



## **Developmental Care Guidelines for Use in the Newborn Intensive Care Unit (NICU)**

Heidelise Als, PhD and Gloria McAnulty, PhD, 1998, 2000  
©NIDCAP Federation International, 2015  
NIDCAP<sup>®</sup> is a registered trademark of the NFI, Inc.

The Developmental Care Guidelines for Use in the Newborn Intensive Care Unit (NICU) were developed in support of caregiving staff at the bedside. They are intended to support and train the caregiver in strengthening self-awareness in interaction with each infant and family. The Guidelines are derived from the literature<sup>1-3</sup> and address two areas of caregiving which are under the direction of the individual caregiver at the bedside, namely the organization of the immediate physical environment of the infant's bed space and bedding; and the organization of care involving the caregiver's interaction with infant and family. The guidelines are modeled in their detail on the Profile of the Nursery Environment and of Care Components (OSA).<sup>2</sup>

The Developmental Care Guidelines for Use in the Newborn Intensive Care Unit (NICU) are based on general principles for infant care which recognize the importance of emotional development in infancy and its significance for the physical well-being and growth of the child as well as for the child's cognitive, motor and social affective interactive development.<sup>4-13</sup> Characteristics common to appropriate infant care include the reliable experience of being known, cherished and loved; the reliable experience of emotional intimacy, comfort, and closeness; and the reliable experience of joy and a sense of effectance. Safeguarding and assuring these experiences requires consistent trustworthiness of emotionally available, familiar, and affectively invested caregivers, who are few enough in number so that the infant may develop familiarity with them and therewith trust. This is foremost the role of the parents. Therefore the parent infant relationship is an essential priority. Parents are an infant's most important lifelong nurturers and the appropriate care requires predictability and supportive timing and quality of all events and circumstances experienced by the infant. It requires safeguarding a predictable rhythm for each day; safeguarding a quiet, calm, physically and affectively warm and soothing environment; reliability in assuring consistently supportive positions and comfortable and soothing bedding; calmness in timing and delivery of all caregiving events; nurturing and satisfying feeding; protection and assurance of restful sleep; and assurance of supportive and collaborative implementation of all hygiene care and medical procedures. The infant's sense of self, initiative and sense of competence, as well as the opportunity to experience pleasure and joy is developmentally essential.

Complexity, timing, duration and intensity of all aspects of care need to be specifically guided by each infant's individual and changing thresholds from well organized to poorly organized functioning. Well organized functioning refers to the balanced modulation and mutually supportive regulation of autonomic, motoric and state organizational functioning. Poorly organized functioning refers to the transgression of thresholds from smooth and balanced to disorganized functioning in either one or all of the behaviorally observable systems. Supportive organization of care requires the caregiver's understanding of the infant's thresholds and of the progression of development towards increasingly well-differentiated and well-modulated robust neurodevelopmental organization in the context of continued transaction with the environment. Supportive organization of care furthermore requires the caregiver's skill in ongoing interpretation of the infant's neuro-organizational thresholds and neurodevelopmental goals while simultaneously engaging in interaction with the infant. Foremost it requires the caregiver's self-awareness and reflection while in action, the caregiver's openness to each individual infant and family as well as the caregiver's supportive and affectively engaged availability and emotional presence for infant and family.<sup>13,14</sup> The parent looks to and depends on the professional caregivers to be the parents' and infant's best advocate and champion. The unconditional emotional allegiance to the parent in support of their best infant's care fosters the parents' confidence, competence and trust, which are key to developmental care.

*References*

1. Becker PT, Grunwald PC, Moorman J, Stuhr S. Effects of developmental care on behavioral organization in very-low-birth-weight infants. *Nurs Res* 1993; 42:214-20.
2. Als H, Buehler D, Kerr D, Feinberg E, Gilkerson L. Profile of the nursery environment and of care components. Template Manual, Part I. Photocopy; Boston: Children's Hospital. 1990, 1995. Rev. 1997.
3. Als H. Reading the premature infant. In: Goldson E, ed. *Nurturing the Premature Infant: Developmental Interventions in the Neonatal Intensive Care Nursery*. New York: Oxford University Press, 1999.
4. Spitz RM. Hospitalism: An inquiry into the genesis of psychiatric conditions in early childhood. *Psychoanal Study Child* 1945; 1:53-74.
5. Spitz R. Hospitalism: A follow-up report. *Psychoanal Study Child* 1946; 2:113-7.
6. Harlow H, Zimmerman R, Producers. Nature and Development of Affection. Philadelphia: Penn State Audiovisual Services, 1959.
7. Harlow HF, Harlow MK. Effects of various mother-infant relationships on Rhesus monkey behaviors. In: Foss B, ed. *The Determinants of Infant Behavior IV*. London: Methuen, 1969.
8. Harlow C. From Learning to Love: The Selected Papers of H.F. Harlow. New York: Praeger, 1986.
9. Bowlby J. Attachment. New York: Basic Books, Inc., 1969.
10. Bowlby J. Attachment and Loss: Retrospect and Prospect. *Am J Orthopsychiatry* 1982; 52:664-78.
11. Brazelton T, Cramer B. The Earliest Relationship: Parents, Infants, and the Drama of Early Attachment. New York: Addison-Wesley, 1990.
12. Stern DN. The Interpersonal World of the Infant. A View from Psychoanalysis and Developmental Psychology. New York: Basic Books, 1985.
13. Gilkerson L, Als H. Role of reflective process in the implementation of developmentally supportive care in the newborn intensive care unit. *Infants and Young Children* 1995; 7:20-8.
14. Als H, Gilkerson L. The role of relationship-based developmentally supportive newborn intensive care in strengthening outcome of preterm infants. *Semin Perinatol* 1997; 21:178-89.

