

# Improving Kangaroo Mother Care Feeding and Growth Trieste KMC Congress 2016



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# Does parental involvement affect the development of feeding skills in preterm infants?

Infants GA  $\leq$  32 weeks (n=81)

Full oral feeding at  $35.5 \pm 2.2$  weeks

The earlier parents commenced feeding and KMC was introduced

– the lower infant PMA at full oral feeding (breast, bottle or mixed)

Conclusion: Early start of KMC + parental involvement in feeding - positive effects on achievement of independent oral feeding.

# Cochrane KMC review: (n=3 042)

Mainly low-income settings

*At latest follow-up:*

Increase:

- Weight gain 4.1 (2.3 – 5.9) g/day
- Length gain 0.21 cm/week
- Head circumference gain 0.14 cm/week

KMC increased rate of breastfeeding at discharge

- at 40 to 41 weeks' corrected age
- at 1 to 3 months' follow-up

# KMC and weight gain

Considerable differences between settings

*Cochrane review conclusion:*

Although current evidence is mainly limited to the use of KMC in middle/low income countries, emerging evidence suggests that KMC could improve breastfeeding rates in high-income countries.

# Breastfeeding promotion for infants in neonatal units: A systematic review

Breastfeeding/breastmilk feeding is promoted by

- close, continuing skin-to-skin contact between mother and infant,
- effective breastmilk expression
- peer support in hospital and community
- and staff training.

Evidence gaps include health outcomes and costs of intervening with less clinically stable infants.

Infant feeding in neonatal units should be included in public health surveillance and policy development.

Renfrew, Dyson, McCormick et al. 2010

# KMC and attainment of exclusive breastfeeding

104 preterm infants (GA 28-33 weeks)

KMC: Associated with earlier attainment of exclusive breastfeeding

53 infants: Exclusive breastfeeding in the NICU at a postmenstrual age of:

*Mean 35 + 0 (32+1 to 37+5) days + weeks*

# How does KMC facilitate breastfeeding and growth?

*Mother-baby together + physical contact*

Baby

- positioned between the breasts, easy access
- can stimulate let-down reflex

Mother

- is available for breastfeeding
- can feel the baby's movements
- can feel/see baby wake up, root
- can easily adjust baby's position for breastfeeding

KMC helps baby maintain normal temperature

# KMC and neonatal outcomes

Systematic review: 124 studies of LBW newborns

KMC cp. to conventional care associated with:

- lower risk of hypothermia, hypoglycemia,
- higher temperature
- head circumference growth
- increased exclusive breastfeeding



# Kangaroo ward care and growth

Stable preterm infants (BW <1100 g.)

Randomised at weight 1150 g.:

- Kangaroo Ward Care (KWC) immediately after randomization (n =71)
- Intermediate intensive care IIC (n = 70)  
→ to KWC at weight of 1250 g.

KWC: Reduction in IIC stay and increase in weight gain before discharge. Cost-effective

# Breastmilk: Benefits for preterm infants

Improved gut maturation and neurodevelopment

Lower risk of:

- necrotizing enterocolitis (NEC)
- feeding intolerance
- infections

Donor breast milk may require fortification

# Lactation/breastfeeding support

- Breast pump at the bedside and pump room, and at home
- Offer breastfeeding observation including:
  - baby ready/needs rest
  - breastfeeding positions
  - support of baby's competence
- No restrictions in breastfeeding frequency or duration of sessions
- Focused support when problems with milk production and breast problems
- NO hands on support.

# Preterm infants can be breastfed from 28 weeks

## *Obstacles:*

- Infant's medical condition and treatment
- Mother: Pain, exhaustion
- Mother's illness
- Separation: "visiting hours"
- Distance: maternity unit – neonatal unit
- Lack of chairs, armchairs, parent rooms
- Fixed feeding hours

*Prevent unjustified delays*

# How does KMC facilitate breastfeeding and growth?

Mother-baby not separated physically.

