# Every Change Matters™

## A GUIDE TO DEVELOPMENTAL DIAPERING CARE

Authored by the **Huggies®** Nursing Advisory Council

## Huggies® Nursing Advisory Council

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# Introduction

Changing an infant's diaper currently is seen as a repetitive, routine task. In reality, healthcare professionals provide diaper care based on specific knowledge of infants' delicate skin. Diapering is also an opportunity to help meet the physiological, neurobiological, and psychoemotional needs of infants through incorporation of developmentally appropriate measures such as skin-to-skin contact, proper positioning, and containment, which are associated with an infant's ability to balance all neurobehavioral dimensions and self-regulate.[1,2] Use of developmentally appropriate interventions like these during diapering routines is referred to as "developmental diapering care" and may help foster physical and developmental growth in infants—particularly those who are most vulnerable, such as premature infants and those with special medical needs.

The Huggies® Nursing Advisory Council is a Kimberly Clark-sponsored consulting group (Council) that comprises neonatal and perinatal nurses, an occupational therapist, and a parent who work collaboratively to formulate recommendations on how to deliver the best outcomes for infants cared for in the neonatal intensive care unit (NICU) and healthy infants. In December 2015, the Council identified and discussed opportunities to enhance diapering practices among healthcare professionals in the United States and Canada by using a more holistic approach to diapering. The Council believes that diapering is an extraordinary opportunity for nurses and other healthcare professionals to integrate, model, and educate parents and other key caregivers such as daycare providers and prenatal educators about the importance of developmental care in addition to skin care in diapering. Ultimately, developmental diapering practices are intended to be assimilated, taught, and modeled by healthcare professionals within the healthcare setting and adopted by parents and caregivers outside of healthcare settings.

Every Change Matters™: A Guide to Developmental Diapering Care provides practical information on how healthcare professionals and other caregivers may incorporate elements of evidence-based skin care and developmental care, into their diapering practices. The developmental care model underpins basic healing and wellness for the premature infant across psychological, neurobiological, and psychoemotional domains.[3,4]

Operationalized in the scientific literature through 5 areas of focus, the developmental care model is captured in this guide by the alliterative "Cs":

1. **"Calm and Clean":**
   The optimal environment
2. **"Change and Check":**
   Activities of daily living (positioning, feeding, skin care)
3. **"Comfort":**
   Pain and stress assessment and management
4. **"Champion Sleep":**
   Protected sleep
5. **"Confidence and Closeness":**
   Family-integrated care

At the end of this guide, the Council makes recommendations on how to apply developmental care concepts in the diapering of full-term infants. "Every Change Matters™: A Quick Reference Guide to Developmental Diapering Care" is a short companion piece to this guide, and is intended for use in clinical practice.

# Calm & Clean

## THE OPTIMAL ENVIRONMENT

## Background

Since premature and critically ill infants are profoundly susceptible across physiological, neurobiological, and psychological domains, the NICU environment itself and early care experiences in the NICU are critical in shaping infant development. [5,6,7] Among the many negative consequences associated with an unhealthy early environment are childhood development of tactile vulnerability and hearing impairment. [8,9]

Conversely, a developmentally appropriate environment in which potentially harmful environmental exposures are controlled and positive sensory experiences are provided is associated with infant self-regulation. [1,3] Self-regulation is described as an infant's ability to maintain a balance of autonomic, motoric, and state dimensions through the use of self-consoling behaviors such as hand-to-mouth maneuvers or sucking.[1,3] Many types of age-appropriate sensory interventions have been shown to facilitate positive responses and outcomes in premature infants, including: gentle touch, reassuring vocalizations, integration of maternal sounds (eg, maternal voice and heartbeat), and music therapy. [10,11,12,13,14] Use of music therapy for premature infants, for example, was significantly associated with improvements in sucking/feeding ability, as well benefits on heart rate and oxygen saturation, behavioral state, and hospital length of stay.[14] Beyond these more immediate effects seen in the NICU, positive auditory experiences in the NICU setting may be essential for early brain maturation and may contribute to healthy neurodevelopment.[15]

