Feeding Options for Infants Unable to Breastfeed

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Infants unable to breastfeed

Preterm infants
- 15 million born globally each year
- Coordinated suck, swallow, and breathe is undeveloped
- Assistive feeding until exclusive breastfeeding

Infants with orofacial clefts
- Anatomic abnormality
- Physiologically unable to extract milk from the breast
- Long-term assistance
- Well-nourished for surgical repair

Other infants
- Orphans, respiratory and cardiac anomalies; neurologic impairment.

94% of infants with clefts/anomalies are born in low- and middle-income countries.
Policy environment

- WHO guidelines on optimal feeding of LBW infants in LMIC
- LBW infants who need to be fed by an alternative oral feeding method should be fed by cup, paladai, or spoon
- Strong recommendation with moderate evidence
- Extra support for feeding small and preterm babies includes feeding cups as key commodity.

Abbreviations: WHO, World Health Organization; LBW, low birth weight; LMIC, low- and middle-income countries.
Standard of care by setting

High-resource settings
- Tube feeding
- Breast pump milk or stored breast milk
- Fed with (specialized) bottles

Low-resource settings
- Tube feeding (maybe) then...
- Hand expression of breast milk as needed
- Fed with conventional, locally available cup

Photos: Laerdal Global Health
Evidence on feeding neonates by cup

Cochrane Review by Flint, et al., 2007
• Not recommend / length of stay

McKinney, Glass, Coffey, et al., 2016
• Cup feeding is safe
• Intake less, spillage greater (vs. bottle)
• Higher proportions of cup fed exclusive breastfed
• Compliance and acceptability can be problematic

Updated Cochrane Review by Flint, et al., 2016
• Benefits for late preterms on exclusive breastfeeding
Conventional cups

Benefits
- Any available cup can be used; no standard
- Widely available
- Infant only needs to be able to swallow
- Inexpensive

Limitations
- Rate of flow difficult to control/spillage
- Choking and aspirating common
- Energy depleting: intake less than energy expended
- May increase infection risk (e.g., multiple users)
Beyond conventional cups

Foley cup is useful, but not ideal for low-resource settings

- Mothers and clinicians find it more effective
- Too small to capture hand expressed breast milk
- Durability, cleanability, and material cost not appropriate
- Not widely available

Paladai

- Used often in India
- Pour into infant’s mouth, aspiration/choking
- Less control (for mother and infant)
- Metal cup injures infant’s mouth
Nifty Feeding Cup by Laerdal Global Health

- Reduce risk of infection through direct hand expression into cup and also through the soft material which minimizes cuts to mouth and lips of infant
- Allow the infant to control the pace of feeding
- Offer a calm and focused infant feeding experience
- Increase optimal milk intake in the shortest time with minimal spillage
Clinical validation of Nifty Feeding Cup

- Randomized clinical trial
  - Crossover design, order of cup used randomized
- Nifty Feeding Cup vs. generic medicine cup
- 150 caregiver-infant pairs
- At KATH in Kumasi, Ghana
- Enrollment starting spring 2017

Nifty Feeding Cup by Laerdal Global Health
Hypotheses

Nifty cup feeding compared to medicine cup feeding will result in:
1) Greater intake of milk (a measure of infant and feeder ability)
2) Less spillage (a measure of implement and feeder skill)
3) Greater caregiver satisfaction (secondary)
4) A smaller proportion of feeds over 30 minutes (secondary)
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Thank you!

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