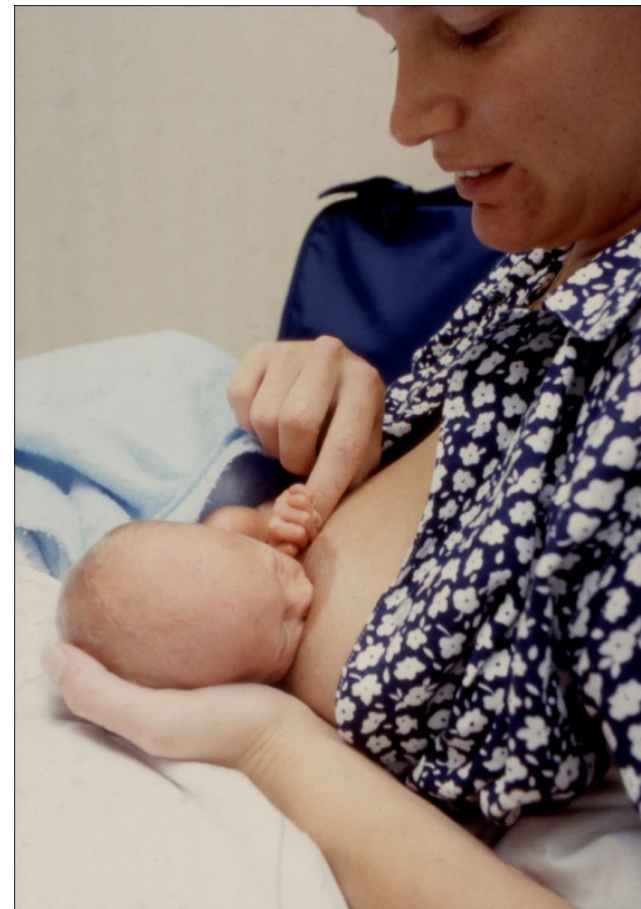
Baby positioned close to the breasts, easy access.

Mother

- perceives what the baby is communicating
- available for breastfeeding
- feel the baby's movements
- feel, see baby wake up, rooting
- easily adjust baby's position for breastfeeding

The baby's temperature is maintained  
by the skin-to-skin contact

# Guide mothers in observation of the baby's behavior at the breast and how to respond



# Cup: Advantages

- Preterm infants learn quickly
- Not time-consuming
- Higher breastfeeding rate after cup-feeding (vs. bottle)
- No discomfort from tube
- No negative effects on sucking behavior:  
same oral muscles in breastfeeding
- Taste of milk
- Digestion: Saliva and lipase
- Less loss of lipids compared to tube

Malhotra, Vishwambaran, Sundaram & Narayanan, 1999

Gomes, Trezza, Murade, Panovani, 2008

# Bottle: Exception

*Mother:*

Unable to breastfeed:

- Certain types of breast surgery
- Long term treatment with certain drugs
- Special diagnoses (incl. HIV)
  
- Refuses to cup feed (informed choice)

