GUIDELINE

Transition to Oral Feeding for High-Risk Infants

Scope (Staff):	Nursing, Medical and Allied Health Staff
Scope (Area):	NICU PCH

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this disclaimer

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Aim

The aim of this guideline is to:

- Provide an evidence-based pathway for bedside nursing staff/caregiver to support the transition of high-risk infants to safe, consistent, and cue-based oral feeding practices.
- Promote interdisciplinary collaboration using clinical decision-making guides to foster objective and consistent bedside feeding practices.
- Support mothers to achieve their breastfeeding and/or feeding goals utilising this document in conjunction with the CAHS Breastfeeding and Breastfeeding Surgical Neonates guidelines

Risk

High-risk infants including preterm infants are at risk of non or delayed establishment of breastfeeding, oral aversion, prolonged use of a nasogastric tube and/or long-term feeding disorders. These risks can cause a prolonged hospital to stay and an increased likelihood of re-presenting to hospital post discharge.

Background

- The attainment of oral feeding skills during infancy and early childhood is essential for growth, health and development, and parent-infant relationships.
- High risk infants with medical comorbidities, are most likely to experience a delayed acquisition of oral feeding and have a much greater risk of long-term feeding disorders compared to healthy term babies.
- Oral feeding is a complex neurodevelopmental and maturational process and the foundation for optimal feeding starts before an infant attempts their first oral feed.
- Breastfeeding is best for infants and is especially important for high-risk infants. Most infants are more physiologically stable and regulated when breast feeding than when bottle feeding.
- NNS supports infants to practice and develop their sucking and swallowing skills which is correlated with improved stability in the baby, earlier and faster transition to oral feedings, decreased length of stay, and calming effects during painful procedures.
- Feeding outcomes can be improved with early interventions that focus on attending, interpreting, and responding to infant behaviours. When infants are offered feedings based upon readiness behaviors, and ceased based on satiation behaviours or disengagement cues, they have fewer adverse events and quicker transition to oral feeding.
- Parents/carer play a vital role in the care of their infant. Infants who regularly interact with their parents during the neonatal care phase are reported to show better weight gain, improved feeding patterns, and improved development.

Key Points

- Skin to skin/kangaroo care should be prioritised and should be the starting point for any baby to support development of NNS. See CAHS Skin to Skin Holding guideline.
- All infants, irrespective of medical complexity, should be offered NNS opportunities as early as possible, unless otherwise indicated by the medical team (see Table 1 for other considerations).
- Early non-nutritive sucking (NNS) is a precursor and a continuum to substantial nutritive sucking (NS) behavior.
- The mode of feeding is important, especially in high-risk infants.
- Breastfeeding must be supported and prioritised in aligned with parent's wishes and preferences. Seek early support from Midwife and/or Lactation Consultant to support mothers breastfeeding goals.
- Support and encourage the parent/carer to build and maintain their milk supply with expressing until their infant is ready to transition to full oral feeds.
- Nutritive suck feeding is a dynamic process and cue-based feeding pathway allow for consistent and individualized feeding practice which may result in improved feeding outcomes and decrease length of stay.

Initiating and transition to oral feeds in high-risk infants

- The introduction of nutritive oral feed is guided by the infant's readiness and their medical comorbidities which is the decision of the treating Neonatal Consultant or Senior Registrar (see Table 1 for caution and contraindications).
- Transition towards full nutritive oral feeding requires a structured process of activities in the following order (see Table 2):
  a) Preparing the gut (i.e. trophic feeds) and providing positive oral experiences (including nonnutritive sucking).
  b) Determining readiness to transition to oral feeds (See Table 1 & 3)
  c) Actual transition regime to nutritive sucking (See Table 3)
  d) Sustained successful feeding (strategies in Table 3)
- In the cases where bottle feeding is required and/or chosen by the family, bottle feeding should be commenced using a slow flow rate teat as a starting point and reassessed thereafter.
- Consent must be obtained by the parents prior to the introduction/use of dummies and/or a bottle and must be documented clearly in the admission chart and progress notes.
- Referral to the Midwife, Lactation Consultant, and/or Feeding Team may be considered at various steps based on individual needs to support pre-feeding and feeding skills (see Table 1, 2, 3).

Table 1. Guide for initiation of nutritive oral feeds in high-risk infants and referral to feeding team by medical team.

All decisions for commencement, amount of feed and continuation of oral feeds is at discretion of treating Senior Medical Officer (On-Call Consultant or Senior Registrar).

Infants meeting criteria in the orange (**caution**) and red (**contraindicators**) will be discussed at the 3B PCH Family Focus Meeting.