## Interventions to Support an Optimal Environment for Premature Infants

In order to promote an "optimal" environment for infants—or one that promotes healing—healthcare professionals can help ensure infant safety and help manage negative external stimuli in the NICU environment **(Table 1. Optimal Environment: Safety, Hygiene, Stimuli Management).**

In addition to considering the measures listed in **Table 1 (Optimal Environment: Safety, Hygiene, Stimuli Management)**, healthcare professionals should encourage positive sensory experiences, physical privacy for families, and parent involvement in infant care[4,19] During caregiving routines, there are many ways to encourage parental participation as well as

bonding between parents and infants.[20,21] Healthcare professionals are also poised to model behaviors that help parents better understand how to best meet their infant's developmental needs.[22] For example, by practicing infant-centered care, nurses can model for parents the importance of approaching the infant calmly, intentionally, and with a gentle, purposeful touch during the diapering routine and other caregiving tasks.[23] When appropriate, healthcare professionals can also talk with new parents about their infant's cues, which provide information about the infant's immediate status and needs.[24] Parents' increased understanding can boost their comfort and confidence in providing infant care themselves.[25]

**Table 1.** Optimal Environment: Safety, Hygiene, Stimuli Management

## Safety

- Position infant on changing area to provide safety and physiologic stability, and support optimal neuromotor development [16,17]
- Provide state motor support by using 2 caregivers when changing infants weighing < 1,500 grams

## Hygiene

- Follow hospital hygiene and infection control protocol
- Dispose of used diaper properly as required by hospital protocol
- Ensure hands are clean and dry; wear gloves as required by hospital protocol
- Wash hands thoroughly following diaper change; use sanitizer if soap and water are not available [18]

## Stimuli Management

- Moderate and manage bright lights and loud noise [4]
- Consider ambient temperature [1]
- Limit unpleasant odors [1]

# Change & Check

## ACTIVITIES OF DAILY LIVING (SKIN CARE)

## Background

Infant skin performs many critical functions, including: 1) providing a barrier to water loss, and protection from environmental stressors and irritants; 2) infection control, 3) providing resilience to mechanical trauma; 4) thermal regulation; 5) acid mantle formation; and 6) sensation and tactile discrimination.[26,27] According to the developmental care model, skin care is one of 3 developmental activities of daily living.[4]

***Premature Infant Skin:*** Premature infants have a poor epidermal barrier (with few cornified layers at birth, and it can take from 2 to 9 weeks post-natal age for complete skin barrier maturation. [28,29,30] Because the dermis of premature infants is deficient in structural proteins, and its mechanical properties are poor, the skin is easily torn. [31,32] Poor stratum corneum integrity in premature infants increases their risk of water loss, electrolyte imbalance, and thermal instability. [28,30,33] As a result of increased permeability, premature infant skin is especially susceptible to irritants and infections.[26,34]

***Importance of the Acid Mantle:*** The acid mantle is critical to skin health and function because it enables stratum corneum maturation and prevents microbe colonization. [35,36,37] Because formation of the acid mantle and stratum corneum can take up to 9 weeks in premature infants,[29,30] these infants are particularly susceptible to skin colonization by pathogens.[38] Notably, skin irritation can result from skin care practices that alter skin acidity,[36] such as use of soaps with a pH higher than that of infant skin, [39] and exposure of the diaper area to feces and urine. [40]

***Diaper Dermatitis:*** Diaper dermatitis or "diaper rash" refers to skin inflammation in the diaper region and it is among the most common skin disorders of infancy, especially in premature infants. [41,42] Generalized erythema and mild scaling are among the first signs of this condition [43-45] which is associated with discomfort and emotional stress for infants, [46] as well as stress for caregivers.