Does not want to breastfeed

*BFHI: Mothers' informed choice = acceptable*



## Bottle: Why not?

“Idea”: Babies feed X times/day, fixed hours and volumes

*“Take a full meal”*

Feeding routines = unable to attain exclusive breastfeeding

Wrong ideas about baby’s need of contact, sucking

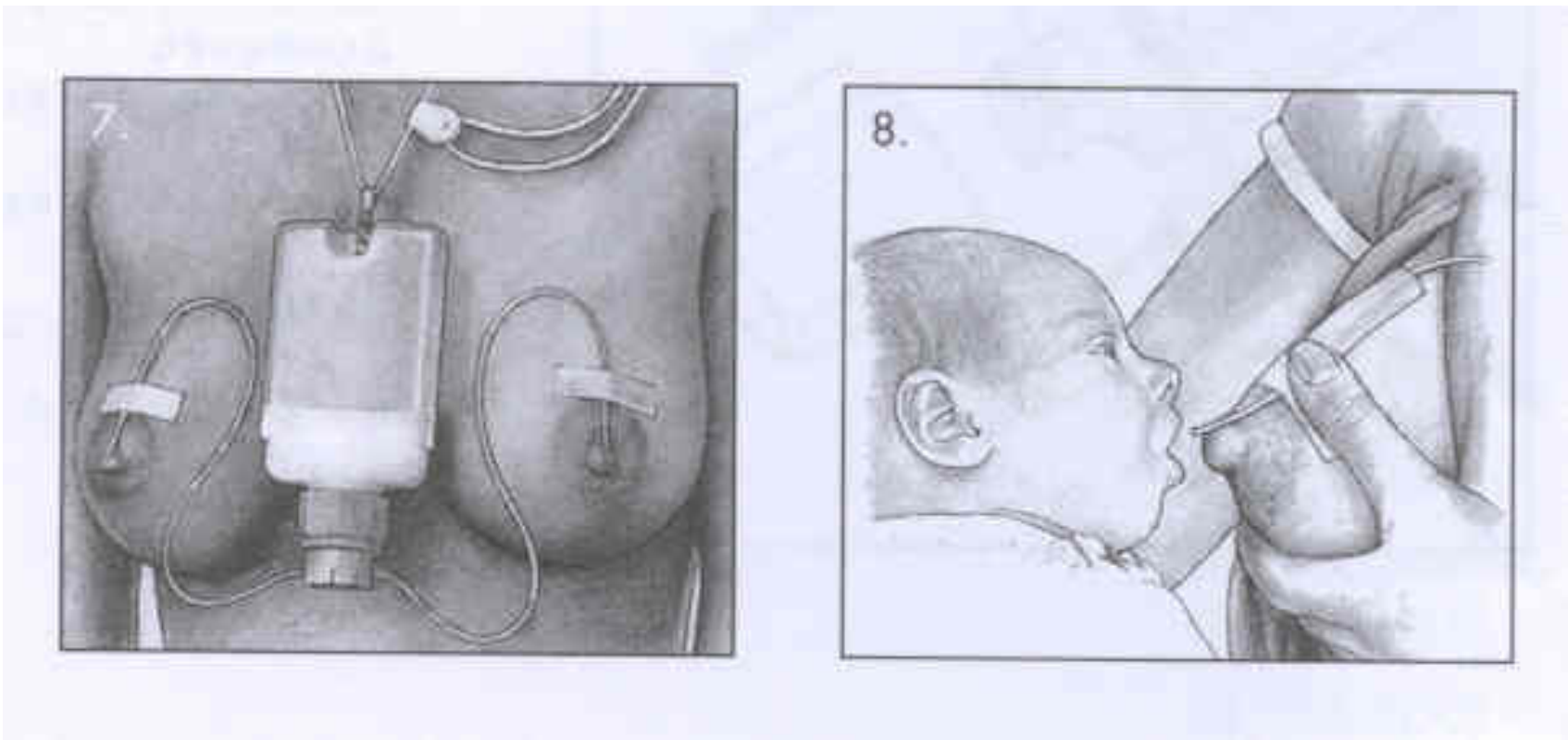
Anybody can feed the baby.

Gender equality. Mother’s “freedom”.

*Inadequate stimulation of milk production  
→ shorter breastfeeding duration*

# Nursing supplemental system or feeding tube and syringe on mother's breast

Inadequate milk production, unable to breastfeed, adoptive mother...



*Regulated feeding:*

Fixed volumes+intervals (50 ml x 8)

*Semi-demand breastfeeding*

- Prescribed total daily volume for supplementation
- No fixed intervals, not follow the clock!
- Mother offers the breast often (every 2 hours) day and night: based on infant signals
- Supplementation (cup, tube...) when needed



*On demand breastfeeding* = based on baby's signals

From *term* age – brain maturation

# Strategies for reduction of supplementation by tube or cup (bottle)

- A. Test weighing = Reduce supplementation based on infant's competence
- B. Reduce supplementation step by step
- C. Schedule for reduction av supplementation:  
plan for X days ahead

And infant weighed daily - or every 2-3:e days

# Prescribed gradual reduction of supplementation

Age (days)	PMA (weeks)	Weight	Breast milk	Feeding
0	28 + 0	1533	0 ml x 4 6 x 1 10 x 7	+ Parenteral nutrition
7	29	1416	18 x 12	Only tube feeding
14	30	1570	24 x 12	Breastfeeding; tube x 12
16			<b>Semi-demand</b>	Breast x 6; tube x12
21	31	1728		Breast x 7; tube x 11
28	32	1858	+ 150 ml/day	
29			+ 120 ml	
30			+ 100 ml	
31-32			+ 75 ml	
33				Breast only
35	33	1994		Breast x 13

