

Implementing Researched-Based Best Bathing Practice in the NICU and Well-Baby Nursery: Swaddle Bathing

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Stressful experiences can alter the structure and function of the preterm infant brain.^{1,2,3} “Routine” interventions in the NICU, while medically necessary, can result in undue stress to the newborn infant. The practice of developmental care strives to decrease infant exposure to stress and provide an environment for optimal development.⁴ Swaddle bathing an infant integrates the concepts of developmental care into the routine practice of bathing and enables the parents to be involved in infant care.^{5,6,7,8,9,10} Swaddle bathing is also recommended by the Association of Women’s Health, Obstetric and Neonatal Nurses (AWHONN) for preterm and newborn infants.¹¹

Bridging the gap between recommended practice and routine hospital care can be daunting. In an effort to help hospitals implement swaddle bathing, the Swaddle Bathing Clinical Guideline (Figure 1) was created. Our guideline is proposed based on scientific literature and current clinical practice. Changes and improvements to the guideline will occur based on further use and research.

Bathing has historically been a routine activity done in a quick fashion and without the necessary equipment to bathe the infant in a developmentally supportive manner. But with newly available products, immersion swaddle bathing is easily done in the hospital. Immersion swaddle bathing integrates four of the petals of the Neonatal Integrative Developmental Care model⁴ including: partnering with families, positioning and handling, minimizing stress and pain, and protecting the skin. In addition, by providing this calming activity, immersion swaddle bathing prepares the infant for comfortable sleep and more organized feeding.

In swaddle bathing, the infant is well supported, swaddled in a blanket, and immersed in warm water. The infant is calm. After swaddle bathing, the infant is able to participate in skin-to-skin holding, breastfeeding, bottle feeding, or the infant can sleep. Bathing without respect for stress cues and physiologic stability exhausts the infant both during and after bathing.^{5,6,9,12,13} A quick,

stressful bath can have long lasting instability and create more work for the caregiver. In addition, an exhausting intervention can cause an infant to lose an opportunity to practice eating.

“Family involvement is a key to realize the potential for long-lasting positive effects on their baby’s physical, cognitive and psychosocial development.”¹⁴ The family is an integral part of developmental care. The stress associated from having an infant in the NICU can lead to Acute Stress Disorder (ASD)¹⁵ and or symptoms similar to Post Traumatic Stress.¹⁶ Infants in the NICU are whisked away from their parents and placed in a medical environment where the parent is not the primary caregiver. Guilt, loss of control, fear, stress and uncertainty are all common emotions felt by parents in the NICU. Involving parents in infant caregiving improves confidence.¹⁷ Involving fathers specifically helps prevent disengagement and promote interactions.¹⁸ Swaddle bathing is one of the few “typical” parenting activities in the NICU. Pictures of the first bath are positive, tender memories from a difficult period of parenting. Learning a calm bathing skill also transfers to caregiving at home.

Swaddle bathing is beneficial to not only preterm infants, but also to full-term infants with Neonatal Abstinence Syndrome (NAS) and to healthy full-term infants.

Swaddle Bathing for the Well-Newborn Infant

Delayed bathing practices have been endorsed by AWHONN and the World Health Organization (WHO)^{11,19} to enhance parent/infant bonding, enhance breastfeeding, and physiologically stabilize the newborn infant. The AWHONN Neonatal Skin Care Guideline recommends bathing newborn infants between 2-4 hours after birth and the WHO recommends bathing at 24 hours if possible, but at least 6 hours after birth. Delayed bathing practice also gives the family time to recover from delivery and participate in caring for their newborn. This is a perfect opportunity to educate parents on the researched-based bathing method of swaddle bathing. The protective vernix covering can remain intact during the bath when vigorous scrubbing is avoided. With swaddle bathing the first bath moves from a cringe-worthy activity with an infant crying and flailing, to a calm, nurturing activity that families can continue at home. The authors believe that this experience will likely influence patient satisfaction.

