

Bedding-in, Rooming-in & Breastfeeding on the Postnatal Ward

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In previous episodes...

- 1999: Why do parents and bed-share and the role of breastfeeding?
- 2000: How does bed-sharing promote breastfeeding?
- 2001: Behaviour of breastfeeding bed-sharers and infant safety
- 2003: Could bed-sharing on post-natal ward be beneficial?

Evolutionary Medicine

- Examines consequences of mismatch between cultural practices and evolved biology
- For successful breastfeeding:
 - What does the infant need?
 - What does the mother need?



Baby needs



- To be awake and un-drugged
- Close proximity to mother's body
- Time to express innate abilities
- A responsive mother
- To feed little and often
- To practice latching & sucking

Mother needs

- To be awake and un-drugged
- Close proximity to baby
- Time to learn and observe infant's cues
- Ability to respond
- Frequent nipple stimulation
- Milk removal



History of postnatal separation

- Popularity of 'unconscious childbirth'
- 1900-1940: Use of chloroform
- National Birthday Trust Fund



- Hospital births increased
- Mothers unable to care for infants
- Nurseries became prevalent
- 'Twilight sleep' and barbiturates
- Babies unable to suckle, mothers totally incapacitated



- 1960s UK hospital births dominate
- Psycho-prophylaxis movement
- Separation justified by infection control



- Babies removed to 'safe place' for observation
- Mothers need rest – meet babies only for scheduled feeds
- Breastfeeding initiation rates plummet



Steps to promote breastfeeding

- Post-natal separation = unique to Western post-industrial world
- Introduction of unhurried delivery room skin-to-skin contact
- Closure of nurseries and promotion of rooming-in
- Is a brief period of skin-to-skin sufficient?
- Is 24-hour rooming-in sufficient?



Effects of infant postnatal sleep location

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'Randomised trial of mother-infant sleep proximity on the post-natal ward: implications for breastfeeding initiation and infant safety'. *Archives of Disease in Childhood* Dec 2006.

Randomised Trial

- Conducted 2003-2005
- 64 mothers and babies
- Recruited pre-natally at Bloomsbury workshops
- Randomised to 3 infant sleep conditions
- Videod on 1st and 2nd nights
- Normal deliveries
- No opiate analgesics within 24 hours

Demographic characteristics

	Bed	Crib	Cot
Sample size	19	23	22
Mother age	32	31	31
Father age	33	34	33
Ethnicity (%)			
White	92	94	94
Asian	8	6	6
Baby age (hrs)	18:20	18:15	18:37
Gest. Age (days)	284	282	280
Birth wt (g)	3306	3402	3542

No differences across the 3 conditions

Pre-intervention comparisons

	Time since mother's last sleep	Infant APGAR score	>10 mins skin-to-skin contact
Bed	40 hrs	9.22	84.2%
Crib	35 hrs	9.26	82.6%
Cot	37 hrs	9.14	86.4%

No differences across the 3 conditions

Data Analysis

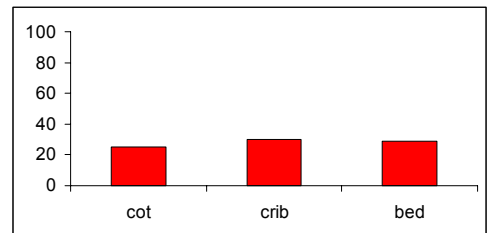
Intention to Treat (ITT)

Includes all mothers who were filmed and followed up regardless of whether they remained in their allocated condition throughout the study

Per Protocol (PP)

Includes only those mothers who adhered to the allocated condition for the majority of the period observed

Proportion of non-compliance



Bed to cot cross-over: bili-lights

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Outcome variables

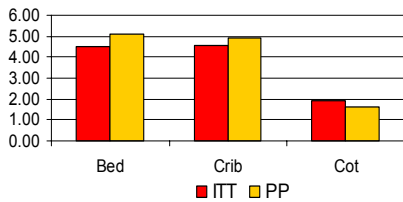
- Breastfeeding frequency
- Infant exposure to potential risks
- Mother & infant sleep duration
- Mother's satisfaction
- Assistance from staff
- Long-term breastfeeding
- At home infant sleep site