***Factors that Exacerbate Diaper Dermatitis:*** Several factors are known to contribute to the onset of diaper dermatitis (Figure 1. Pathogenesis of Irritant Diaper Dermatitis), such as the presence of moisture, urine, feces, and friction.[47] Excessive hydration of the stratum corneum from prolonged exposure to urine increases the permeability of diapered skin to irritants and can directly irritate skin.[48] Additionally, exposure to urine or runny stool over time can increase


Fig. 1
**PATHOGENESIS OF IRRITANT DIAPER DERMATITIS**

susceptibility of the skin to friction between it and the diaper fabric,[43,46] which can cause physical damage to the stratum corneum and compromised epidermal barrier function.[43,46,47] Finally, enzymes present in feces can contribute to the breakdown of the stratum corneum, making the skin even more susceptible to irritants and friction. In the presence of urine, the activity of fecal enzymes increases, making the combination of urine and feces even more irritating than either urine or feces alone. [48,49,50]

**Disposable Diapers:** Today's disposable diapers with super-absorbent gels are associated with a reduced incidence and decreased severity of diaper dermatitis compared with disposable diapers with a cellulose core and a plastic outer cover. [47,51-55] Compared with other options, use of diapers with super-absorbent polymers (SAPs) is also associated with a reduction in skin overhydration, less rash, improved maintenance of pH, better restoration of skin barrier function, and improved transepidermal water loss (TEWL) rate. [56-58] Leading super-absorbent diapers have microporous, breathable materials on the outside that keep moisture away from skin and allow more air contact with the skin.[56,58] They also prevent skin rewetting. [57-59] Diapers should fit snuggly on the infant, but should not be so tight they pinch the infant's skin, as this can cause mechanical irritation during normal infant movement.

**Wipes:** Research shows that cleansing with appropriately formulated wipes with a pH close to infant skin pH may be more effective than washing with water alone.[60] The use of formulated wipes effectively removes urine and fecal irritants and provides additional skin protection from subsequent exposures to feces.[60] While limited, it is important to note that some brands of disposable wipes have fragrances that may cause contact dermatitis. [51,61] Formulated wipes can also contain preservatives which are important to reduce the risk of microbial contamination of the product that could transfer to an infant's skin, increasing the potential for infection. However, these

preservatives must be gentle and safe for pre-term and full-term infant skin.[128-131]

## Diapering Interventions That Help Prevent Diaper Dermatitis in Infants

Preventive strategies are key to effective management of diaper dermatitis. Currently, the Association of Women's Health, Obstetrics and Neonatal Nurses (AWHONN) recommends a focused skin assessment of the perianal area as a strategy to reduce the risk or severity of diaper dermatitis. [51]

The most effective routine in preventing diaper dermatitis is changing diapers every 1 to 3 hours during the day and with each feeding at night (but at minimum once during the night).[51] While super-absorbent diapers are shown to help prevent diaper dermatitis, if diapers without super-absorbent gel are used, they should be changed even more frequently than every 1 to 3 hours. Caregivers should be informed of the benefits of using wipes,[60,61] every diaper change to gently clean delicate infant skin exposed to urine, feces, or both, including areas that are tough to clean such as skin folds.[62] Complete removal of feces and urine is important since fecal ureases catalyze the breakdown of urea to ammonia, which increases the pH of the skin surface and can potentiate stool enzymes that are highly irritating to infant skin.[46] Caregivers also should consider diaper-free time for premature infants since this decreases the duration skin is occluded and helps reduce friction and skin wetness.[46,47] During diapering, and in order to help prevent leakage, caregivers should check the fringe around the infants' legs to make sure there are no gaps and that no material is folded inward.

Finally, healthcare professionals should treat skin excoriation from diaper dermatitis by using methods compliant with AWHONN guidelines and their hospital protocol. In all cases, the effectiveness of therapeutic interventions should be evaluated if response to therapy is not favorable. In cases where the rash does not resolve within a few days or worsens, the appropriate measures should be taken to obtain needed specialized skin care interventions.