## DEVELOPMENTAL CARE GUIDELINES FOR USE IN THE NICU

### A. Infant's Bedspace and Bedding

- **Design of Bedspace**

Arrange all equipment aesthetically and assure ready access to the infant at all times. Make available two comfortable chairs, at least one of which is a reclining chair, with bedding for kangaroo care, extended naps and overnight stays of the parent. Invite and encourage the family to personalize and decorate their infant's bedspace with items brought from home (incubator cover, photos, stuffed animals, etc.) Make drawer or shelf space available for the family's personal belongings.

- **Light**

Assure darkness for the infant during sleep and maintain low, muted light levels at all other times in order to support alertness. Make sure that all lighting that falls on the infant's face is indirect. Make use of window shades and screens as indicated. In caring for an infant who requires phototherapy and protective eye patches, be sure to first turn off the therapy light, gently speak to the infant and introduce your hands to the infant, cradling them around the infant softly until you feel the infant's body tone relax. Gently remove the eye patches and help the infant recover from the intense light exposure. Only then begin the formal caregiving interaction. After your caregiving interaction, and once you have helped the infant be restful again, gently replace the eye patches, help the infant settle, turn the light back on and stay with the infant until the infant has settled under the light. Be aware of the high amount of energy that is required from the infant when exposed to intense light. Consider exploring appropriate ways for the infant to be held by the parent, while receiving phototherapy. Shield other bedsides from the phototherapy light used.

- **Sound**

Speak with a soft voice at all times and walk softly. Wear quiet shoes only. Move softly and gently. Always close incubator portholes and cupboard doors gently and quietly; move all equipment quietly. Encourage staff to speak softly. Remove all radios from the area. Set monitors and telephones to the lowest settings and softest rings. Be sure that rounds occur away from the bedside. Maintain a peaceful and quiet care area for the infant. Think of it as the bedroom of a very sensitive infant.

- **Activity Level**

Maintain a very calm, quiet, and soothing atmosphere at all times. Handle emergency situations in a calm and quiet manner. Help others involved in the infant's care feel calm and welcome in the infant care area. Be helpful to them in their respective roles in caring for the infant. Assist them by helping the infant stay calm and restful in the course of needed procedures and interventions. Move all staff interactions away from the bedside unless they are directly relevant to the infant.

- **Visual Array Inside or Near the Incubator and Crib**

Choose with care the objects which are in the infant's visual field in or near the incubator and crib. Ask yourself whether they are soothing or arousing. Familiarity with a soothing object makes it comforting over time. Save stimulating toys and pictures with contrasts and bright colors for the time when the infant will be strong enough to enjoy them. Your and the parents' soft familiar faces are often what the infant values most. Always maintain a gentle warm facial expression. Stay with the infant for assurance when others interact with the infant who is

not familiar to the infant. Always introduce a new visual stimulus gradually and only when the infant is ready for it. Soften and remove animating visual stimuli from the infant's visual field when the infant becomes drowsy, hyper alert, upset, or averts the gaze. Disorganized eye movements, averted gaze, hyper alertness, and worried or panicked facial expressions are signs that the infant is over stimulated.

- **Olfactory Inputs**

Remove all noxious, and unfamiliar odors (e.g. perfume, hair spray, nicotine on your clothing) from the infant's immediate care area; provide a familial, comforting olfactory environment for the infant in the incubator or crib and when the infant is held by a caregiver. Invite the parents to provide a soft, small blanket, little pillow, silk cloth, or soft piece of clothing the mother or father have worn or held on their body. Have several of these available at all times so that the infant may count on them for comfort. The consistent familial olfactory environment of the parents' body is soothing and comforting and is reinforced when the parent cares for and holds the infant in skin-to-skin contact.