Maternal physiology

- After expulsion of placenta, progesterone falls & prolactin mediates milk secretion
- Prolactin production influences timing & intensity of lactogenesis II
- Nipple stimulation → prolactin surges
- Stimulation intensity → greater surge
- Night feeds → greater surge
- More frequent feeds → earlier & more copious milk production at lactogenesis II

Feeding attempts

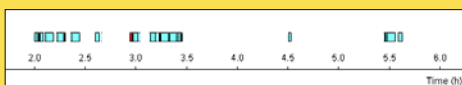
Successful and attempted bouts/hour



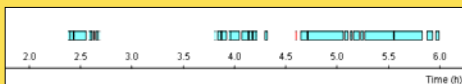
Bed vs. cot, $p < 0.01$; Crib vs. cot, $p < 0.00$; Bed vs. crib = ns

Breastfeeding initiation

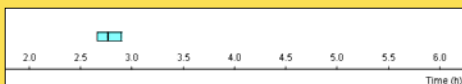
	Bed	Crib	Cot	Pair-wise t tests
Successful feeds per hour	1.69	1.80	0.79	Bed vs Crib; ns Bed vs Cot; $p = 0.01$ Crib vs Cot; $p = 0.01$
Feeding attempts per hour	3.01	2.78	1.15	Bed vs Crib; ns Bed vs Cot; $p = 0.01$ Crib vs Cot; $p = 0.02$
All feeding effort per hour	4.50	4.58	1.94	Bed vs Crib; ns Bed vs Cot; $p = 0.01$ Crib vs Cot; $p = 0.00$
Nipple presentation per hour	5.97	5.31	3.04	Bed vs Crib; ns Bed vs Cot; $p = 0.02$ Crib vs Cot; $p = 0.03$



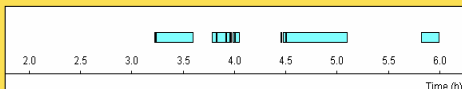
Bed



Crib



Cot



Cot
X-over

Responsiveness to cues

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Accessibility

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Interaction

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Accessibility & Interaction

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Unhindered access

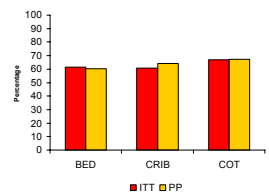
- Facilitates contact between mother and baby
- Allows baby to easily attract mother's attention
- Encourages greater interaction
- Facilitates frequent attempted feeds
- Results in more frequent successful feeds
- Practice leads to confidence
- Short and frequent feeding bouts = less nipple trauma
- Increases prolactin production

Infant safety

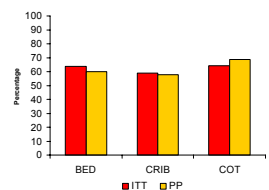
- Breathing (airways covered)
- Falling (positioned precariously)
- Overheating (head covered)
- Entrapment (baby squashed by equipment)
- Overlaying (baby squashed by mother)

	Bed	Crib	Cot	t test
Potential breathing risk per hour	0.12	0.03	0.02	Bed vs Crib; ns Bed vs Cot; p=0.04 Crib vs Cot; ns
Potential falling risk per hour	0.02	0.02	0.00	Bed vs Crib; ns Bed vs Cot; ns Crib vs Cot; ns

Infants' sleep duration



Mothers' sleep duration

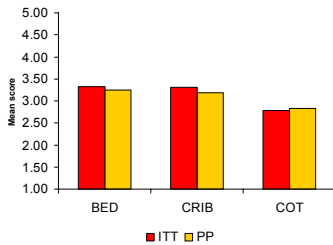


	Bed	Crib	Cot	t test
Mean % dur'n both nights	64.9	58.9	64.2	Bed: Crib = ns Bed: Cot = ns Crib: Cot = ns
1 st night	64.2	62.3	66.2	Bed: Crib = ns Bed: Cot = ns Crib: Cot = ns
2 nd night	63.6	55.9	62.0	Bed: Crib = ns Bed: Cot = ns Crib: Cot = ns
t test 1 st vs 2 nd	ns	ns	ns	
Mean bout freq	5.5	6.4	5.6	Bed: Crib = ns Bed: Cot = ns Crib: Cot = ns
1 st night	6.4	5.7	5.7	Bed: Crib = ns Bed: Cot = ns Crib: Cot = ns
2 nd night	4.6	6.4	5.5	Bed: Crib = ns Bed: Cot = ns Crib: Cot = ns
t test 1 st vs 2 nd	ns	ns	ns	

