EtD 60. How does encouraging parents to be involved in tube feeding (feeding, changing tubes and using feeding pumps if needed) and preparing supplements (fortification and similar supplements) of their infants affect breastmilk expression and establishment of breastfeeding and their confidence, participation and overall care experience, as well as the health and development of their infants?

POPULATION:	Preterm infants
INTERVENTION:	How does encouraging parents to be involved in tube feeding (feeding, changing tubes and using feeding pumps if needed) and preparing supplements (fortification and similar supplements) of their infants affect EBM expression and initiation/establishment of breastfeeding and their confidence, participation, and overall care experience, as well as the health and development of their infants?
COMPARISON:	(no comparison)
MAIN OUTCOMES:	**Critical outcomes** Mortality Necrotising enterocolitis Adverse effects Neurodevelopmental impairment Fully breastfed or breastmilk feeding at hospital discharge Faltering growth/body composition Time to full enteral feeds Duration of initial hospital stay Parental engagement or confidence **Important but not critical** Sepsis: proven or suspected Bronchopulmonary dysplasia Retinopathy of prematurity Anaemia of prematurity Cost: cost of intervention, cost of neonatal care and life-long cost **Less important for decision making** Time to full sucking feeds
SETTING:	Neonatal care
PERSPECTIVE:	Clinical guideline recommendation. Patient perspective

BACKGROUND:	For many preterm infants, enteral tube feeding via a tube into the stomach is necessary to meet their nutritional requirements until breastfeeding is being established. Tube feeding is often delivered primarily by clinical staff, which may limit opportunities for parental involvement during a critical period for lactation development and bonding. Early and sustained parental engagement in infant feeding activities is increasingly recognised as an important component of family-centred neonatal care. Encouraging parents to participate in tube feeding, preparation of expressed breastmilk and supplements, and tube feeding equipment may support maternal confidence, sense of agency and understanding of their infant's nutritional needs. This involvement may also influence breastmilk production, timely initiation and establishment of breastfeeding, and the overall care experience for families, while potentially affecting infant health and developmental outcomes. However, the impact of structured parental involvement in these feeding tasks on breastfeeding outcomes and parental experience has not been clearly defined, warranting focused consideration within neonatal practice guidelines.
CONFLICT OF INTERESTS:	None

Assessment

Desirable Effects

How substantial are the desirable anticipated effects?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Trivial ● Small ○ Moderate ○ Large ○ Varies ○ Don't know	A narrative summary of findings is provided for two RCTs [1] [2] and an observational study [3]. There was no evidence identified for expressed breastmilk expression or the initiation/establishment of breastfeeding before discharge. **Mortality:** RCT: There were no events of death in either the Early Parent Participation Program or the usual care group [Critical]. **Necrotising enterocolitis (NEC)**: RCT: There were no events of NEC in either the Early Parent Participation Program or the usual care group [Critical]. **Adverse effects**: RCT**:** There was a significant decrease in feeding intolerance in the Early Parent Participation Program compared with the usual care group (17.8 vs. 36.5%, respectively; p= 0.011). **Neurobehavioural assessment**: Observational study: There was no relationship between parental participation in tube feeding and neurobehavioral assessment of the preterm infant alerting/orienting or motor development and vigour assessed at the time infants began the transition from tube feeding to oral feedings (β = 0.029, 95% CI -0.0025 to 0.061, p = .071; β = -0.00024, 95% CI -0.025 to 0.025] p = .99, respectively) [Critical]. **Breastfeeding at discharge**: RCT: There was no difference in rates of predominant breastmilk	[1] France: Crossover RCT: 15 infants <33 weeks' gestation and over 7 days old. Manual milk administration by parents versus electric syringe administration. [2] India: RCT: 147 infants born 28 to 33 weeks' gestation. Intervention was an Early Parent Participation Program that included participation in orogastric tube feeding from day 1 to 2 after birth. Comparison was usual care. [3] USA: Secondary analysis of a RCT: 87 preterm infants 24-32 weeks' gestational age. Other outcomes of interest: **Wellbeing signs**: RCT: Wellbeing was