- **Bedding and Clothing**

Individualize bedding and clothing in keeping with the infant's preferences and needs. This may include providing a water pillow, sheepskin, boundaries, "nesting," clothing with soft one-piece suits appropriate for the infant's size, a soft hat, gentle swaddling, soft and small diapers and a soft, long "hugging pillow". Since the parent is the infant's most posturally supportive bed and affective nurturer, encourage extended periods of skin-to-skin contact for infant and parents. In order to help relax the parents' upper body, make sure the parents' legs are elevated and well supported. Encourage "rooming-in" at the bedside with the infant.

- **Specific Regulatory Supports**

Use regulatory supports consistently, including holding, bedding, foot rolls, and buntings. Gently cradle the infant in your hands and help the infant contain disorganized and agitated movements when the infant becomes aroused and upset. Gentle cradling also helps an infant when becoming exhausted and when losing body tone. During and between procedures, use your finger or a small pacifier and give the infant the opportunity to suck; do so also during gavage feedings. Offer the infant your finger to hold onto during manipulations. Encourage the parents to support their infant to feel soothed and comforted. Skin-to-skin holding during procedures and caregiving is especially assuring to the infant. When the parent is not in a position to be with the infant, encourage another familiar caregiver entrusted by the parent with the infant's care to be there in support of the infant.

- **Adjustment of Medical Equipment**

Adjust all medically necessary equipment that is in direct contact with the infant's body to provide maximum comfort for the infant. Assure comfortable adjustment of all breathing equipment including a large enough oxyhood that reaches to the infant's waist, in order to support the infant in bringing the hands up close to the face. Make sure that IV boards are small, softly padded and securely held in place. Use soft, skin-friendly eye patches, soft probe wrappings, and soft, small diapers. Avoid all Velcro, plastic and other rough materials.

## DEVELOPMENTAL CARE GUIDELINES FOR USE IN THE NICU

### B. Specific Aspects of Direct Infant Care

- **Approaching the Infant**

When you approach the infant's bedside always position yourself so that you may see the infant's face. The infant's facial expression will help you be aware of how the infant may be feeling, whether the infant is unsettled, or comfortable and restful. Ask yourself when the infant last saw you and felt the touch of your hands. Is the infant likely to recognize you as familiar, or should you introduce or reintroduce your hands and face slowly so the infant may realize that you are now with the infant and there to support the infant.

- **Positioning**

Consistently support and facilitate physiologically well-aligned positions whether the infant is on the back, tummy or side. Be aware of the infant's position during daily and specialized procedures, between interventions, when holding the infant and when bedding the infant on the parent, or in the incubator or crib. When moving the infant or changing the infant's position, always support the infant's arms and legs into soft, relaxed flexion. Place your hand softly around the back of the infant's head, reaching from behind, and cradling the infant's head gently in your hand; simultaneously align your arm alongside the infant's back and with your other arm support the infant along the front, helping the infant's head rest in midline, hands tucked up towards the face. Once the infant's whole body has settled into the secure cradling provided by the womb nest of your arms and hands, gently and slowly change the infant's position, and/or lift the infant up in this secure fashion. Before returning the infant to the bed or moving the infant onto the scale to be weighed or onto another surface always prepare the surface first. Cover it with soft padding and have a soft blanket or bunting ready and available to receive the infant. Always gently and slowly lower the infant onto the surface cradled in a securely enveloping fashion. Make sure that the infant's head stays well aligned at all times with respect to the infant's spine. Once the infant is securely lowered onto the surface, first maintain your arms and hands securely cradled around the infant as you gently swaddle the infant in the blanket or bunting you have prepared in advance. Support the infant with gentle swaddling when you move the infant, especially when you weigh the infant. Once the infant has settled into the blanket or bunting in the nest of your cradling arms, very gradually remove your hands and arms one at a time; assure yourself of the infant's continued restfulness as you very gradually decrease your direct support. Continue to assure yourself of the infant's restfulness once you no longer physically support the infant with your hands and arms. Whenever the infant begins to stir and become unsettled gently support the infant again so that the infant may be restful or sleep peacefully.