Diapering Considerations that Promote Physiological Health in Premature Infants

## Consideration: Musculoskeletal Conditions

- Prior to diapering, ensure that the infant does not have any musculoskeletal conditions that preclude lifting legs

## Consideration: Movement and Positioning

- Lift a premature infant off changing surface no higher than is necessary to slide a new diaper underneath
- For infants < 1000 grams, provide special care to ensure that infant positioning does not cause undue harm, because positional changes in these very immature infants can lead to undesirable blood volume shifts [6,63,64]

## Consideration: Diaper Fit

- Position that diaper so that the infant's hips are in natural alignment (avoid significant hip abduction)[17]
- Keep hips in natural alignment [6] by choosing diapers that are flexible and sufficiently thin between the legs
- Remember that opportunities for both flexion and extension are essential for eventual motor stabilization, and may decrease the incidence of musculoskeletal abnormalities [6,16,65]

## Consideration: Opportunity for Hands-on Care

- Take advantage of this hands-on care time to gently move the infant's joints within the parameters of the infant's tolerance or perform prescribed occupational and physical therapy with the infant.

# Comfort

## PAIN AND STRESS ASSESSMENT AND MANAGEMENT

## Background

According to the developmental care model, premature infants should be assessed for pain and/or stress during all procedures and caregiving activities.[4] Invasive procedures are frequently performed in the NICU, and these procedures often increase pain and stress levels in premature infants.[66,67] Furthermore, premature infants are already physically taxed from the transition to an extrauterine environment,[68,69] and this stress is compounded by the trauma of maternal separation.[70]

Beyond these significant stressors, studies show that even standard caretaking procedures like diapering and tub bathing can lead to increased pain and stress responses in premature infants. [71,76] Routine caregiving has been linked to physiological markers of stress in premature infants, such as major cerebral hemodynamic fluctuations.[6] In addition to immediate physical changes, stress in response to routine care is associated with parenchymal brain injury,[6] decreased frontal and parietal brain regions,[77] and altered brain microstructure and functional connectivity within the temporal lobes.[77] These very early brain changes have been correlated with negative long-term neurodevelopmental outcomes later in childhood.[6,78] According to the American Academy of Pediatrics, the possible long-term neurobehavioral outcomes related to repeated pain and stress exposures in the NICU include emotional, behavioral, and learning disabilities.[79]

While pain in premature infants is difficult to identify and distinguish from stress,[80] behavioral and physiological indicators of pain can be used for pain assessment and management. [81,82] Behavioral indicators of pain include facial expressions, body movements, and crying; physiological indicators of pain include changes in heart rate, respiratory rate, blood pressure, and oxygen saturation.[81] In response to pain, premature infants may display a reflex withdrawal and specific patterns of torso and limb activity to varying degrees.[82] Behaviors associated with pain, such as crying, grimacing, posturing, sweating, and restlessness, may also accompany non-painful but still stressful caregiving procedures for low birth weight infants. [83]

## Diapering Interventions that Decrease Pain and Stress in Premature Infants

A variety of non-pharmacologic interventions have been shown to effectively alleviate pain and stress in premature infants. [10,13,84,85] Developmental care measures that have been associated with improved comfort in premature infants during diapering, specifically, are listed in **Table 2 (Developmental Care Measures Associated with Decreased Distress During Diapering of Premature Infants).**

Outside of the act of diapering, there is extensive evidence backing the use of containment, postural support, and non-nutritive sucking during potentially stressful situations in the NICU.[2,73,89] These measures have been shown to help mitigate pain and stress by assisting premature infants with self-regulation.[2,73] Nurses and other healthcare professionals can model these interventions for parents, and also demonstrate other developmental care practices that have not been studied specifically with diapering (eg, safe swaddling with a blanket and skin-to-skin contact). In fact, the National Association of Neonatal Nurses (NANN) considers parental involvement in pain management a best practice strategy in the NICU,[90] and parental involvement in pain management has been associated with increased parental satisfaction in caring for their infant.[91]