Infants suitable to commence nutritive oral feeds with parents and/or nursing staff:

- Maintains cardiorespiratory stability within accepted parameters.
- Manages oral secretions at baseline.
- Tolerates bolus enteral feeds.
- Demonstrate non-nutritive sucking skills.

For preterm infants, breast experiences are encouraged from as early as 28-30 weeks with nutritive breastfeeding occurring from 34 weeks. See CAHS Breastfeeding Guideline Breastfeeding (health.wa.gov.au).

Caution with nutritive oral feeds:
 # Refer to Table 3 for support while feeding continues by bedside neonatal nurse.
 # Consider referral to Feeding Team and Lactation Consultant

- Respiratory rate over 70 or moderate work of breathing.
- Unstable with handling or cares e.g. desaturation, increased work of breath, significant change in RR or HR from baseline.
- Increased rate of apnoea/ bradycardia/desaturation episodes with oral feeds.
- Neurological atypical infant due to underlying neurological, neuromuscular condition or medications (i.e. anti-epileptic drugs or sedatives).
- Cardiac failure
- Term infant with unexplained need for NGT.
- Suspected/known syndrome with feeding issues.
- Difficulties in managing oral secretions at baseline and/or requiring oral suctioning.
- Unable to tolerate bolus enteral feeds (such as continuous, NJ feeds or TPN)
- Suspected structural airway anomaly causing feeding issues. Examples of airway anomaly: vocal cord palsy, laryngeal cleft, tracheo/broncho/laryngomalacia, craniofacial malformations.
- Patients with tracheostomy or Nasopharyngeal Airway (NPA).
- Complex congenital heart disease +/- cardiac surgery requiring NGT feeds.
- High level non-invasive ventilation respiratory support.

Contraindicators for oral feeds:
 # Early referral to Feeding Team and Lactation Consultant

- Unstable on high level non-invasive ventilation respiratory support
- Unrepaired structural airway anomaly e.g. known or suspected TOF/OA, laryngeal cleft (type 2 or above). Consider commencing sham feeding for unrepaired long-gap OA with referral to feeding team to implement. *Refer to SHAM guidelines.*
- Significant neurological concerns e.g. concern for bulbar palsy, absent oral reflexes, absent gag reflex putting the child at risk of aspiration.
- Medically unfit for nutritive feeds as determined by the treating medical team.

Table 2: Activities to support transition to nutritive oral feeds in high-risk infants