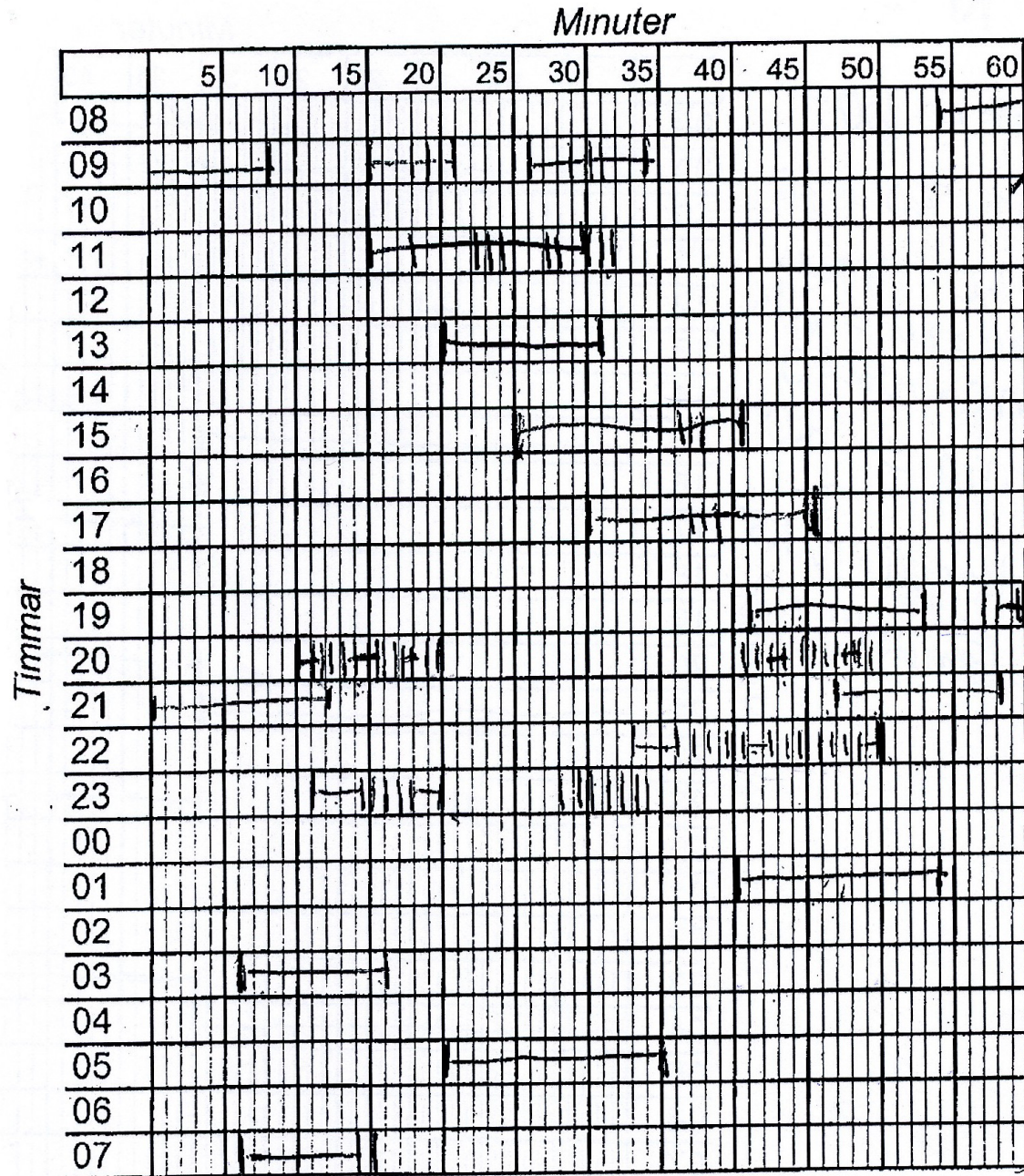
# Which breastfeeding patterns can be expected in infants born preterm?

