

The Co-Sleeping Controversy

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Night-time infant deaths: murky definitions & diagnoses

- SIDS is a diagnosis of exclusion
- Smothering & positional asphyxia isn't SIDS
- Homicide (infanticide) is underreported
- Undiagnosed anomalies & diseases
- Place of death vs. *cause* of death
- “accidental” vs. “preventable” definitions

Risky Environments

- SIDS risks
 - Tobacco smoke / secondhand smoke
 - Especially mothers who smoke
 - Even *breastfeeding* mothers who smoke
 - Even if the smoker smokes outside the house
 - Prone position (face down)
 - Unattended / isolated – baby in separate room
 - Formula feeding, even partial
 - Room too warm / baby overheated
 - Respiratory illnesses and infections

Health Canada PSAs

- “Sweet Dreams”
- Based on New Zealand Cot Death Study
 - 79% of SIDS related to
 - Maternal smoking
 - Prone sleeping
 - Artificial (formula) feeding
 - Mitchell EA, Stewart MW, Becroft DM et al. Results from the first year of the New Zealand cot death study. *NZ Med J* 104: 71-76, 1991.

Risky environments, cont.

- Suffocation / entrapment risks
 - Bedding or objects that can suffocate or trap
 - Soft mattresses, couches, reclining chairs
 - Bed partner(s) who might suffocate or entrap
 - Drunk, drugged, unaware of baby
 - Formula-feeding mother, even partial
 - Sleep position relative to baby differs from BF moms
 - Overcrowded (>2 adults + baby)
 - pets; other siblings

Stakeholders / interested parties

- Physicians & health care professionals
 - Lactation professionals
- SIDS researchers & groups
- Public health / Child Fatality Review Boards
- Criminal justice system
 - child abuse/endangerment; domestic violence
- Baby furniture manufacturers
- Religious, social & cultural bodies
- *Tobacco companies & Formula industry*

SIDS Incidence and Statistics

- #1 killer in babies 1 month to 1 year
- 40% of infant deaths: 3000 in US/year
- 90% in first 6 months; peak @ 3 mos.
- Most 10 pm - 10 am; peak 5:00 am
- More on weekends, holidays, cool temps
- 1 1/2 boys to 1 girl
- More in Blacks; less in Hispanics, Asians

Risk Factors for SIDS

- Pre-birth
 - Smoking / drug use during pregnancy
 - Prematurity
 - Poor prenatal nutrition & care
- Post-birth
 - **Prone sleeping position** (face down)
 - Any household smoking, esp. mother
 - Artificial (formula) feeding
 - Previous ALTE event or sibling SIDS **

Basis of recommendations against bedsharing and co-sleeping

- **Statistics?**
 - I found no current Canadian statistics on infant deaths
 - Gerez & Cote, Quebec 1991-2000 unpublished data
 - 81 of 443 SIDS cases in unsafe environments
 - Therefore, 362 were in “safe environments” (?)
- **Science?**
 - No published studies support the concept that “ALL bedsharing is inherently dangerous.”
 - Breastfed babies evolved in mother’s bed & arms
- **Common practice?**
 - 50-90% of Western parents bedshare at least part of the night

CESDI/SUDI research

- 17 million people in 5 regions of England over 3 years
- 325 infant deaths, 1300 controls
- Prone sleeping position – *clear risk*
- Smoke in the house – *clear risk*
- Couches – *clear risk of entrapment*
- ZERO SIDS deaths among sober, non-smoking co-sleeping, breastfeeding mothers & babies on safe surfaces
- “There is no evidence that bed sharing is hazardous for infants of parents who do not smoke”
- Blair PS, Fleming PJ, Bensley D, Smith I, Bacon C, Taylor E, Berry J, Golding J, Tripp J. Smoking and the sudden infant death syndrome: results from the 1993-5 case-control study for confidential inquiry into stillbirths and deaths in infancy. *BMJ* 1996;313:195-198.