Calls to staff

	Bed	Crib	Cot	t test
Calls/hour	0.13	0.17	0.03	Bed: Crib = ns Bed: Cot = 0.02 Crib: Cot = 0.01
Visits/hour	0.40	0.40	0.30	Bed: Crib = ns Bed: Cot = ns Crib: Cot = ns
% duration visits (1%=2.5min)	2.1	1.3	1.1	Bed: Crib = ns Bed: Cot = ns Crib: Cot = ns

Maternal satisfaction



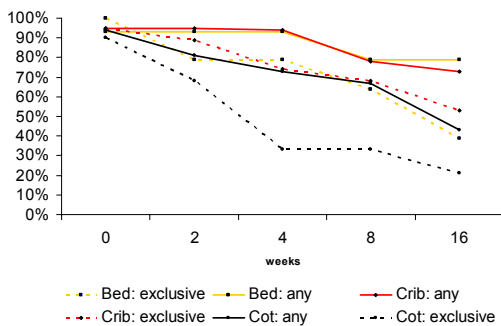
Bed vs. crib = ns; Bed vs cot = ns; Crib vs cot, p=0.04

Breastfeeding duration

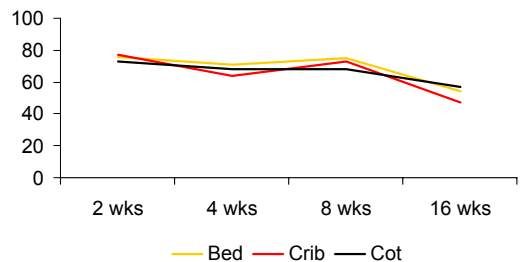
- *Prolactin Receptor Theory* links early feed frequency to breastfeeding duration
- Galactopoiesis depends on early production of prolactin receptors
- Receptor development depends on frequent feeding and prolactin production
- Does increasing early feed frequency affect breastfeeding duration?

De Carvalho et al (1983); Hinds & Tindale-Biscoe (1982); Zuppa et al (1988)

Breastfeeding duration



Bed-sharing at home



Study outcomes

- Proximity significantly affects breastfeeding frequency
- Cot is inferior to bed/side-car crib for breastfeeding initiation
- Shared sleep surface = higher 'potential' safety risk?
- Side-car crib = most effective for safety & breastfeeding
- Infant location had no effect on mothers' sleep, infants' sleep or staff visits
- Sleep location on post-natal ward may affect breastfeeding duration, but does not affect at-home sleep arrangements
- Implications for breastfeeding establishment in groups at-risk for breastfeeding failure

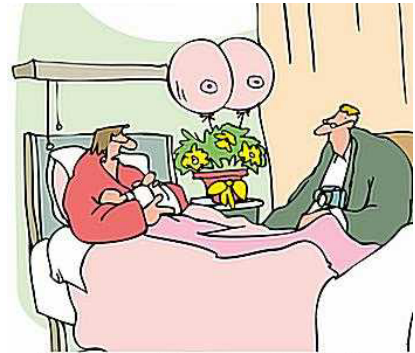
Symbiosis

- Mothers and babies have a symbiotic partnership
- Mutually reinforcing process, behaviourally and biologically
- Historical focus = effects of separation on babies' innate abilities and biological needs
- Maternal role also has 'hard-wired' components that are disrupted by separation
- Frequent feeding is fundamental to maternal physiology
- Mothers and babies both require close proximity

Evolutionary medicine

... suggests the current model of post-natal care (rooming-in) disrupts expression of the evolved behavioural and physiological interactions between mothers and infants that promote the effective establishment of breastfeeding.

Despite recent alterations in maternity care practices, a proportion of breastfeeding failure remains an iatrogenic consequence of the restrictions imposed by a hospital environment.



"They also left a pamphlet on the benefits of breast feeding."