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# Sleeping With Baby: An Internet-Based Sampling of Parental Experiences, Choices, Perceptions, and Interpretations in a Western Industrialized Context

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Mothers and infants sleeping within proximity to each other (cosleeping) represents normal, healthy, and expectable human behaviour, especially if mothers breastfeed. Yet, western health officials generally recommend against particularly one form of co-sleeping known as bedsharing. This study explores these issues and especially highlights parental accounts of their sleep practices, interpretations, and reflections based on detailed narratives or 'ethnohistories.' The sample involves a self-selected sub-group of over 200 mostly middle-class mothers from Canada, the United States, Australia, and Great Britain. Mothers report how and why they adopted co-sleeping practices, how satisfied they are (or were) with their decisions, and what benefits they think they or their infants derived from their co-sleeping practices. Also included in the reports are a surprisingly high number of parents who think they may have saved their infant's life by bedsharing, data heretofore never reported in the literature. The formulation of medical policies, we suggest, ultimately must be informed by a full understanding of how parents actually think about and subsequently structure their infant's sleep, what their goals and expectations are, and by an awareness of the emotional factors motivating parents to choose certain sleeping arrangements over others. The results reveal that many factors coalesce, often in unique ways, under unique circumstances, family by family, to determine where babies sleep and why. We conclude that sleeping arrangements are not solely determined by medically based recommendations, but also by the method of feeding, the particular needs of a particular infant, and the needs of mothers and fathers to get more sleep. While baby sleep locations and sleep patterns change in the first year of life,

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nighttime sleeping arrangements almost always reflect the nature of family values and the quality of social relationships at any given time. We conclude that these factors, alongside widely known independent SIDS risk factors, must also be acknowledged and respected if we are ever to achieve an effective and inclusive public health approach to the question of creating safe sleep environments for infants and children. Copyright © 2007 John Wiley & Sons, Ltd.

Key words: infant sleep; co-sleeping; bedsharing; life-saving bedsharing; breastfeeding

Mother-infant co-sleeping with nighttime breastfeeding constitutes a species-wide adaptation that remains both ubiquitous and potentially the most emotionally and biologically enriching sleep environment for parents and babies alike. Co-sleeping takes hundreds of different forms worldwide. What defines it as a functionally specific class of behaviours is the presence of at least one sober committed adult caregiver who sleeps within close enough proximity to the infant to permit the exchange of at least two sensory stimuli (touch, smell, movement, sight, and/or sound). Bedsharing is a specific type of co-sleeping behaviour that involves an infant and caregiver sleeping side by side on a shared surface, usually a mattress surrounded by a wooden or metal frame (McKenna et al., 1993). But co-sleeping also occurs when the committed adult caregiver shares a room with an infant while sleeping on a different surface such as when an infant sleeps in a crib or bassinet close to the mother's bed, i.e. roomsharing, which is known to reduce the chances of an infant dying from SIDS by one half (Carpenter et al., 2004).

Certainly, co-sleeping in one form or another is the oldest human sleeping arrangement, having predated history itself (Konner, 1981). But whether or not or under what conditions babies should sleep on the same surface with their parents in a western contemporary setting continues to elicit fierce debate to the extent that it would appear that any singular public health recommendation, especially against any or all forms of co-sleeping, will prove not only highly problematic in the short run, but dangerous and ultimately unsuccessful in the long run (see Nakamura, Wind, & Danello, 1999; O'Hara & Harruff, 2000). This is because when practised safely, whether sleeping on the same or a different surface, no doubt co-sleeping with breastfeeding represents for many parents an effective, highly integrated child-care system that enhances sleep, attachment, communication, nutrition and infant immune efficiency, induced by the increased breastfeeding episodes and increased parental supervision and mutual affection that accompany it (McKenna, 2000; McKenna, Mosro, & Richard, 1999).

The goals of this paper are (1) to clarify the political and cultural context and sets of assumptions associated with the co-sleeping, but especially the bedsharing debate; (2) to elucidate from the parents' perspective the reasons for practicing bedsharing (one form of co-sleeping), their own evaluation of the practice, and its possible effects on their family; (3) to provide a heretofore unanticipated set of potential reasons for re-defining at least safe forms of bedsharing as a practice that can be associated with beneficial and in some cases life-saving functions; and (4) to introduce the richness and utility of ethnographic data to help solve major contemporary public health problems in a western industrialized setting.

made setting.