- **Feeding**

From early on time the infant's feeding to be supportive of the infant's sleep and wake cycles so that the infant may learn to recognize feelings of hunger and satiation. Support the parent to breastfeed the infant. Should the infant not yet be strong enough to nurse on the mother's breast, support the mother to pump her breast. Make arrangements so that she may comfortably do so at her infant's bedside. This may help lessen the stress of pumping, assure her of its value, and make her feel close to her infant. Create a nurturant feeding environment, which is calm, warm,

and muted in lighting. Throughout any gavage feeding hold the infant in a well-supported and comfortable position. Securely snuggle the infant against your chest. Be sure that the infant's hands are free to grasp onto you as you help the infant bring the hands close to the mouth. Offer your finger or pacifier to the infant to suck on while you gavage feed the infant. Control appropriately the flow of the milk to be slow enough for the infant's comfort. As indicated, provide rests during the feeding. Whenever possible bed the infant on the parent's chest in skin-to-skin contact to nuzzle against the parent's chest and breast for all gavage feedings. Continue to support the infant after feeding, in order to assure comfortable return to sleep. Encourage the parent from the beginning in their role as the infant's most important nurturer and provider of nutrition.

- **Burping**

Facilitate burping by gently positioning the infant against your chest or shoulder in response to the infant's cues. Move softly and slowly; relaxation is the goal. Should the infant continue to appear uncomfortable while cradled upright against you, move your body slowly in an up and down motion in the rhythm of gentle walking. This will likely promote a burp. Continue to hold the infant in an upright position snuggled against you after a burp before gradually moving the infant into a feeding or resting position.

- **Diaper Changing and Skin Care**

Make all arrangements needed and gather all necessary supplies for diaper changes and skin care in advance of approaching the infant. Be sure the room is warm. Be mindful of the infant's state and position. Begin the care procedures once the infant is bedded comfortably in flexion, best lying on the side. Gently contain and support the infant. Use materials that are soft, comfortable and appropriate in size, texture, and shape. To clean the infant, keep the infant's ankles close to the bedding and gently lift the infant's upper leg slightly while keeping both legs tucked. Avoid changing the infant's diaper in supine and lifting the infant's legs by the ankles off the bed; this suddenly alters blood flow to the infant's head, and makes breathing difficult. Encourage and assist the parent to become skilled in changing the infant's diaper and providing skin care in a gentle and containing manner.

- **Bathing**

Assure that the infant is restful and has enough energy to be bathed. Assure that the care space is calm, soothingly lighted, and warm. Cradle the infant gently in your hands and use a blanket for containment. As indicated by the infant's movements, a hooded bathing blanket may be helpful to wrap the infant in as the infant is lowered into the bathtub. Be sure the bath water is warm and deep enough for immersion as soon as the infant is stable enough for full bathing. Use a specialized bathtub at the bedside in order to decrease unnecessary movement and temperature fluctuation from the warm incubator or crib into the bath water and back. After bathing continue to hold the infant supportively to make sure the infant is comfortable and restful. Determine the frequency and timing of bathing by the infant's level of energy and the infant's sleep, wake and feeding cycles in order to enhance restfulness and effective digestion.

## DEVELOPMENTAL CARE GUIDELINES FOR USE IN THE NICU

### B. Specific Aspects of Direct Infant Care (cont.)

- **Timing and Sequencing of Caregiving Interactions**

When timing caregiving, consider the infant's sleep-wake cycle, the infant's energy for feeding and for quiet-awake periods. When possible consider these also when timing interventions by specialists and consultants, such as ophthalmology, neurology, ultrasound, X-ray, etc. Support the specialists and consultants in assuring the infant's comfort before, during and after such interventions.

- **Transition Facilitation During Procedures**

Position the infant supportively and help the infant be restful during all care procedures including IV line placements, blood drawing, etc. Provide the infant with calm, gentle containment and comfort during all procedures. Continue support afterwards in order to ensure the infant's return to restful calmness. Plan and make use of assistance from a second caregiver as needed in order to assure effective facilitation for the infant. Include the parent as the infant's most nurturing comforter.

- **Comforting and Caregiving**

Whenever the infant appears to be uncomfortable, i.e. the infant squirms or fusses, respond promptly and reliably. Always comfort an upset or crying infant. Stay emotionally available

and attentive to the infant's feelings so that you may be attuned to the ways the infant is experiencing the care and environment that you provide for the infant. Earn and warrant the trust the infant and parent place in you, their caregiver during this vulnerable time in the NICU.

- **Organization of Alertness**

Be aware at all times that you are the infant's regulator and supporter. When the infant awakens look at the infant gently with a soft facial expression; always speak slowly with a very soft voice. At times the infant may enjoy your soft singing or humming. When the infant looks at you with shiny focused eyes and softly animated face, this usually indicates enjoyment of the interaction. Gently return the infant's gaze. The infant's averted eyes, discoordinated eye movements, strained facial expressions, wide-eyedness, paling, coughing, yawning, sneezing or gradually draining face usually signal that the infant is exhausted or over stimulated. Always respect these signals by quietly holding the infant against you to remove all stimuli; always assure that the infant feels restful, supported and nurtured at all times.

Special Notes for the Care of \_\_\_\_\_  
Infant's Name

Please date and sign each entry. Use additional pages as needed.