	feeding at discharge in the Early Parent Participation Program compared with the usual care group (66 vs. 51% respectively, p= 0.076) [Critical]. **No faltering growth/body composition**: RCT: There was no difference in weight z-score at discharge in the Early Parent Participation Program compared with the usual care group (Median -1.9; IQR -2.5 to -1.3 days vs. -2.0; IQR -2.5 to -1.5 days respectively; not significant) [Critical]. **Time to full enteral feeds:** RCT: There was no difference in days to reach full enteral feeds in the Early Parent Participation Program compared with the usual care group (Median 8; IQR 5 to 11 days vs. 7; IQR 4 to 10.5 days respectively; not significant) [Critical]. **Duration of hospital stay**: RCT: There was no difference in length of hospital stay in the Early Parent Participation Program compared with the usual care group (Median 29; IQR 19 to 43 days vs. 31; IQR 19 to 44.5 days respectively; not significant) [Critical]. **Participation**: RCT: Both mother and father were available to participate in care for 85 infants (57.8%) [Critical]. **Parental experience**: RCT: Parents were content to be close to their infants. Most of the families in the Early Parent Participation Program were confident about the care activities, although they found orogastric feeding to be the most difficult skill [Critical]. **Desirable effects for Māori** No additional evidence available	a composite score of motor, behaviour (attention) and digestive (e.g. hand to mouth/sucking) behaviours. Wellbeing was significantly higher in the manual milk administration by parents group (mean 36.2 +/- 8.0 points) compared with electric syringe administration (mean 30.7 +/- 9.5 points; P=0.049). **Withdrawal signs**: RCT: Withdrawal was a composite score of motor, behaviour (e.g. grimace, crying) and digestive (e.g. vomiting, regurgitation) behaviours. There was no significant difference in withdrawal signs between manual milk administration by parents (Mean 37.2 ± 9.4 points) and electric syringe administration (Mean 41.9 ± 13.2 points). The item "tightness or distention of the limbs" was significantly less frequent during manual administration; while its frequency remained stable during feeding, it fluctuated more during administration with the electric syringe pump. **Toleration**: RCT: Video analysis indicated that 60% (9/15) of children seemed to tolerate manual milk administration by parents better than electric syringe administration. There were no clear difference in toleration in 26.7% (4/15) and 13.3% (2/15) seemed to be more tolerant to electric syringe pump administration.

Undesirable Effects

How substantial are the undesirable anticipated effects?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
● Trivial ○ Small ○ Moderate ○ Large ○ Varies ○ Don't know	**Participation**: Observational study: A secondary analysis of a RCT reported low parental participation rates in tube feedings (mean 6.7% +/- 5.4). **Undesirable effects for Māori** No additional evidence available	

Certainty of evidence

What is the overall certainty of the evidence of effects?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
● Very low ○ Low ○ Moderate ○ High ○ No included studies	One RCT is low certainty of evidence. Another RCT and the observational study are very low certainty evidence. **Certainty of evidence for Māori** No additional evidence available	

Values

Is there important uncertainty about or variability in how much people value the main outcomes?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Important uncertainty or variability ● Possibly important uncertainty or variability ○ Probably no important uncertainty or variability ○ No important uncertainty or variability	Possibly important uncertainty or variability **Values for Māori** No additional evidence available	

Balance of effects

Does the balance between desirable and undesirable effects favour the intervention or the comparison?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Favours the comparison ○ Probably favours the comparison	**Encouraging parents to be involved in tube feeding versus no involvement - low certainty evidence**	

○ Does not favour either the intervention or the comparison ● Probably favours the intervention ○ Favours the intervention ○ Varies ○ Don't know	Probable decrease in feeding intolerance Uncertain effect on mortality, breastfeeding at discharge, days to full enteral feeds, NEC, duration of hospital stay, weight z-score at discharge High participation despite tube feeding task being perceived as difficult **Encouraging parents to be involved in tube feeding versus no involvement - very low certainty evidence** Probable increase in wellbeing signs, tolerance of procedure Uncertain effect on neurobehaviour, withdrawal signs Low participation **Balance of effects for Māori** No additional evidence available		

Resources required

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Large costs ○ Moderate costs ● Negligible costs and savings ○ Moderate savings ○ Large savings ○ Varies ○ Don't know	Staff required to train and support parents with tube feeding.	

Certainty of evidence of required resources

What is the certainty of the evidence of resource requirements (costs)?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Very low ● Low ○ Moderate ○ High ○ No included studies	Certainty of the staff-related costs is low.	

Cost effectiveness

Does the cost-effectiveness of the intervention favour the intervention or the comparison?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Favours the comparison ○ Probably favours the comparison ○ Does not favour either the intervention or the comparison ○ Probably favours the intervention ○ Favours the intervention ○ Varies ● No included studies	No included studies	