Arnestad: Norway 1984-1998

- Increased risk:
 - Smoking during pregnancy
 - Maternal disease during pregnancy
 - Young maternal age
 - Infants who never woke at night
- >50% deaths in prone position
- “We found no risk of SIDS for infants who usually co-slept. The increase in co-sleeping as a usual mode of sleep in the control group, over the time period studied, could not be related to changes in the SIDS rate for the region.”
- Arnestad AM, Andersen A, Vege Å, Rognum TO. Changes in the epidemiological pattern of sudden infant death syndrome in southeast Norway, 1984–1998: implications for future prevention and research. *Arch Dis Child* 2001;85:108–115).

Carpenter: 20 regions of Europe

- 745 cases, 2411 controls, 60 variables
- 62%: prone sleeping or bedcovers over baby's head
 - “Twice the risk (36% of cases vs 16%) if the baby slept in another room, away from the mother”
- Odds ratio for smokers was 11.3 times greater than for nonsmokers
 - “substantial risk attributable to smoking by one or both parents” (77% had maternal smoking)
 - “all night bedsharing should be discouraged for all mothers who smoke”
- Method of feeding was not reported
 - Carpenter RG, Irgerns ALM, Blaire PS, England PD, Fleming P, Jorch G, Schreuder P. Sudden unexplained infant death in 20 regions in Europe: case control study. *Lancet* 2004;363:185-91.

Helen Ball, England 2003

- 253 families in North Tees, UK
- 65% of breastfed babies slept with parents all or part of the night (33% of formula-fed babies)
- “Significantly longer duration of BF among mothers [in low-income classes] who were bed-sharers”
- Mothers who are not prepared to get up periodically at night to BF either:
 - (1) start supplementing,
 - (2) attempt to “train” the baby to sleep, or
 - (3) sleep next to the baby

Helen Ball, cont.

- “Bedsharing promotes breastfeeding in various ways
- “as breastfeeding increases, bedsharing is expected to increase”
- “Blanket recommendations against parent-infant bed-sharing will work against BF promotion programs & undermine BFHI initiatives”
- “Health professionals should explicitly discuss safe bedsharing practices with all parents”

- Ball HL. Breastfeeding, bed-sharing and infant sleep. *Birth* 2003;30(3):181-188.

Chicago Infant Mortality Study, 1993-1996

- 260 deaths, matched controls; 75% black
- High risk: prone position, soft surface, pillow use, covers over head/face, Sick in the 2 days prior to death
- “Bedsharing was only a risk when infant was sleeping with people other than the parents. Because there were few mother-father bed sharers, the findings were driven by the mother-infant dyad. These results are reassuring and consistent with laboratory studies demonstrating that more maternal inspections, more infant arousals, and less deep sleep among infants may occur when mothers and infants sleep together routinely.”
- Hauck FR, Herman SM, Donovan M et al. Sleep environment and the risk of Sudden Infant Death Syndrome in an urban population: the Chicago Infant Mortality Study. *Pediatrics* 2003;111(5):1207-1214.

Forste: Does Matter?

- “Breastfed infants are 80% less likely to die before age 1 year than those who never breastfed, even controlling for low birth weight.”
 - For every 100 deaths in the formula-fed group, there were 20 deaths in the breastfed group.
 - Using breastfeeding as the normative behavior (20 deaths in the first year), the formula fed group, with 100 deaths, had 5 times as many deaths or a 500% increase in mortality.
- “Analyses of infant mortality indicated that breastfeeding accounts for the race difference in infant mortality in the United States at least as well as low birth weight does.”
- *Forste R, Weiss J, Lippincott BS. The decision to breastfeed in the United States: does race matter? 2001;108:291-296*

Pacifiers and SIDS

- Some studies seemed to find pacifier use protective against SIDS (*Mitchell, Fleming*)
 - Babies given pacifiers on reference night less likely to die than babies without pacifiers
 - All pacifier users in CDESDI/SUDI study were artificially fed – statistically removed all breastfeeding babies
- L'Hoir (Netherlands) “recommended dummy use for BoF babies” (*Eur J Pediatr 1999*)

Sucking triggers breathing

- Babies suck own fingers, pacifiers, mother's fingers
- Blood O₂ levels higher during all forms of NNS
- Own digit NNS may maintain arousal
- NNS may be triggering an alternate respiratory control center (?)