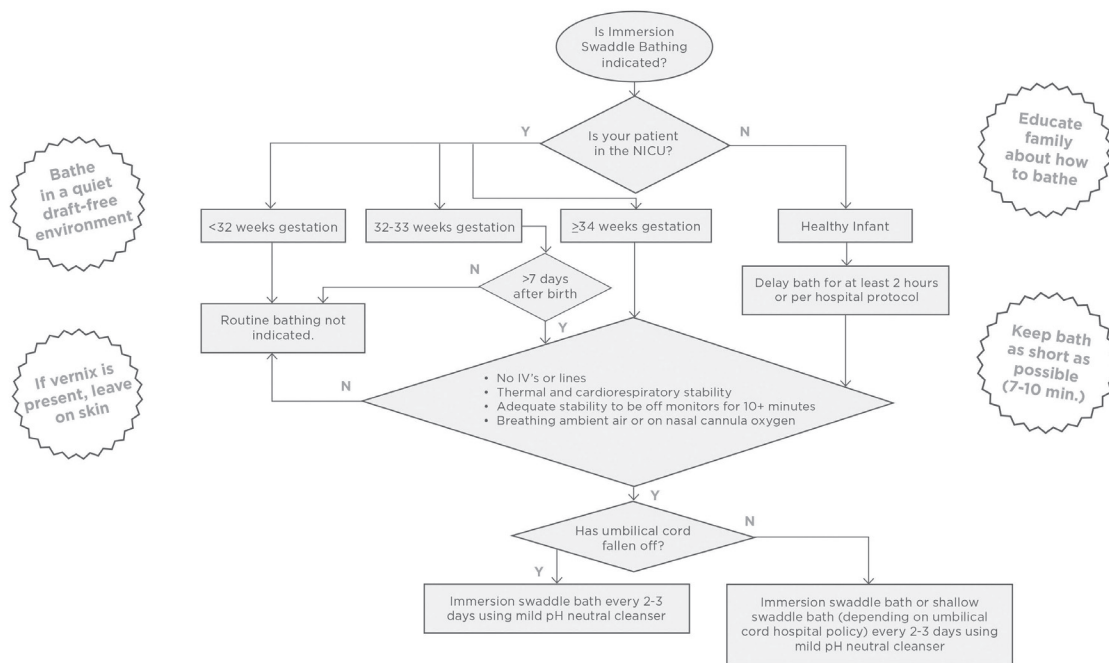
Swaddle Bathing for the Infant with Neonatal Abstinence Syndrome

From 1999-2013 the overall incidence of NAS has increased

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Figure 1

Swaddle Bathing Clinical Practice Guideline*



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300% from 1.5 per 1,000 hospital births to 6.0 per 1,000 hospital births.²⁰ The aggregate hospital cost for NAS increased to \$1.5 billion in 2012.²¹ Some of the common symptoms of NAS include: irritability, GI disturbance, high-pitched cry, hypertonia, sweating, congestion and tremors. Infants with NAS are currently treated in the hospital with pharmacological interventions, although with the epidemic numbers of infants exposed to NAS, alternative ways of treatment are developing such as Lily's Place in West Virginia where parents and infant live together as they work through withdrawal.

Strong research in non-pharmacologic treatment for NAS is sparse.²² Breastfeeding, rooming-in and prone positioning are shown to be effective treatments for NAS.²² Clinically, comfort measures for infants with NAS include swaddling, dim lighting, quiet environment, and a pacifier.²³ Hydrotherapy has long been used as treatment for hypertonicity, and anecdotally, swaddle bathing has a calming effect on infants with NAS. It is a typical activity for the parents to do with their infant that can be transferred to home. Specific research on swaddle bathing and NAS is warranted.

Our Guideline

Our guideline is proposed as a starting point to help hospitals implement research-based swaddle bathing. It is an evidence based intervention that translates easily into clinical practice. Key features of the guideline include the importance of including the family during bathing and keeping bath time between 7-10 minutes. Additionally, environmental stressors such as drafts and noise need to be controlled.