Equity

What would be the impact on health equity?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Reduced ○ Probably reduced ○ Probably no impact ● Probably increased ○ Increased ○ Varies ○ Don't know	**Equity for Māori** Pēpi Māori are disproportionately affected by preterm birth and experience lower rates of exclusive breastfeeding at discharge. Parents may be less likely to be actively involved in care practices such as tube feeding and supplement preparation due to historical mistrust of the health system, culturally inappropriate communication or lack of invitation to participate. Encouraging Māori parents to engage in feeding-related tasks may strengthen their connection to their pēpi, support breastfeeding intentions and restore traditional caregiving roles. When supported with culturally safe guidance, hands-on involvement can empower whānau, increase breastmilk expression and improve early bonding. Equity requires affirming the role of Māori parents as partners in care and ensuring services uphold tino rangatiratanga in neonatal care. **Equity for Pacific families** Pacific families often express a strong desire to be involved in their baby's care, but may face barriers such as language, limited health literacy and time constraints due to work and family responsibilities. Without culturally tailored support, they may not feel confident preparing feeds or using equipment like feeding pumps. Encouraging involvement in feeding and supplementation, alongside practical, language-appropriate education, may build parental	

	confidence and reinforce traditional nurturing roles. Supporting this engagement has the potential to improve breastfeeding outcomes and increase family satisfaction with neonatal care. Equity requires that Pacific families are meaningfully included and supported with culturally resonant approaches that respect their strengths and values. **Equity for underrepresented groups** Families from migrant, refugee, or rural backgrounds may experience exclusion from active caregiving due to systemic barriers, including inflexible visiting hours, transportation challenges or unfamiliarity with healthcare processes. These families may also face assumptions about their capacity or willingness to participate. Actively encouraging and supporting all parents to participate in feeding activities, such as tube feeds, pump use or fortifier preparation, can improve parental confidence, strengthen attachment, and enhance infant outcomes. Equity demands flexible policies, interpreters and practical supports to ensure every family has the opportunity to be fully involved in their infant's nutrition and care journey.	

Acceptability

Is the intervention acceptable to key stakeholders?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ No ○ Probably no ● Probably yes ○ Yes ○ Varies ○ Don't know	Probably acceptable to most. Parents were content to be close to their babies. Most of the families in the Early Parent Participation Program were confident about the care activities although they found orogastric feeding to be the most difficult skill [2].	

Feasibility

Is the intervention feasible to implement?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ No ○ Probably no ● Probably yes ○ Yes ○ Varies ○ Don't know	Likely to be feasible	

Summary of judgements

	JUDGEMENT						
DESIRABLE EFFECTS	Trivial	**Small**	Moderate	Large		Varies	Don't know
UNDESIRABLE EFFECTS	**Trivial**	Small	Moderate	Large		Varies	Don't know
CERTAINTY OF EVIDENCE	**Very low**	Low	Moderate	High			No included studies
VALUES	Important uncertainty or variability	**Possibly important uncertainty or variability**	Probably no important uncertainty or variability	No important uncertainty or variability			
BALANCE OF EFFECTS	Favours the comparison	Probably favours the comparison	Does not favour either the intervention or the comparison	**Probably favours the intervention**	Favours the intervention	Varies	Don't know
RESOURCES REQUIRED	Large costs	Moderate costs	**Negligible costs and savings**	Moderate savings	Large savings	Varies	Don't know
CERTAINTY OF EVIDENCE OF REQUIRED RESOURCES	Very low	**Low**	Moderate	High			No included studies
COST EFFECTIVENESS	Favours the comparison	Probably favours the comparison	Does not favour either the intervention or the comparison	Probably favours the intervention	Favours the intervention	Varies	**No included studies**
EQUITY	Reduced	Probably reduced	Probably no impact	**Probably increased**	Increased	Varies	Don't know
ACCEPTABILITY	No	Probably no	**Probably yes**	Yes		Varies	Don't know
FEASIBILITY	No	Probably no	**Probably yes**	Yes		Varies	Don't know

Type of recommendation

Strong recommendation against the intervention	Conditional recommendation against the intervention	Conditional recommendation for either the intervention or the comparison	**Conditional recommendation for the intervention**	Strong recommendation for the intervention
○	○	○	●	○

References

1. Angot, F.; Van Vooren, V.; Castex, C.; Glorieux, I.; Casper, C. Behavioral changes in preterm children during nasogastric tube feeding. Comparative study of manual administration by parents versus mechanical administration via electric syringe pump. *Early Hum. Dev.* **2020**, *149*, 105151, doi:10.1016/j.earlhumdev.2020.105151.
2. Pillai, A.; Pournami, F.; Prabhakar, J.; Nair, P.; Jain, N. Effect of early parent participation program on physiological stability in preterm infants: A randomized controlled trial. *Am. J. Perinatol.* **2022**, *39*, 1796-1804, doi:10.1055/s-0041-1726126.
3. Nist, M.D.; Robinson, A.; Pickler, R.H. Parental participation in preterm infant feeding in the neonatal intensive care unit. *MCN Am. J. Matern. Child Nurs.* **2023**, *48*, 76-81, doi:10.1097/nmc.0000000000000890.

Back to question list