**Table 2.** Developmental Care Measures Associated with Decreased Distress During Diapering of Premature Infants

| Developmental Care Measure | Description of Care Measure |
|---|---|
| **Grasping** [80] | Caregiver provision of a finger or hand for the infant to hold |
| **Support for State Transition** [80] | Caregiver support of infant with deep sensory input to provide a reference point for any movement; movement should be slow. [23] |
| **Motor Support by Hand Swaddling or "Facilitated Tucking"** [80] | Caregiver holding infant extremities flexed and contained close to the infant's trunk. [86,87] |
| **Postural Support** | Diaper change with infant in a slightly flexed, side-lying position with limbs directed to the midline and set in a 'nest' (made earlier with rolled up blankets to provide support all around infant's head, back, limbs, feet) [71] |
| **Others** | |
| **Non-Nutritive Sucking** [80] | Infant's own hands or fingers or a pacifier provide soothing for infant by reducing the infant's state of arousal and duration of crying [88] |

# Champion Sleep

PROTECTED SLEEP

## Background

According to the developmental care model, all non-emergent caregiving, such as diapering, should be provided during wakeful states.[4] Furthermore, as stated in the NANN guidelines on appropriate care of the premature and critically ill hospitalized infant, the core measures for protected sleep include: the assessment of sleep-wake states, supporting sleep throughout the hospital stay, and educating families about sleep safety in the hospital and at home.[92] Sleep should be promoted and protected to the extent possible because it plays a critical role in cognitive, psychomotor, and temperament development.[93,94] Vital to physical and neurosensory system development, [95] adequate sleep during the neonatal period is connected with linear growth and increased weight gain, as well as an increase in growth hormone (GH). [23,96,97] Extensive sleep during the infant period is required for structural development of the hippocampus, pons, brainstem, and midbrain. [98] During infancy, sleep facilitates synaptogenesis, memory, and learning. [99,100,101,102] Sleep also is directly linked with immune function enhancement and a reduction of stress hormones through modulation of the hypothalamic-pituitary-adrenal axis (HPA).[96,103]

Beyond sleep, regulation of sleep in infants is a prerequisite for cortical development and subsequent higher order executive functioning. [104] Neonatal sleep organization is necessary for optimal neuromaturation and cognitive integrity.[23] Based on research associated with optimal sleep, experts suggest that premature and other highly vulnerable infants who experience sleep deprivation may be at risk for compromised growth, emotion regulation, language, learning, and executive functioning. [23,105]

## Diapering Interventions That Promote Sleep in Premature Infants

**The Huggies® Nursing Advisory Council recommendations for supporting sleep through diapering in the premature infant fall into 3 main areas:** 1) careful observation of the infant; 2) physical and environmental modifications; and 3) appropriate diapering interactivities.

**Careful Observation of the Infant:** Before diapering, and in an effort to prevent or at least minimize sleep fragmentation and deprivation, healthcare professionals and other caregivers can assess a premature

infant's sleep-wake state using tools such as the Assessment of Preterm Infants' Behavior (APIB). [106]

**Physical and Environmental Modifications:** Healthcare professionals and other caregivers also can help prevent unneeded awakenings by selecting diapers with superior absorption and leakage protection, which are designed to keep the diaper area and adjacent skin dry. Diapers with wetness indicators can help caregivers avoid waking a sleeping infant if their diaper is dry during routine checks. Additionally, the premature infant's environment should be modified to facilitate the sleep-wake cycle. Healthcare professionals, parents, and other caregivers may want to cluster care activities to avoid disruption of sleep, use cycled lighting, [107] maintain sound levels conducive to sleep,[4] and use quiet alarms.