CESDI/SUDI research

- Nights with pacifiers = more total time feeding
 - Pacifier + mom's fingers = fewer feeds of longer duration
 - Own digit = more feeds of shorter duration
- Less NNS with bed-sharing but more state changes at hours of greatest risk for SIDS

CESDI/SUDI research, cont.

- NNS may increase maternal attentiveness during the night and improve possibility that mom will come to infant's assistance if problems arise
- Pacifier sucking may promote less arousal than own digit sucking
- Routine pacifiers users tend not to develop own sucking habits

Solitary sleep and pacifiers

- Fleming: “routine pacifier users may not receive all of the protective effects of NNS, particularly when solitary sleeping”
- “the risk of SIDS is increased by prone or side sleeping; loose bedding which can slip over the baby’s head; and bed sharing by mothers who smoke.

But pacifiers cause problems

- Keep babies away from the breast
- Risk of milk stasis and lower milk supply
- Dental and oral structural changes
- Increased risk of ear & other infections
- Choking, aspiration, allergies, injuries
- Reduced interaction with environment
- Earlier supplementation and weaning

Pacifiers may not be the answer

- Breastfed babies suck *ad lib* all night long
- “Evidence for recommending pacifiers to reduce risk of SIDS is weak (level III at best).”
- “Advice for routine care of healthy babies must have as strong an evidence base as for babies who are ill, since healthy babies are far more common and the potential for unsuspected harm is relatively great – a lesson bitterly learned for infant sleeping position.” –Fleming

Shared Sleep is normal

- Temperature (thermal) synchrony
 - Mom's body changes to balance baby's need
- Sleep position and movement triggers
 - Baby on back or side (en face)
 - Baby hears mom's breathing rhythms
 - Safer chemical microenvironment
 - CO2 triggers baby's arousal, respiratory patterns
 - Mothers intervene quickly

Shared Sleep is normal

- Mutual sleep state regulation
 - more time in same sleep state
 - less time in deep sleep states
- Avoids triggering stress responses
 - Salivary cortisol normal (Meany, Anderson)
 - Lifelong patterning of stress responses
- Mutual arousals do not disturb sleep
 - Mothers report normal or better sleep

Breastfeeding mothers get more sleep when they bedshare

- “More sleep was obtained when breastfeeding mothers slept with the newborn.”
- “Methods or devices that allow breastfeeding mothers and newborns to sleep next to each other in complete safety need to be developed.”
- Quillin SIM, Green LL. Interaction between feeding method and co-sleeping on maternal-newborn sleep. *JOGNN* 2004;33:580-588.

Babies need to be touched

- Skin is the baby's largest sensory organ
 - *The skin elements with the largest representation on the cortex of the brain are: hands and especially thumbs, lips, tongue, pharynx, and feet."*
 - Montagu, A. *Touching: the Human Significance of the Skin, Third Edition.* New York: Harper and Row, 1986
- External gestation (Montagu) 9+ months
- Normal growth (Schanberg, Field)
- Dendrite formation
- Skin sensitivity (Koblenzer)

Biological effects of touch

- Stabilization after birth
- Immune function - SIgA levels
- Normal stress response (Meany)
 - affects long-term learning and memory
- Bacterial flora
- Cardiac synchronicity
- Oxytocin responses – mother and baby
- Comfort for the baby

Skin-to-Skin contact

- Kangaroo Care research
- stabilizes heart rate, BP, O² saturation
- More quiet sleep
- Thermal synchrony with mother
- Colonization with mother's "friendly" bacteria
- Cochrane Review 2003
 - Anderson GC, Moore ER, Hepworth J, Bergman N. Early skin-to-skin contact for mothers and their healthy newborn infants. In: *The Cochrane Library*, Issue 2, 2003. Oxford: Update Software, 2003.