NIGHTTIME BREASTFEEDING AND CO-SLEEPING BEHAVIOUR OF MOTHERS AND INFANTS: BACKGROUND TO A PUBLIC HEALTH CONTROVERSY

Unfortunately, what frames so much of the current discourse on co-sleeping is the belief that because some types of co-sleeping are unsafe, then all are. Some SIDS researchers, health professionals, and a governmental regulatory agency in the United States charged with protecting US citizens from deficient, dangerous, or fraudulent products (the Consumer Product Safety Commission or CPSC) worry that it may be too difficult to properly educate parents about how to construct a safe co-sleeping environment in a modern setting and so they argue against parent education as a means for maximizing bedsharing safety (Drago, 2000; Scheers, Rutherford, & Kemb, 2003). If, indeed, these attitudes, constitute a priori assumptions they can quickly act to constrain other interpretations and/or considerations of more successful and accurate public health approaches and strategies regarding the bedsharing issue. It may well prove unproductive, for example, to assume, independent of circumstances and conditions, that any and all non-crib sleeping infant deaths prove the inherent lethality of co-sleeping, especially in the form of bedsharing. Such views, where they do exist, probably explain why diverse forms of co-sleeping such as couch, sofa, and recliner-chair co-sleeping, as well as bedsharing, are used interchangeably in important epidemiological studies and assumed erroneously to carry the same high risk. Not surprisingly, studies adopting this approach to both categorizing and analysing co-sleeping outcomes and variables produce exaggerated infant death statistics which ultimately support the underlying assumption—that all cosleeping is equally dangerous, further justifying population-wide recommendations against any and all forms, regardless of type or conditions (Carpenter et al., 2004; Carroll-Pankhurst, & Mortimer, 2001; Kemp et al., 2000; McGarvey et al., 2003; Scheers et al., 2003).

It is clear that forms of unsafe co-sleeping including unsafe bedsharing are practised more frequently amongst the urban poor. In these settings, usually in the absence of breastfeeding, a host of risk factors converge to produce, not unexpectedly, a statistical over-representation of infant deaths from SIDS, positional asphyxiations and overlays (Carroll-Pankhurst & Mortimer, 2001; Kemp et al., 2000). Data from these studies make it clear that sleeping next to one's baby on the same surface is not always a practice of choice but of necessity owing to a family's financial inability to buy a crib (Brenner et al., 2003; Weimer et al., 2002). Whether or not a family has the 'luxury' of deciding between various sleeping arrangements and has the knowledge and capacity to arrange a safe co-sleeping microenvironment can help explain why the same practice, i.e. bedsharing, does not lead necessarily to the positive outcomes which might otherwise be predicted from an anthropological point of view which emphasizes the inherent adaptability of mother-infant co-sleeping through time. The problem is that while mother-infant co-sleeping evolved specifically to maximize maternal well being and infant survival, it is also true that western beds, bedding, and other sleep objects or furniture, as well as the sometimes chaotic social conditions within which western co-sleeping can occur, did not.

Anthropological perspectives remind us that forms of sleep (when, how, where and with whom we sleep and, if any, on what kind of furniture), including forms of co-sleeping in the industrialized west, are learned and culturally produced. This reality gives rise to unique associated characteristics that sometimes lead to

Parent Infant Co-sleeping

less than ideal or safe specific practices. Indeed, it is only by referencing and acknowledging how variable co-sleeping and especially bedsharing can be from population to population, and family to family, that we find evidence that an otherwise inherently safe arrangement or childcare practice (i.e. infants and mothers sleeping side by side) can on occasion be transformed into something risky or even fatal.

Adopting a population-wide and not a family-based perspective makes it more understandable why the US CPSC and local coroners tend to treat all forms of co-sleeping or co-sleeping in the form of bedsharing as if all forms represent one dangerous coherent, homogenous, practice when, in fact, they do not. But given that these professionals encounter not bedsharing success stories but only catastrophic failures (i.e. infant deaths), it is understandable why their view of co-sleeping is generally negative.