Preterm infants at 2 months CA

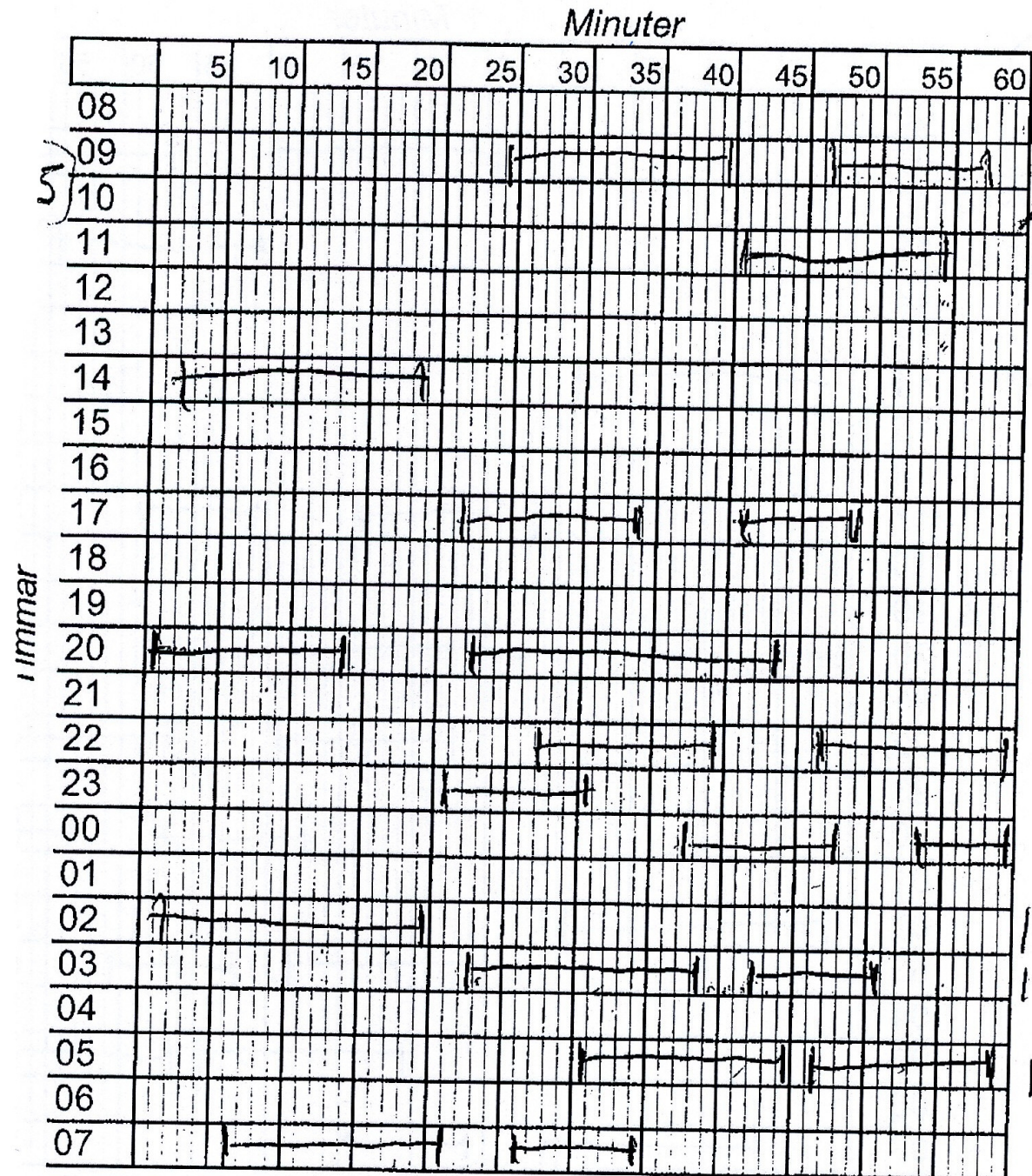
Maternal 24 hour breastfeeding diaries



# Baby A



# Baby B









# Breastfeeding patterns

*Wide diversity between infants and in infants during 24 hours*

- frequency of sessions/day
- duration of sessions
- intervals between sessions
- very short sucking bursts
- patterns day and night

Conclusion: Let the baby decide

Thank you for your attention!