**Appropriate Diapering Interactivities:** Before, during, or after diapering, nurturing tactile therapy can be used to decrease neurochemical and hormonal markers of stress and help foster relaxation and sleep.[108] Incorporation of gentle healing touch and Kangaroo care (skin-to-skin holding of the infant against the caregiver's chest), have been demonstrated to improve sleep in premature infants. [108-116] Like touch therapies, music therapy, singing, and biological maternal sounds (eg, maternal voice and heartbeat) are shown to improve sleep quality in premature infants.[11,14] The Huggies® Nursing Advisory Council suggests that when appropriate and practical, these sleep-promoting interventions be combined with diapering, to improve infant sleep quality and sleep regulation.

# Confidence & Closeness

## FAMILY-INTEGRATED CARE

## Background

The developmental care model focuses on healthcare professionals' commitment to protecting and preserving the integrity of the family, ensuring optimal infant-parent attachment, and assisting with parental role development to promote short-term and long-term family integrity.[23] Currently, there is a strong emphasis on the fundamental and critical role of family—especially parents—in caregiving in the NICU.[20,21] When parents are provided with opportunities to connect with their infant, the parents themselves experience physiological and behavioral benefits, such as early bonding, increased confidence in parenting skills, and a sense of control.[21]

This physical and emotional closeness with a parent in the NICU can also have positive and long-lasting physical, psychosocial, cognitive, and neurobehavioral effects on the infant's development. [20,117-120]

Increasing evidence in both humans and animals suggests that brain development may be influenced by infant-parent bonding and parent empowerment.[119] The quality of infant-parent attachment is a powerful predictor of an infant's later social and emotional well-being. Longitudinal studies show that infants who have a "loving" primary caregiver and who develop "organized"—meaning predictable, in a positive sense—and "secure" attachment to that caregiver are better protected against social and emotional maladjustment. [121]

## Interventions that Support Family-Integrated Care in Premature Infants

The diaper change is an excellent opportunity for healthcare professionals to integrate and involve families in premature infant care within the potentially overwhelming environment of the NICU. Healthcare professionals should, when possible, reserve intentional care measures for families to implement with their

infant.[21] During diaper changes, NICU nurses can aid parents in their new roles as "confident caregivers" by coaching them on the use of developmentally supportive measures, such as Kangaroo care.[109,115] Integration of Kangaroo care into a diapering routine may include parent-infant skin-to-skin time following each diaper change.

# Full-Term Infants

## INTERVENTIONS TO SUPPORT DEVELOPMENTAL DIAPERING CARE

## Background

The developmental care model was designed for the hospitalized and premature infant.[3,4] An equivalent of the developmental care model that comprehensively addresses the psychological, neurobiological, and psychological care of full-term and well infants was not located in the peer-reviewed literature. Information related to the development- and age-specific care of this population across the 5 domains addressed by the developmental care model was quite limited, as this has not been studied extensively in the full-term infant. However, The Huggies® Nursing Advisory Council believes that many developmental care measures intended to reinforce healing in the NICU also are useful in promoting a healthy diapering environment for full-term and well infants. Based on decades of collective experience in caring for, studying, and teaching about full-term and well infants, the Council formulated the following recommendations on developmental diapering.

### Diapering Interventions to Support an Optimal Environment for Full-term Infants

It is the Council's view that several environmental and behavioral modifications that support an optimal environment for premature infants can be modified to foster a healthy environment for full-term infants. Like infants initially cared for in the NICU, full-term infants require a safe, hygienic diapering environment and one that fosters an atmosphere of bonding and emotional connection between the infant and the family.

During the diaper change, caregivers who care for full-term infants should be encouraged to provide a variety of appropriate stimulation in the form of sensory experiences, including visual, tactile, and auditory. Careful attention to family-integrated care also is essential to comprehensive, intentional diapering in this population.

## Diapering Interventions that Prevent Skin Irritation and Promote Skin Health in Full-term Infants

To ensure safety when transferring a full-term infant to or from the diapering area, movements should be slow and deliberate. The infant should be supported with deep sensory input to provide a reference point for any movement.[23] One hand should remain on the infant at all times to prevent rolling.