Still, it is more accurate to consider that co-sleeping behaviours are composed of many different practices (either safe or not) and, hence, there is no one single outcome or risk probability that can be associated especially with bedsharing. Without this appreciation of the heterogeneity of bedsharing practices one can understand why in addition to having a negative view of co-sleeping, coroners are also more likely to diagnose the death of an infant dying in a crib as a SIDS while diagnosing a baby dying in an adult bed as a probable asphyxial suffocation or accidental overlay (O'Hara & Harruff, 2000).

Even solitary sleeping infant deaths on beds are categorized as bedsharing deaths by the CPSC researchers in the USA and it is common to find that the 'cause' of an infant's death is explained without knowledge or reference to any actual or real behavioural circumstance or condition within which the beds were used. Diverse modifiable 'factors' associated with bedsharing such as infant sleep position, drug or alcohol use by bedsharing partners, or maternal smoking during or after pregnancy, all of which constitute significant confounding risk factors for SIDS, are not reported to the CPSC officials and, thus, such factors drop out of the explanation for the death. 'Practice,' i.e. bedsharing or location or both, assumes primary importance in such studies (Drago & Dannenberg, 1999; Nakamura et al., 1999; Scheers et al., 2003). The willingness to ignore or dismiss these factors as being important to understanding outcomes skews the data and assures that increasingly infant mortality statistics will support the original assumptions that forms of co-sleeping, especially bedsharing, are always highly dangerous (Drago, 2000; O'Hara & Harruff, 2000).

# IMPORTANCE OF TAXONOMIC DISTINCTIONS IN ASSESSING OUTCOMES

Both traditional ethnographic studies and new epidemiological studies make it clear that both bedsharing and other forms of co-sleeping worldwide are exceedingly diverse. In fact, even within a culture starting with the type of furniture mothers and infants sleep together in, or on, and depending on whether exclusive or mixed breastfeeding or exclusive bottle-feeding is involved, or who else is present in the bed, bedsharing behaviours will vary significantly from family to family, therein changing outcomes (McKenna, 2000). Indeed, variability involving the type and firmness of the sleep surface, and how or if (or what kind of) pillows and blankets are positioned and used, are all critical to a positive or negative outcome probability. Furthermore, the ages, motivations and sobriety of co-sleepers, the degree of social stability of a co-sleeping household, and

the quality of infant-parent attachments also represent known factors that coalesce to account for whether or not bedsharing especially is associated with reduced or a disproportionately high number of infant deaths. Yet, many health authorities and agencies continue to maintain that the 'practice' of bedsharing rather than these factors that make bedsharing dangerous and, thus, parental choice to bedshare, should be discouraged (see Kemp et al., 2000; Scheers et al., 2003).

An alternative approach emphasizes the rights of parents to make their own informed choices, and to receive educational support, while stressing specifically why bedsharing outcomes vary from population to population or from subgroup to sub-group. Proponents of this perspective argue that parents who elect to bedshare should be provided comfortable medical and public health venues to discuss their choices and practices, and that sweeping public health condemnations against any and all bedsharing should be avoided (Jenni, Fuhrer, Iglowstein, Molinari, & Largo, 2005; McKenna & McDade, 2005). This alternative approach suggests that bedsharing outcomes ascertained from studies of SIDS in relationship to bedsharing rates and practices can best be conceptualized in terms of a benefits-risks continuum ranging from less risk and perhaps protective on one end of this continuum to risky or lethal on the other end, depending upon the conditions and circumstances within which the bedsharing occurs. It is known, for example, that when the prone infant sleep position, soft bedding, maternal smoking, maternal alcohol or drug use, bottle-feeding (rather than breastfeeding) and infants sleeping with someone other than the mother are absent from the cosleeping environment (Hauck et al., 2003), for the most part associated outcomes are positive, as data from Japan and other Asian cultures indicate. In these cultures, co-sleeping with breastfeeding in the absence of maternal smoking approaches 100% and SIDS deaths are some of the lowest in the world (Nelson et al., 2001).