“NEVER SEPARATE MOTHER AND INFANT,” SAYS NILS BERGMAN, MD

- Separated babies had 2x level of salivary cortisol hormone (stress hormone) as unseparated babies
- Separated babies with procedures have 10x level of cortisol
- Anderson GC. Risk in mother-infant separation postbirth. *Image: Journal of Nursing Scholarship* 1989;21:196-99.
- Susceptibility to stress-induced pathology shows later in the life of the child or adult



US National Health Goals are similar to Canadian Health Goals

- **Healthy People 2010 Goals**
 - Reduce / prevent future deaths
 - Increase breastfeeding initiation and duration
- **Ohio MCH Block Grant Goals**
 - Reduce childhood fatalities
 - Increase breastfeeding
- **Child Fatality Review Boards (Ohio law 2000)**
 - Better investigation of deaths
 - Collect & utilize data to prevent future deaths
 - Community collaboration/involvement

Example: Dayton OH Lactation Community

- >35 board-certified LCs in all clinical settings
 - All local maternity hospitals, MCH & WIC agencies
 - Home health, private practice, MD offices, more
 - Most are RN, RD, or hold other credentials
 - International exam on evidence-based practice
- Knowledgeable & supportive physicians
- University professors in related fields
- Allied health professionals
- La Leche League groups and Leaders

Example: Montgomery County (Dayton area) data 2001 from ODH

- 7535 live births, 69% BF (Ross) = 5199 babies
- 7501 new moms, 69% BF = 5175 moms BF
- BF increasing 1-2%/year = 75-150 more babies
- SIDS = 1 (down from 12 in 1998)
- ***~5000 mothers/year will be affected by programs or policies that make breastfeeding more difficult***

CDC Data

- Local decrease in SIDS & increases in breastfeeding rates parallels national

data *at the same time*

as bedsharing rates

are increasing

US Breastfeeding Campaign

- Sponsor: DHHS Office of Women's' Health
- Funded by Ad Council
 - Three years; \$40 million; radio TV, print, etc
 - Focus group research for past 2 years
- Target: minorities / least likely to BF
- *Confidence* to exclusively BF for 6 months
- *Consequences* of NOT breastfeeding
- Help is available for mothers (and funded)
- Peer counselors as part of WIC package

Areas of agreement

- Prone sleeping is dangerous
- Bedsharing with a drunk/drugged person is dangerous
 - Siblings, other caretakers less aware of baby
- Entrapment and suffocation are dangers
 - Soft surfaces, couches, waterbeds
 - Loose bedding over head, pillows, toys

Scientific / empirical evidence

- Skin-to-skin contact protects preterms
- Safe bedsharing protects babies
- BF mothers are *different* from everybody else
 - Infant breathing, heart rates, arousals differ
 - Maternal position during sleep protects baby
- **No evidence that *all* bedsharing is risky**
- Examples from UK, NZ, MN, CA, WI, Canada, ASIP, more...

Areas of concern / disagreement

- Assertion that “**ALL bedsharing is dangerous**”
- Implying that **mothers are inherent risks to their infants**
- No differentiation between **mother** and other people
- No differentiation between **breastfeeding** and formula feeding
- Assertion that “**sleep site does not affect breastfeeding**”
- **Omission** of other risk factors esp. ETS (smoking)
- Assertion that “some people lack the judgment to understand a mixed message”
- Ethics of withholding information to parents

Potential conflicts of interest

- Who benefits when babies are separated from their mothers?
- Crib Manufacturers
- Consumer Products Safety Commission (regulate cribs)
- Formula companies
- Other??

