of infant skin are not fully developed until 34 weeks of gestation, and this immaturity is associated with an increased risk of late-onset sepsis (LOS).¹⁹ Ghouri et al. (2023) investigated the effect of topical coconut oil emollient on the skin microbiome in preterm infants born at <30 weeks of gestational age. The coconut oil intervention was associated with lower bacterial diversity within samples and an overall increase in the density of colonization with *Coagulase Negative Staphylococcus* (CoNS). The reduction in diversity with age is likely due to a combination of host and environmental factors. CoNS secrete products, such as lipoteichoic acid and proteases, that enhance skin barrier function and immunity,¹³ limiting colonization by *S. aureus* and other pathogenic microbes. Hence, the increased abundance of the *Staphylococcus* genus may play an important role in the development of the skin's immune function and in competing with other microbes. Ghouri et al. (2023) previously reported that the implementation of topical coconut oil skin care in their NICU was associated with a lower frequency of late-onset sepsis, without a change in the pattern of causative organisms.¹⁴ The reduction in late-onset sepsis due to coconut oil may be related to a key component of coconut oil, monolaurin, a chemical made from lauric acid. They previously demonstrated that, in preterm infants, topical coconut oil administration resulted in higher plasma monolaurin levels compared to skin care without coconut oil,¹⁵ with potential direct antimicrobial and immunomodulatory effects. Monolaurin inhibits toxin production and biofilm formation in several bacteria, including *Staphylococcus aureus*.^{16,17} *Staphylococcus aureus* has previously been reported to be inhibited by monolaurin in coconut oil.¹⁸

Due to immaturity, the nose of preterm infants can easily be injured, even with a short application of a nasal device. However, 20% to 60% of preterm infants suffer nasal damage while using

nasal continuous positive airway pressure (NCPAP) due to weak skin tissue, prolonged use of nasal devices, and improper nursing practices, leading to increased risk of infection and decreased compliance and tolerance. Fifty percent of newborn medical device-related pressure injuries (MDRPI) occur on the nose, which is also the most common site. Using moisturizing oil to massage the nose during the switching period can moisturize the skin, protect the stratum corneum, and enhance the epidermal barrier function.²⁰ (Table 2)

In conclusion, Nurse Angele's Wipes™ can be used for numerous applications in the NICU and for patients of all ages. By incorporating our product into practice, institutions can take a significant step in safeguarding the health and well-being of their staff and patients, while limiting exposures to harmful adhesive remover chemicals. For more information, or to order free samples, please visit www.warriormp.com/nurse-angeles-wipes

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Table 2. Guidelines for Use of Nasal Continuous Positive Airway Pressure

- Bubble CPAP therapy will be initiated with a mask interface.
- The Respiratory Therapist will alternate between mask and prong interfaces every 3 hours unless the patient is on minimal touch the interface changes will occur Q6 (Sivandan & Ballambattu, 2022).
- The Respiratory Therapist will coordinate touches and repositioning of all patients with bedside RNs.
- The patient's skin integrity will be assessed. The device will be completely removed once per shift and a brief assessment will be completed every 3-6 hours with interface changes.
 - Tip of the Nose
 - Nares
 - Nasal Septum
 - Nostrils
 - Bridge of the Nose
 - Nose shape
 - Upper lip
 - Forehead
 - Scalp
- Respiratory Therapist will gently massage any area that the interface rests on including nasal areas, bridge of nose, forehead, and upper lip using **Nurse Angele's Wipes™** every 3-6 hours with interface changes (Fu, Li, Li, & Shi, 2024).

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