Developmental Care in North American Pediatric Cardiac Intensive Care Units: Survey of Current Practices

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I have no relevant financial relationships to disclose.

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This presentation will define developmental care, discuss a survey of current developmental care practices in Cardiac Intensive Care Units (CICUs) across the country, and identify areas of opportunity to improve care in the CICU.
**Challenge**

- Medical and surgical advancements have dramatically decreased mortality rates for infants with congenital heart disease (CHD).
- Increase in morbidity, including developmental delay and disability for children with CHD.

**Challenge**

- Infants with complex forms of CHD continue to present significant challenges to their parents and caregivers in the pediatric cardiac intensive care unit (CICU).
- Length of hospital stay is a robust predictor of neurodevelopmental (ND) outcomes for infants with CHD.
- Importance of early hospital experiences for later functioning.

**Developmental Care**

- Broad category of interventions
- Brain care
- Neuroprotective care
- Evidence Based
- Designed to maximize neurological development

**Developmental Care in the NICU**

- Improve ND and psychosocial outcomes
- Best practice for preterm infants.
- Enhanced brain structure and function
- Shorter hospital stays
- Better weight gain
- Improved behavioral outcomes into school age
Goals of Developmental Care

» Infant
  » reduce stress
  » conserve energy and enhance recovery
  » gain behavioral organization
  » promote growth and well being
  » support emerging behaviors at each stage of neurodevelopmental maturation

» Family
  » encourage and support primary caregiver
  » enhance family emotional and social wellbeing

Developmental Care Interventions

» Optimal handling and positioning measures
» Reduction of noxious environmental stimuli
» Cue based care
» Clustering of care
» Protection of sleep rhythms
» Supports during stressful or painful procedures
» Parental involvement

Current Study

Aim: Describe current developmental care practices and barriers in North American pediatric CICUs in order to provide future directional recommendations necessary to promote developmental care in the CICU.

Hypothesis: Most CICUs implement some forms of developmental care but there are significant barriers and opportunities for change in this critical care setting.

Measures

» Survey on developmental care practices
» Sent to all dedicated CICUs in the US
» 47 Items
» ~20 minutes to complete
» Responses: Yes, No, Sometimes and open ended
Measures

- Survey domains to address developmental care in the CICU
  - developmental education/rounding
  - environmental adaptations
  - basic infant care
  - infant holding
  - preschool and school-age children

Sample characteristics: CICU size

Survey responses

- Developmental Education and Rounding
  - Yes
  - No
- Developmental Care Efforts Dedicated task force Developmental rounds
- Developmental Rounding Participants
  - Yes
  - No
Developmental Education & Rounding

Best Practices
- Developmental education for nurses
- One-on-one guided practice for nurses

Barriers/Challenges
- Limited funding
- Lack of resources
- Critical nature of illness, too sick for DC

Environmental Adaptations

Best Practices
- Quiet time/no touch
- Lights out time

Barriers/Challenges
- Open bay rooms, do not provide darkness
- Overhead paging is a standard practice
- Unit is very loud

Survey responses

Environmental Adaptations

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Implementation of Developmentally Based Infant Care

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Clustered care
- Support for infant self-soothing
- Support families to soothe infant during difficult procedures
- Physiologically aligned positioning during treatment
- Positioning aides used
- Medical orders required for use of positioning aides
Implementation of Care

Best Practices
» Sweet Ease, pacifier, bundling, child life, music
» Parents remain at bedside during procedures
» Parent holding
» Clustered care

Barriers/Challenges
» Clustered care not regulated
» Some patients, clustering contraindicated

Survey responses

Infant Holding

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<tr>
<td>Critical airway ECMO/VAD</td>
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<td>16</td>
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Survey Discussion and Conclusions

» Strengths and challenges noted in CICU developmental care
» Areas of strength included:
  » Targeted efforts to promote developmental care
  » Adjustments to light
  » Attempts to cluster care
  » Attempts to facilitate self-regulation
  » Support for physically well-aligned positioning
  » Inconsistent practice

Holding

Best Practices
» Line securement devices
» Team education
» “Airway guardian”
» Encourage parents to be at bedside

Barriers/Challenges
» Inconsistent practices
» Depends on patient stability
Survey Discussion and Conclusions

» Areas of opportunity for change:
  » formal policies and additional education
  » allocation of resources
  » formal developmental task force and developmental rounds
  » increased physician involvement
  » increased parental support

» Limitations
  » exclusively North American and pediatric CICU
  » 80% of identified pediatric CICUs responded
  » specific role of survey respondents unknown