
Developmental Care for Infants < 29 Weeks

Jenni Liu

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Learning Objectives

1. Review the policy on developmental care practices for extremely premature infants (< 29 weeks)
2. Gain insight into current research regarding developmental care

Family



- Involvement in cares
- Participate in daily bedside rounds
- Journaling
- Bonding (talk, positive touch, hand swaddling, S2S)

Current Research

- Secondary analysis in Nationwide Children's Hospital
 - Impact of human interaction time on dysregulation of emotion and social behavior (Brief Infant-Toddler Social and Emotional Assessment) at 2 yrs old
 - More human interaction time decreased dysregulation of emotion and improved social behavior at 2 yrs old

Head Positioning

- Avoid excessive left or right sided head positioning
 - May occlude jugular veins while increase intracranial pressure and cerebral vascular blood volume
 - Q2 to Q4 repositioning after 2 weeks to avoid cranial molding
- HOB flat for first 2 weeks

Positioning

- Use Z-flo and Dandelion positioners
- **Goals:**
 - Shoulders softly rounded
 - Hands touching face
 - Hips, knees, ankles, and feet aligned and softly flexed
 - Head midline to $< 45^\circ$
 - Neck neutral
 - Head slightly flexed forward



Current Research

- Positioning may not affect IVH
- Retrospective cohort study in level IV NICU in Seattle
 - Midline-elevated positioning increased IVH but not statistically significant
 - Pre-intervention 24.9% of developing IVH vs post-intervention 29.2%
- Retrospective cohort study in level II and IV NICU in Midwest
 - Midline positioning increased chance of developing severe IVH

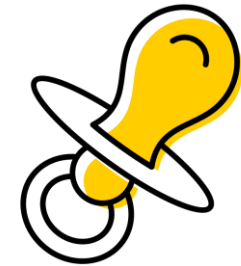
Current Research

- RCT in Children's Hospital in Virginia
 - Elevated head positioning developed fewer grade IV IVH and greater percentage of survival to discharge
 - Flat 76% survival to discharge vs elevated 88%
- Pre-post study in level III NICU in Calgary
 - Midline head positioning improved many outcomes by > 50% (opioid use, extubating success, hypercapnia or hypocapnia, and pneumothorax)

Holding

- Horizontal hold after 1 week to prevent IVH
- S2S after 2 weeks when S2S color green or yellow
 - Green: stable and eligible
 - PICC line or PIV
 - Nasal/RAM/high-flow cannula or conventional/jet ventilator
 - Baseline apnea or bradycardic spells
 - Yellow: discuss with providers
 - UVC
 - Phototherapy
 - aEEG and EEG
 - Postoperative
 - New onset or significant apnea, bradycardia, or desaturation spells
 - Stable medication drips (morphine, milrinone, prostaglandins)

Feeding

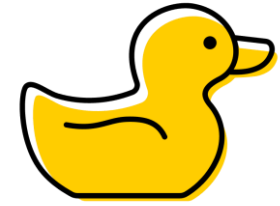


- Non-nutritive suck
- Pre-wee or Preemie pacifier size
- Colostrum for oral cares
- Sucrose if ≥ 28 wks
 - Max 4 drops for procedure and max 12 drops/hour

Current Research

- RCT in Shiraz University of Medical Sciences
 - Comparing sucrose, kangaroo care, and no interventions on vital signs and pain
 - Sucrose decreased breathing rate and pain
 - Breathing rate 47.37 with sucrose, 52.82 with kangaroo care, 51.27 with no interventions
 - Pain 1.68 with sucrose, 3.50 with kangaroo care, 3.36 with no interventions
- Review of 74 RCTs
 - Comparing sucrose and no intervention for procedural pain
 - Sucrose decreased procedural pain from single events
 - Research needed on long-term (neurodevelopmental) outcomes

Bathing



- Bathe after 2 weeks with only warm water and no soap
- No specification on what type of bath

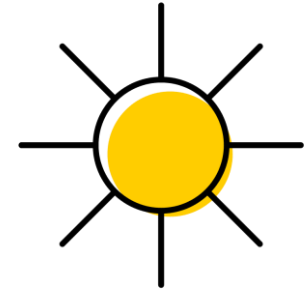
Current Research

- Systemic review and meta-analysis of RCT
 - Comparing sponge, conventional tub, and swaddle bathes on vital signs, crying time, stress and pain levels
 - Swaddle stabilized vital signs and decreased crying time and stress and pain levels
- Review of 45 articles and 4 safety agency repots
 - Recommend swaddle bath with limited use of mild, neutral pH cleansers
 - Avoid daily bathing

Activity

- Support movement of upper and lower extremities
- Promote rest and sleep
- Cluster cares as tolerated

Environment



- Caregiver voice based on cues
- Lighting lux < 10 (darkness)
 - Use eye covers around bright lights
 - Cover isolette with blanket to protect developing eyes

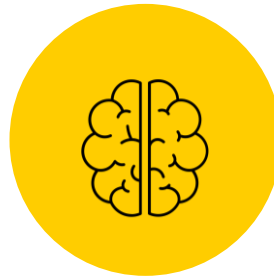
Current Research

- RCT in Brigham and Women's Hospital
 - Maternal sound exposure (speaking, reading, or speaking) on heart rate
 - Exposure decreased heart rate
 - Heart rate 158.9 with exposure vs 16.29 with no exposure
- RCT in Duke University Hospital
 - Comparing timing of cycled light (ECL and LCL)
 - 11 hours of daylight and 11 hours of near darkness
 - Weight increased over time but not statistically significant
 - Shorter length of stay with ECL but not statistically significant

Conclusion



**Interdisciplinary
collaboration**



**When in doubt
use your nursing
judgement**



**Further research is
needed!**

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Questions?

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References

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Thank you!

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