While recognizing that laboratory-based physiological studies of mothers and infants sleeping apart in separate rooms and together in the same bed do not necessarily represent what happens at home, still, the search for explanations as to what behavioural or physiological mechanisms might account for the exceedingly low SIDS and infant death rates found amongst high contact, breastfeeding-co-sleeping cultures worldwide make these studies indispensable. Studies of parent-infant skin-to-skin contact demonstrate potentially beneficial physiological regulatory effects that parental proximity and contact assert on the human infant whether awake or asleep. For example, in-hospital and sleep laboratory studies show consistently that mother-infant bedsharing changes the progression of the infant's sleep architecture and increases short (or transient) arousals (Mosko et al., 1997a, 1997b), while also changing the infant's breathing and apnoea rates (Richard et al., 1998). In addition, bedsharing studies and skinto-skin contact studies show that contact reduces crying and cortisol stress levels while increasing heart rate and heart rate variability, and raising the infant's body temperature. Studies also show that bedsharing lengthens sleep duration and enhances breastfeeding while improving the infant's capacity to suck, leading to increased daily milk consumption and an accelerated daily weight gain. Many of these changes appear clinically beneficial. For example, skin-to-skin contact serves more effectively than an analgesic for helping newborns recover more rapidly from birth-related fatigue (Gomez Papi et al., 1998; Gray et al., 2000). Skinto-skin contact also facilitates more stable oxygen saturation levels alongside increased heart rate variability (Messmer et al., 1997). It may well be the case that the highly neurologically immature human infant/neonate is positively

pre-sensitized to maternal contact (Ferber & Makhoul, 2004; Keefe, 1987, 1988; Ludington-Hoe et al., 1999).

Aside from the powerful biological factors underlying the motivation that parents exhibit to keep their infants close (see McKenna et al., 1993) it is difficult to know all of the recent cultural and/or family reasons why in western cultures. especially during the last 15 years, a dramatic shift has taken place in the numbers of parents electing to act on their biological inclinations to bedshare with their infants for part or all of the night (Willinger et al., 2003). During the 1960s or 1970s, recall that placing an infant in bed with the parents, rather than placing the infant to sleep alone in a crib in a room by him- or herself, was tantamount to deviance, possibly reflecting some form of psycho-pathology on the part of the mother or family. In an unrevised sleep training book still available on the local bookshelves, Ferber (1985) continues to espouse such a view. He states to parents who buy his book 'Solve Your Child's Sleep Problems' that '(i)f you find that you actually prefer to sleep with your infant you should examine your own feelings very carefully' (p. 31).

The most likely explanation for a shift towards more social sleep for parents and infants can be found in the re-emergence of breastfeeding in western societies which is rapidly becoming the new western cultural feeding norm. Historic highs in industrialized societies are being reached in the numbers of women initiating breastfeeding in parallel with both rapidly falling SIDS rates, and increasing rates of bedsharing especially amongst middle and upper class sub-groups who previously rarely bedshared in comparison to African Americans, Asians and Latinos (Blair & Ball, in press; Lozoff, Wolf, & Davis, 1985; McCoy et al., 2000; Nelson et al., 2001; Willinger et al., 2003). Indeed, across many western industrialized cultures a theme consistently articulated by mothers themselves is that bedsharing makes breastfeeding easier and contributes to more or better sleep for all. Bedsharing at night may also permit parents who work outside the home to make up for lost time without their infants while at work during the day (Ball, 2002).

To further illustrate, in almost all western industrialized nations studied thus far, co-sleeping behaviour is prevalent most notably among breastfeeding families who did not initially intend to co-sleep (Ball, Hooker, & Kelly, 1999). McCoy et al. (2000) found that breastfeeding mothers were three times more likely than bottle-feeding mothers to routinely bedshare. This study involved a survey by phone of a large sample of 10 000 mid-west and east coast American mothers. Similar findings have been documented in Great Britain (Ball, 2003), Australia (Rigda et al., 2000) and New Zealand (Baddock, 2000). It appears then that the biology underlying breastfeeding behaviour may well make more likely reduced nighttime distances between the mother and her infant, as if the decision to breastfeed acts as a 'hidden regulator' promoting increased nighttime motherinfant proximity, whether sleeping in the same bed or within arms reach on a different surface (Ball et al., 1999; McKenna et al., 1993).