Although there are conflicting data on the use of barrier creams in premature infants, it is well established that barrier creams protect full-term infant skin from contact with moisture and irritants, and that a barrier cream should be applied thickly at each diaper change for the prevention and treatment of mild-to-moderate diaper dermatitis. [51,53,122] During a diaper change, all stool should be completely removed and any barrier cream that comes off during this process should be reapplied.[123] As long as stool is removed, complete removal of the barrier cream or ointment is not necessary during the diaper change since this has the potential to disrupt skin healing.[53,123]

Caregivers also should consider diaper-free time for full-term infants since this decreases the duration skin is occluded, thereby helping to reduce skin wetness and friction.[46,47] In addition, breastfeeding has been reported to help prevent diaper dermatitis, possibly due to the lower irritation potential of the feces of exclusively breastfed infants, which has a significantly lower pH, lower urease levels, and lower protease and lipase activity than the feces of formula-fed infants.

## Diapering Interventions that Decrease Pain and Stress in Full-Term Infants

Like premature infants, full-term infants can experience increased pain and/or stress in response to a standard diaper change.[75] Many of the same measures shown to decrease pain and stress in premature infants are also used for pain prevention and reduction in full-term infants, including Kangaroo care and non-nutritive sucking.[125]

## Diapering Interventions that Promote Sleep in Full-term Infants

Many of the environmental modifications and diapering interactivities that promote sleep in premature infants also can encourage sleep in full-term infants. The Huggies® Nursing Advisory Council hopes that caregivers can help minimize sleep disturbances by taking lighting, noise, safety, and other possible environmental distractions into consideration during diapering at night and around sleep times. In addition, use of tools such as the Brazelton Neonatal Behavioral Assessment Scale (BNBAS) may aid in assessing the full-term infant's sleep-wake state. [125] As with premature infants, diapers that minimize leakage, maximize dryness, and alert the caregiver when the infant is wet are an additional tool that can help promote undisturbed sleep.

Based on their collective experience, the Council recommends incorporation of various forms of gentle therapeutic touch (eg, skin-to-skin contact, age-appropriate massage), music therapy, and parent singing to improve full-term ability to maintain healthy sleep-wake cycles.[99,126] These comforting interactions with the infant can be integral to a healthy diapering routine that promotes optimal sleep quality.

## Interventions to Support Family Integrated Care in Full-term Infants

While nurses and other healthcare professionals have significantly less time to interact with full-term infants and their families during their shorter hospital stays, the Council believes that lessons gleaned from family-integrated care for premature infants may be applied to full-term infant families. During diapering, nurses and other healthcare professionals can model behaviors that new caregivers may use to help establish responsive and nurturing relationships with their infants. Nurses may model gentle handling of the infant, discuss frequency of diaper changes, and share tips for a successful diaper change, including educational information such as the "ABCDE" (air, barrier, cleansing, diapering, and education) approach to preventing and treating diaper dermatitis. [127] Healthcare professionals, parents, and other important caregivers such as extended family members should take advantage of the diaper change as a regular opportunity to connect with the infant through talk, singing, sharing facial expressions, and therapeutic touch.[4]

## Conclusion

The Huggies® National Advisory Council advocates conscientious integration of the 5 areas of focus in the developmental care model into diapering care for premature and full-term infants, whenever possible and practical. Referred to as the "Alliterative Cs" ("Calm and Clean," "Change and Check, "Comfort," "Champion Sleep," and "Confidence and Closeness") in the Guide to Developmental Diapering Care, each area of developmental care is designed to identify—and then appropriately and compassionately respond to—the neurobiological needs of infants. Incorporation of developmental care measures into diapering can change the lens through which caregivers view diapering and other routine cares. By providing healthcare professionals, parents, and other caregivers with a greater appreciation for the multitude of ways in which diapering routines can affect infant development, the Council seeks to shift attitudes and approaches toward diapering: transforming the perception that diapering is a rote task into an appreciation of the significant opportunity diapering provides for nurturing, connecting, and fostering optimal growth and development of infants.

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Date prepared: 10/06/2016