THE CJ FOUNDATION FOR SIDS PARTNERS WITH MEAD JOHNSON TO RAISE AWARENESS OF SIDS

- **Diaper Bags By Leading Manufacturer to Feature SIDS Risk Reduction Steps**
- The CJ Foundation for SIDS, the major supporter of Sudden Infant Death Syndrome-related organizations and research in the nation, will soon be announcing a partnership with Mead Johnson Nutritionals, the leading supplier of infant formula. The organizations will work to increase awareness of Sudden Infant Death Syndrome (SIDS) among parents and caregivers via a laminated message tag containing SIDS risk reduction information. The tag will be attached to the complimentary diaper bags Mead Johnson distributes at 95-98 percent of all birthing hospitals to approximately 2.7 million new parents each year.
- "These tags are a tremendous opportunity for the CJ Foundation for SIDS to instill the steps to reduce the risk of SIDS in the parents and caregivers of newborns and infants," said Barry A. Bornstein, Executive Director, CJ Foundation for SIDS. "We are thrilled with this partnership, which promises to be instrumental in bringing us closer in our battle to increase awareness of these risk reduction steps and ultimately, to completely defeat Sudden Infant Death Syndrome."
- Risk reduction steps include: healthy babies should be placed on their backs to sleep; no smoking near the baby; babies should not be allowed to get too hot; they should sleep on a firm mattress; and mothers should engage in consistent pre-natal and pediatric care.
- Mead Johnson Nutritionals is a world leader in nutrition, recognized for developing and marketing quality products that meet the nutritional and lifestyle needs of children and adults of all ages. Mead Johnson is a Bristol-Myers Squibb Company.
- Also contributing to the diaper bags is the NARAS Foundation, the non-profit music and education and preservation arm of the National Academy of Recording Arts and Sciences. The organization developed a compact disc entitled *Smart Symphonies*, which features GRAMMY-winning classical music, specifically for distribution with the Mead Johnson bags. Scientists and early childhood development experts say that recent studies indicate playing classical music can help stimulate brain development in babies.
- Representatives from Mead Johnson, NARAS and the CJ Foundation for SIDS will announce the new partnership at the CJ Foundation's national SIDS research symposium on October 18, 1999 at the Time, Inc. building in New York City.
- <http://www.cjsids.com/mead%20johnson.htm>

Accessed 1/21/2005

Areas of collaboration

- Increase awareness of formula feeding risks
 - Mortality: NEC, SIDS, anaphylaxis, cancers
 - Morbidity: RSV, infections, diabetes, obesity
- Better documentation of feeding method
 - Forensic examinations, definitions of SIDS, BF, etc.
 - Better data collection on feeding method
- Share pertinent research and other models
- Increased coordination with BF community
- More ...

Examples: future actions

- Dayton: meetings with local health commissioner and Board of Health members
- US: USBC interest; Task force formed
 - Request to AHRQ for investigation Jan 2005
- My plans for ongoing research
 - E-mail groups BFSleep@yahoogroups.com
 - Brochure in development specific to breastfeeding
- More ...

Summary

- SIDS occurs in cribs AND beds
 - Risks: Smoking, prone position, formula feeding
- Smothering is strongly linked to alcohol and drug use by bed partners
- SIDS and smothering are not the same
- Breastfeeding mothers sleep *differently* with their babies than all other people

Summary, continued

- Reducing child deaths and increasing breastfeeding are ***compatible*** goals
- Safe bedsharing is possible and supports breastfeeding
- The breastfeeding community is committed to supporting mutual National and local health goals

The Power of Stories over Statistics

Thomas Newman MD, BMJ 2003

- “Stories are compelling because they describe particularly tragic outcomes and they seem to offer a solution – a way to extract some meaning and redemption from tragedy by preventing its reoccurrence.”
- “Ideally, public policies and choices of medical treatments should be based on the best available evidence.
- But these policies and choices are made by people, and people respond strongly to stories.”

Thank you

- James McKenna, PhD and the Mother-Baby Behavioral Sleep Lab, University of Notre Dame, Indiana
- Helen Ball, PhD; Parent-Infant Sleep Lab, University of Durham, UK
- Rosha McCoy, MD, Medical College of Ohio
- The wisdom of mothers and babies