

Age-Appropriate Care of the Premature and Critically Ill Hospitalized Infant

Guideline for Practice

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Abstract

The provision of patient-centered care is a universally acknowledged practice expectation in the delivery of high-quality health care. The five primary drivers of an exceptional inpatient experience for patients and families include commitment of leadership, engagement of the hearts and minds of staff, respectful partnerships, reliable care, and evidence-based care. These drivers are embodied in the five core measures for age-appropriate care (also known as developmental care): protected sleep, pain and stress assessment and management, attention to age-appropriate activities of daily living, family-centered care, and the healing environment. Linking age-appropriate care practices with the Joint Commission's standards and elements of performance related to effective communication, cultural competence, and patient-centered care legitimizes and mandates this practice model and provides a framework for the consistent and reliable delivery of age-appropriate care.²

Focus

This guideline focuses on the care of all premature and critically ill hospitalized newborns, regardless of their specific disease.

Developers

The developer of this guideline is Mary E. Coughlin, MS APN, of Caring Essentials Collaborative, Inc. The guideline is based on earlier work done in partnership with Sharyn Gibbins, PhD RN, and Steven B. Hoath, MD. None of the contributors has a conflict of interest.

Funding Source or Sponsor

National Association of Neonatal Nurses (NANN)

External Reviewers

Sharyn Gibbins, PhD RN, Credit Valley Hospital, Mississauga, ON, Canada Steven B. Hoath, MD, Cincinnati Children's Hospital Medical Center, Cincinnati, OH Sue Ludwig, OTR/L, National Association of Neonatal Therapists, Cincinnati, OH

The editorial board of the *Journal of Advanced Nursing* and its peer review panel provided a rigorous review of the content on age-appropriate care that appeared in a 2009 article by Mary E. Coughlin, Sharyn Gibbins, and Steven B. Hoath, "Core Measures for Developmentally Supportive Care in Neonatal Intensive Care Units: Theory, Precedence, and Practice." In addition, NANN reviewed and published the work that outlines the core measures for age-appropriate care used in this guideline: "Quality Indicators: Using the Universe of Developmental Care Model as an Exemplar for Change."

Objective

To provide an evidence-based clinical guideline for the consistent provision of age-appropriate care to the premature and critically ill hospitalized infant.

Users and Setting

Intended users of this guideline include all providers of direct and indirect care in the neonatal intensive care unit (NICU) setting.

Target Population

The guideline's recommendations are intended for the population of all patients in the NICU setting, including, but not limited to, inpatients, triage patients, and patients in a rooming-in scenario.

Evidence Collection Methods

A comprehensive electronic search of articles published between 1978 and 2008 was conducted in Medline, Cumulative Index to Nursing and Allied Health Literature (CINAHL), EMBASE, and PsycINFO using the terms developmental care, developmentally supportive care, caring, and infant. Articles were selected for inclusion if they identified specific interventions within the five core measures that improved short- or long-term morbidity outcomes.

Recommendations and Grading Criteria

The following grading system was employed to rate the quality and strength of the evidence to support the practice recommendations.

Rating System for the Hierarchy of Evidence

Level I: Evidence from a systematic review or meta-analysis of all relevant randomized controlled trials (RCTs) or evidence-based clinical practice guidelines based on systematic reviews of RCTs

Level II: Evidence obtained from at least one well-designed RCT **Level III:** Evidence obtained from well-designed controlled trials without randomization

Level IV: Evidence from well-designed case-control and cohort

Level V: Evidence from systematic reviews of descriptive and qualitative studies

Level VI: Evidence from a single descriptive or qualitative study **Level VII:** Evidence from the opinion of authorities or reports of expert committees

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Method for Synthesizing Evidence

The quality of evidence was evaluated by three independent reviewers using a predetermined structured format. Systematic reviews and RCTs were considered the strongest level of evidence. When these were not available, cohort studies, case-controlled studies, consensus statements, and studies using qualitative methods were considered the strongest level of evidence for a particular phenomenon of interest.

Prerelease Review

Review was provided during presentations of the material in three settings: at the 23rd Symposium on Neonatal Intensive Care in Milan, Italy (2008);5 the 23rd Annual Gravens Conference on the Physical and Developmental Environment of the High-Risk Infant in Clearwater Beach, FL (2010);6 and the International Forum on Quality and Safety in Healthcare in Amsterdam, The Netherlands (2011).7

Definitions

The *core measures* for the provision of age-appropriate care of the premature and critically ill hospitalized infant are (1) protected sleep, (2) pain and stress assessment and management, (3) attention to age-appropriate activities of daily living, (4) family-centered care, and (5) the healing environment.

Age-appropriate activities of daily living include supportive positioning, infant-oriented feeding interventions, and skin care.