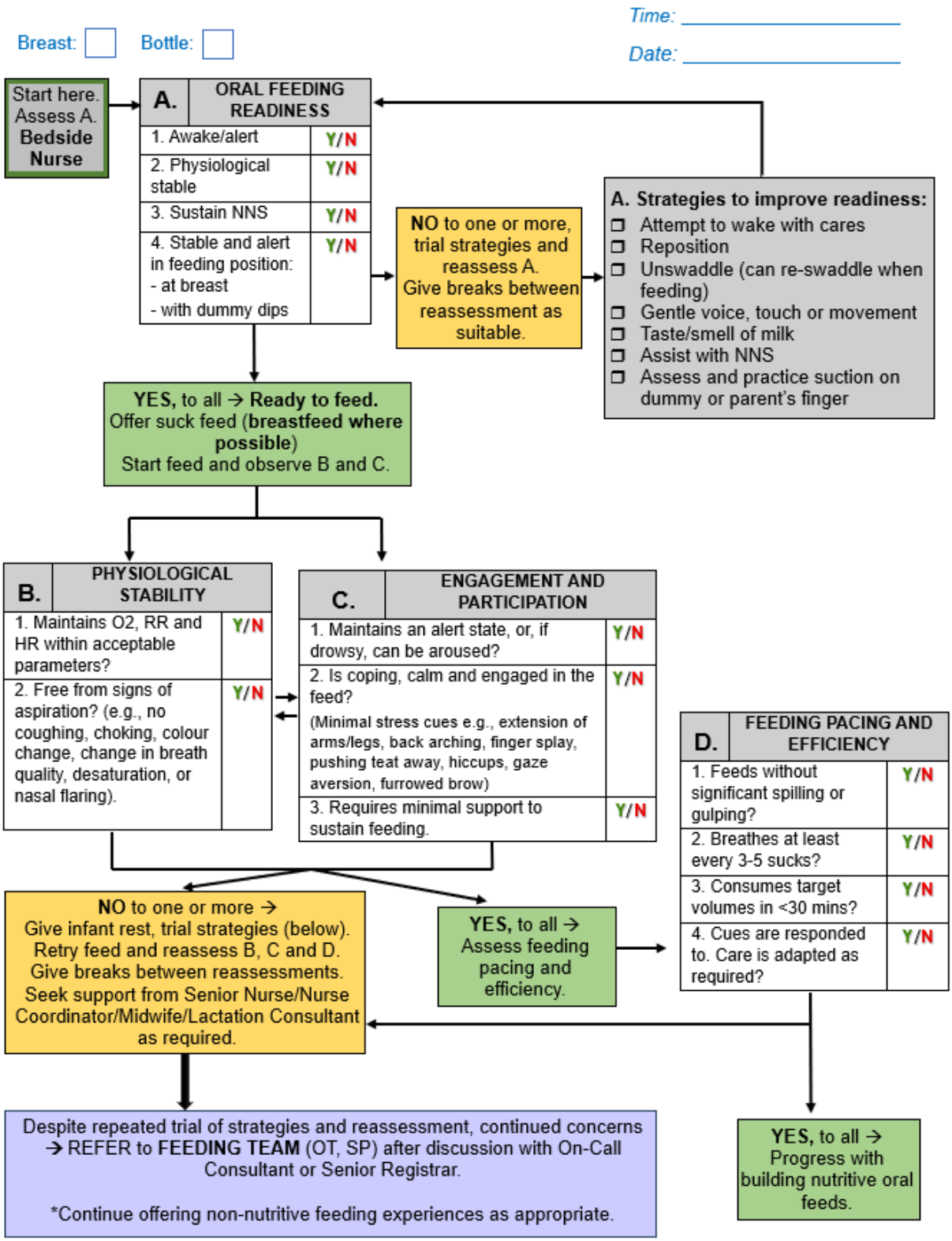
SKILL	ACTIVITY	PROGRESS
PRE-FEEDING SKILLS	• Skin to skin cuddles	❒
	• Enteral feeds with cuddles (+ dummy if appropriate)	❒
	• Mouth care with mothers' milk (if available)	❒
	• Exposure to smells of human milk	❒
READY FOR NONNUTRITIVE SUCKING	• Skin to skin cuddles*	❒
	Methods of feeding considered NNS**: • Expressed breast experiences (if safe to have small amounts of milk)	❒
	• Dummy sucks	❒
	• Dummy dips	❒
READY FOR NUTRITIVE SUCKING	• Partial or full breast experiences (depending on supply)	❒
	• Prioritise breastfeeds rather than bottle feeds	❒
	• Consider breastfeeding for comfort	❒
	• If infant is bottle-feeding, consider small volume and/or paced feeds	❒
READY FOR FEEDS	• Breastfeeds on an unexpressed breast.	❒
	• Mother may want to consider breast or	❒
	• NGT feeds only	❒
	• Paced bottle feeds	❒

Nb: Pre-feeding and nonnutritive sucking 'activities'/experiences should be offered throughout the transition process.

**Skin to skin should be offered 30 minutes prior to breastfeeding experience and/or feed.*

**NNS is a repetitive pattern of mouthing activity when an infant sucks on a dummy or expressed breast.

Table 3: Guide to assess and progress nutritive oral feeds by the bedside neonatal nurse/caregiver



B. Strategies to improve physiological stability

Flow
- ❒ Trial slower teat.

Positioning
- ❒ Swaddle with infant's hands in midline and near face.
- ❒ Trial elevated side lying*****.

C. Strategies to improve engagement and participation

Positioning
- ❒ Reposition infant to ensure postural support.
- ❒ Swaddle with infant's hands in midline and near face.
- ❒ Trial elevated side lying*.

Environment/Sensory
- ❒ Reduce distractions, light/sound, avoid unnecessary stimulation.
- ❒ Use slow, purposeful movement with infant. Stop/pause as needed.
- ❒ Increase maternal vocal inputs.
- ❒ Offer NNS.
- ❒ Offer skin to skin.
- ❒ Minimise stressful cares or non-critical/ invasive procedures.

D. Strategies to improve pacing and efficiency

Flow
- ❒ Slow the flow by holding bottle horizontal.
- ❒ Adapt/change teat.
- ❒ Provide external pacing (tilt bottle down until infant takes a break or remove teat from mouth briefly).

Positioning
- ❒ Reposition infant to ensure postural support.
- ❒ Swaddle with infant's hands in midline and near face.
- ❒ Trial elevated side lying*.

Special consideration needs to be given for patients with conditions such as cleft palate and vocal cord palsy where elevated side-lying may be contraindicated. These patients require referral to feeding team for assessment and advice.

