

Cue-Based Feeding of Preterm Infants

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Expanded Commentary from the Faculty

Research and clinical experience are increasingly pointing toward cue-based oral feeding for the preterm infant—in which communicative intent from the infant is observed—and away from a volume- and gestational age-driven model.^{1,2}

The appropriate feeding of infants in the neonatal intensive care unit (NICU) must be perceived as a critical element of optimal care, according to Shaker, rather than as a routine task delegated to inexperienced caregivers or volunteers.¹ It is more than simply a means of providing nutrition; it is also a powerful social and developmental pathway for the infant.¹ For this reason, it is important to create a soothing environment in which to conduct feedings by breast or bottle, and to involve parents with feedings, with NICU nurses acting as a role model for best practices.

If oral feedings are started before an infant is physically ready, they can serve as a form of negative oral stimulation leading to a feeding aversion and persistent refusal to eat. There is also a physical risk of apnea and aspiration if the baby is not able to coordinate sucking, breathing, and swallowing reflexes.²

Contemporary wisdom holds that it is developmentally appropriate to allow preterm infants to progress at their own pace in transitioning to oral feedings. Signs that an infant is ready for oral feedings include sucking, rooting, and crying behaviors, and hand-to-mouth activity. However, these behaviors are typically more subtle in premature infants than in full-term infants.³ In addition, some babies are not good candidates for cue-based feeding, including infants with gastrointestinal system insults, oral airway aversion, or neurological problems.

Although few controlled, randomized studies have been conducted comparing cue-based feeding to provider-driven protocols, the research that has been performed supports allowing the infant to guide feeding. For instance, in a 2007 study of 51 premature infants randomized to oral feedings based on readiness behaviors vs physician orders (controls), infants in the cue-based group reached full oral feedings 6 days earlier than controls.⁴

On a clinical level, it is apparent that when babies are forced to eat, they have difficulty, and when they are ready to eat, they do well.

In our institution, we have been using a cue-based protocol for the past 6 or 7 years. After a trend toward cue-based feeding was noticed by our staff, we created a multidisciplinary taskforce, comprised of staff from the medical, nutrition, speech, occupational therapy, and nursing departments, to review the literature. We then developed a protocol for cue-based feeding, and conducted a pilot study of the strategy. Using this protocol to the current day, we assess the components of the experience after every feeding—looking at the volume consumed, as well as if the baby stayed awake or fell asleep during the feeding, and the quality of the infant's suck-swallow coordination and breathing.

The pilot test was successful and the practice was integrated into our NICU protocol. Because it was recognized as the best strategy for the babies and families we serve, the response to the change was extremely positive, as I suspect it will be in your institution.

Group Discussion Items

- How do we perceive preterm infant feedings? As a critical element of optimal care or as just a routine task?
- What is our protocol for cue-based feeding?
- How do we create a stress-free, calm environment for babies to feed?
- Does the information in this clinical pearl reinforce our current practice?
- If we were to implement or adopt this clinical pearl, what would we do first?
- What are the barriers to adopting this clinical pearl in our institution?
- Are there other problems we have not talked about?

Suggested Readings and Resources

1. Shaker CS. Cue-based co-regulated feeding in the neonatal intensive care unit: Supporting parents in learning to feed their preterm infant. *Newborn Infant Nurs Rev.* 2013;13:51-55.
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3. White-Traut R, Rankin KM, Pham T, et al. Preterm infants' orally directed behaviors and behavioral state responses to the integrated H-HOPE intervention. *Infant Behav Dev.* 2014;37:583-596.
4. Kirk AT, Alder SC, King JD. Cue-based oral feeding clinical pathway results in earlier attainment of full oral feeding in premature infants. *J Perinatol.* 2007;27:572-578.
5. Shaker C. Cue-based feeding in the NICU: Using the infant's communication as a guide. *Neonatal Netw.* 2013;32:404-408.
6. Shaker C. Feed me only when I'm cueing: Moving away from a volume-driven culture in the NICU. *Neonatal Intens Care.* 25;3: 27-32.
7. Newland L, Weems L'Hullier M, Petrey B. Implementation of cue-based feeding in a level 3 NICU. *Neonatal Netw.* 2013;332;132-137.
8. Davidson E, Hinton D, Ryan-Wenger N, Jadcherla S. Quality improvement study of effectiveness of cue-based feeding in infants with bronchopulmonary dysplasia in the neonatal intensive care unit. *J Obstet Gynecol Neonatal Nurs.* 2013;42:629-640.