The *healing environment* includes the physical surroundings, the human participants, and the organizational system.

Recommendations and Rationale

The use of age-appropriate care as an organized framework for care delivery in the NICU is founded on the work of Heidelise Als, PhD, and her synactive theory of development.8 This theoretical construct has recently been advanced by the work of Gibbins and colleagues9 with the "universe of developmental care" conceptual model and operationalized in two independent projects using the core measures for age-appropriate care.^{4,7} On the basis of the results of the pilot work, core measures for ageappropriate care are recommended in this guideline as best-practice standards for the provision of high-quality care in the NICU.

In alignment with the Joint Commission's requirement for healthcare professionals to provide age-specific care across the lifespan,² the core measures for developmental care suggest the necessary competencies for those caring for the premature and critically ill hospitalized infant.

Practice Recommendation		Level of Evidence	Reference(s)
The infant's sleep is protected. Rationale: Sleep plays a critical role in synaptic development, learning, and memory.	The infant's sleep-wake states are assessed and documented and guide all interactions with the infant.	 	10 11, 12, 13, 14 15
	Care strategies that support sleep are individualized for each infant and documented.	 	16, 17, 18, 19 20
	Families are educated on the importance of sleep safety in the hospital and the home; this education is documented.	II III	12 14, 21
2. The infant's stress and pain are assessed and managed.	Assessments of pain and stress are routinely performed and documented by all direct care providers.	l II	22 23, 24
Rationale: Investigations into neonatal pain suggest an increased vulnerability to pain and stress in preterm infants, with long-term psychological, behavioral, and physiological sequelae.	Pain and stress are managed before, during, and after all procedures until the infant returns to the baseline state; interventions and infant responses are documented.		22 23, 24
	Family members are informed about and involved in the pain and stress management plan of care for their infant; information sharing and involvement are documented.	III	25
3. Attention is given to ensuring the provision of age-appropriate activities of daily living (positioning, feeding, skin care).	Infant positioning ensures comfort, safety, physiologic stability, and support for optimal neuromotor development.		26, 27 28
Rationale: Positioning, handling, feeding, and routine caregiving affect physiological variables, sleep, joint and functional mobility, neurodevelopment, and sensory processing.	Feeding interactions are infant-driven, individualized, nurturing, and developmentally appropriate to ensure safety.		29 30, 31, 32
	The integrity of the infant's skin and mucous membranes is assessed and protected; care findings and strategies are documented.		33 34, 35, 36
4. Family-centered care is provided to the infant's family. Rationale : The role of the family in the life of the hospitalized infant is irreplaceable and has an impact on lifelong physiological and psychological events.	The family (as defined by the infant's parents or guardians) has unrestricted 24-hour access to the infant and is provided the opportunity to parent and participate in care; the definition of the infant's family and their participation in care are documented.		37, 38 39
	The level of the family's emotional well-being, parental confidence, and competence is assessed and documented weekly.	I	40, 41, 42
	The family has access to resources and support services that assist in short-term and long-term parenting, decision making, and parental well-being.	II	43, 44
5. A healing environment is provided.	A quiet, softly lit, private environment that promotes safety and sleep is ensured.	II	45, 46
Rationale : The whole environment, which includes the physical surroundings, the human participants, and the organizational system, influences the quality and consistency of care.	A collaborative healthcare team that emanates a spirit of teamwork, mindfulness, and caring is in place.	 	47, 48, 49 50
	Evidence-based policies, procedures, and resources are available to sustain the healing environment over time.	II	51

Patients' Preferences

Because this guideline is grounded on patientcenteredness, patient preference is determined by the responses of individual infants to the care they are given.

Potential Benefits and Harms

The anticipated benefits in the consistent implementation of this guideline across all care providers, as demonstrated in the two pilot projects, include a reduction in key neonatal morbidities (intracranial hemorrhage and gastroesophageal reflux), an increase in patient weight gain over the hospital stay, an enhanced level of professional satisfaction in both nurses and physicians, and an improved efficiency in care delivery.4,7

Algorithm

Not applicable

Implementation Considerations

Anticipated barriers to implementation include the absence of an effective process for practice improvement. In order for the full benefits of this guideline to be experienced, these recommended caring interactions must be a standard of practice for all direct and indirect care providers.⁵² With the use of the model for improvement and test-ofchange methodology, this guideline's evidence-based recommendations can become the standard of practice. Organizational commitment to a culture of safety and high-quality patient care is critical to achieve buy-in and subsequent consistent and reliable provision of the care described in this guideline.

Outcome Review Criteria

Review criteria for measuring change are given in the 2010 work of Gibbins and colleagues.4

Update Plan

The core measures for age-appropriate care of the premature and critically ill hospitalized infant are scheduled for review in 2014.

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