Reference for pathway:

1. *Horner S, Simonelli AM, Schmidt H, Cichowski K, Hancko M, Zhang G, et al. Setting the stage for successful oral feeding: The impact of implementing the SOFFI feeding program with medically fragile NICU infants. J Perinat Neonatal Nurs. 2014;28:59-68.*
2. *Philbin MK, Ross ES. The SOFFI Reference Guide: text, algorithms, and appendices: A manualized method for quality bottle-feedings. J Perinat Neonatal Nurs. 2011;25:360-80.*
3. *Ross ES, Philbin MK. Supporting oral feeding in fragile infants: an evidence-based method for quality bottle-feedings of preterm, ill, and fragile infants. J Perinat Neonatal Nurs. 2011;25:349-57.*
4. *Dalgleish SR, Kostecky LL, Blachly N. Eating in "SINC": Safe Individualized Nipple-Feeding Competence, a Quality Improvement Project to Explore Infant-Driven Oral Feeding for Very Premature Infants Requiring Noninvasive Respiratory Support. Neonatal Netw. 2016;35(4):217-27.*

Related CAHS internal policies, procedures and guidelines *(if required)*
Neonatology Clinical Guidelines Breastfeeding Neonates Post Abdominal Surgery Nutrition: Bottle Feeding a Breastfeeding Infant Oesophageal Atresia/Tracheoesophageal Fistula Parenting in the Neonatal Unit Pierre Robin Sequence Skin to Skin Holding CAHS Clinical Guideline: Breastfeeding Protection, Promotion and Support

References and related external legislation, policies, and guidelines *(if required)*
Women and Newborn Health Service Guideline: Newborn feeding and maternal lactation

1. Dalgleish SR, Kostecky LL, Blachly N. Eating in “SINC”: Safe Individualized Nipple-Feeding Competence, a Quality Improvement Project to Explore Infant-Driven Oral Feeding for Very Premature Infants Requiring Noninvasive Respiratory Support. Neonatal Netw. 2016;35(4):217-27.
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6. Kamity R, Kapavarapu PK, Chandel A. Feeding Problems and Long-Term Outcomes in Preterm Infants-A Systematic Approach to Evaluation and Management. Children (Basel). 2021 Dec 8;8(12):1158.
7. Lubbe W. Clinicians guide for cue-based transition to oral feeding in preterm infants: An easy-to-use clinical guide. J Eval Clin Pract. 2018 Feb;24(1):80-88.
8. National Association of Neonatal Nurses (NANN). The use of human milk and breastfeeding in the neonatal intensive care unit: NANN position statement #3052. Adv Neonatal Care. 2012;12(1):56-60.

9. NICU Design. Recommendations for best practices for feeding, eating, and nutrition delivery. NICU Design. https://nicudesign.nd.edu/nicu-care-standards/ifcdc-recommendations-for-best-practices-for-feeding-eating-and-nutrition-delivery/. Accessed January 15, 2025.
10. Pados BF, Thoyre SM, Knafl GJ, Nix WB. Heart rate variability as a feeding intervention outcome measure in the preterm infant. Adv Neonatal Care. 2017;17(5):E10-2.
11. Philbin MK, Ross ES. The SOFFI Reference Guide: text, algorithms, and appendices: A manualized method for quality bottle-feedings. J Perinat Neonatal Nurs. 2011;25:360-80.
12. Ross ES, Browne JV. Feeding outcomes in preterm infants after discharge from the Neonatal Intensive Care Unit (NICU): a systematic review. Newborn Infant Nurs Rev. 2013;13(2):87-9.
13. Ross ES, Philbin MK. SOFFI: An evidence-based method for quality bottle-feedings with preterm, ill, and fragile infants. J Perinat Neonatal Nurs. 2011;25(4):349-57.
14. Sables-Baus S, DeSanto K, Henderson S, Kunz J, Morris A, Shields L, et al. Infant-directed oral feeding for premature and critically ill hospitalized infants: guideline for practice. National Association of Neonatal Nurses; 2013. Available from: www.nann.org
15. Thoyre SM, Hubbard C, Park J, Pridham K, McKechnie A. Implementing co-regulated feeding with mothers of preterm infants. Am J Matern Child Nurs. 2016;41(4):204-11.
16. Wang YW, Hung HY, Lin CH, Wang CJ, Lin YJ, Chang YJ. Effect of a delayed start to oral feeding on feeding performance and physiological responses in preterm infants: a randomized clinical trial. J Nurs Res. 2018;26(5):324-31.

Useful Resources

Infant and Family Centered Developmental Care: Recommendations for Best Practices for Feeding, Eating and Nutrition Delivery

IFCDC- Recommendations for Best Practices for Feeding, Eating and Nutrition Delivery | Developmental Care Standards for Infants in Intensive Care | NICU Recommended Standards | University of Notre Dame

Non-Nutritive Sucking Neonatal Clinical Guideline (Royal Cornwall Hospital)

Non-Nutritive Sucking Neonatal Clinical Guideline (cornwall.nhs.uk)

Parent Resources:

Child and Adolescent Health Service | CAHS - Providing breastmilk for preterm and sick babies

This document can be made available in alternative formats on request.

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