Assessment for whether an infant is ready for immersion swaddle bathing starts at age of 32 weeks gestation. The

AWHONN Neonatal Skin Care Guideline recommends using warm water, soft materials and no rubbing prior to 32 weeks. The protective stratum corneum skin layer develops at this time. At 32 weeks the infant is entering the phase of development where they can tolerate a little more stimulation and are more physiologically stable.²⁴

Waiting 7 days after birth to bathe the preterm infant from 32-34 weeks gestation optimizes stability in this more fragile group of infants. For skin-to-skin holding, WHO, suggests that low birthweight infants from 1200-1799g (gestational age of 28-32 weeks) may need to wait a week or more before having the medical stability for skin-to-skin holding.²⁵ Edrika's study on swaddle bathing in preterm infants, the babies were at least 7 days old. Bathing can be a more taxing activity than skin-to-skin holding so the criteria of 7 days was added to the guideline for infants between 32 and 33 weeks gestation. The medical stability is the most important criteria for bathing regardless of gestational age or days of life. Clinical judgement must always be made on the ability of the infant to tolerate a bath, even the most developmentally supportive bath.

Physiologic stability must be assessed prior to starting an immersion swaddle bath, since bathing requires the infant to be off the monitor to safely perform. If the infant is not determined to be safe without monitoring for 10 minutes, then the infant should not be immersion swaddle bathed. Basic health parameters including thermal and cardiorespiratory stability and no central lines should be established prior to bathing. Infants can be immersion swaddle bathed with nasal cannula oxygen and nasogastric and orogastric feeding tubes. Tube placement should be checked after the bath since the tape can loosen with moisture.

Choosing A Tub

Hospitals should consider providing a new bathtub to each family for several reasons. The family will become familiar with how to successfully give a bath in the hospital, and the technique can then easily be transferred to home. One bathtub per infant will reduce risk of cross-contamination. Studies have shown that hospital wash basins (even after cleaning) are frequently contaminated with pathogens.^{26,27} In addition, the authors believe that providing a bathtub to a family can positively impact patient satisfaction scores. Multi-use bathtubs can also be used, but they must have a disposable liner to reduce the risk of cross-contamination (Figure 2). Cleaning protocols need to be in place for both single-patient-use tubs and multi-patient-use tubs, and the tub should be free of tight corners and small spaces in order to be cleaned thoroughly between uses. The tub should also be void of foam due to the inability to clean foam adequately.

Figure 2



Additional features to be considered: Does the tub adequately support the infant without using ancillary towels? Can the tub be used to bathe preterm and full-term infants? Does the size of the tub fit on a workspace, a warmer bed or cart? Is it easy to lift and carry when filled with water? Does the tub have a water temperature measurement feature? And, is the water easy to pour out to avoid spills? The TurtleTub swaddle bathing system (Figure 2) satisfies these criteria. The swaddling blanket material should also be considered. Fleece stays warmer than cotton when wet and it dries faster than cotton. When swaddling an infant for bathing, a fleece blanket will sustain the water temperature better than a cotton blanket. The fleece can be laundered according to the hospital protocol for infant clothing and reused on more than one infant.

Conclusion

Swaddle bathing an infant provides a developmentally supportive bathing method for preterm infants, infants with Neonatal Abstinence Syndrome and full-term infants. When a family is taught how to swaddle bathe their infant, they participate in a typical parent activity that transfers to home care. As a starting point in defining infants for bathing, our Swaddle Bathing Clinical Guideline gives direction on how to implement swaddle bathing based on current research and clinical use. The TurtleTub swaddle bathing system bridges the gap between recommended practice and routine infant bathing. Hospitals now have the tools to use swaddle bathing as a routine bathing method to decrease stress, maintain temperature and involve families in infant caregiving.

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