Clearly, the practice of parent-infant co-sleeping and how it articulates with other aspects of infant care, like feeding method, is extensive, and warrants sustained inquiry and discussion from anthropologists, epidemiologists, medical professionals, and developmental psychologists. Regardless of personal choice or the preferences of institutions as to whether or not or when, forms of co-sleeping including bedsharing are deemed acceptable or supportable, data are needed at the most fundamental level of the family where emotions are experienced and behaviour is practised.

## METHOD

## Sample, Procedures, and Measures

This study highlights parental behaviour, practices, interpretations, and reflections based on detailed narratives or 'ethnohistories' of a self-selected sub-group of mostly middle-class mothers from Canada, the United States, Australia and Great Britain. This sample of mothers' supports and/or practices breastfeeding in addition to electing to sleep with their infants. We explore here how and why mothers came to their decision, how satisfied they are (or were) with their decisions, and what if any benefits they think they or their infants or children have derived or continue to derive from their co-sleeping practices.

The study examines common themes and responses culled from over 400 pages of detailed parental narratives that were generated in response to nine fundamental questions, although informants often disregarded some questions and instead provided detailed information on related topics, issues, or concerns. Where possible, we analysed the responses in terms of percentages, although because not all parents responded to all questions, total responses to the nine questions ranged from a minimum response for one question of 34-175 responses to another. The additional information and answers to questions not asked on the survey enriched this study and we especially highlighted those responses that constitute recurrent themes which were likewise organized and described in the results.

Research methods using internet-based surveys and questionnaires are beginning to find a place in the social sciences (see Couper, 2000) although, admittedly, control over the sample is not always possible to the degree characteristic of standard survey techniques. In this study we were willing to forego control for the likelihood of securing thorough and rich content we assumed would be forthcoming owing to the widely known degree of passion and commitment internet lactation support groups are known to exude, especially in the face of a major controversy concerned with bedsharing (see O'Hara & Harruff, 2000). These data emerge, then, from a self-selected convenience sample of nine questions posted on one of the major international breastfeeding websites (LACTNET) by J. M. The nine survey questions were as follows:

- 1. How did you/do you co-sleep? Give details about any arrangements you have used or are using, and any safety precautions you have taken.
- 2. How long did you/have you coslept?
- 3. Why are you co-sleeping/did you co-sleep?
- 4. If you already have children who have moved on from co-sleeping, what do you think of your experience?
- 5. If you are still co-sleeping, what do you think of it now (i.e. as opposed to your attitude when you began)?
- 6. How well do your children sleep now?
- 7. Are you breastfeeding or did you breastfeed? If so, for how long?
- 8. Do you and/or your partner smoke?
- 9. By co-sleeping, do you think you have ever saved your child's life? For example, did you ever wake up sensing something was wrong and were able to help your child who was choking?

Following the initial posting, many mothers on the LACTNET listserv themselves sent the nine questions to a variety of other unidentified local, national and international breastfeeding support organizations and popular parenting sites. Their actions broadened the potential constituency from which we drew our response, but also made more precise identifications of all websites impossible.

In addition to understanding how, why and under what circumstances parents choose to co-sleep with their children, and how or if they were satisfied with their practices, the study also gathered ethnographic accounts of parents who think they may have saved their infant's life by bedsharing. What is not known or quantified is in how many instances babies' lives may have been and continue to be saved by bedsharing, at least in terms of parental perceptions. And while parents cannot know in reality if they actually saved their infant's life, and they readily acknowledge this point in their narratives, nonetheless, many parents make it clear that some of this anecdotal information and assessments are possibly accurate.

### **RESULTS**

The ethnographic narratives collected as part of the current study identified key motivating forces that led parents to adopt co-sleeping arrangements, and highlighted some of the perceived benefits that resulted from shared sleep.

# Awareness of Bedsharing Risks

The collective experiences of the respondents reflect a very different perspective on the safety of certain kinds of co-sleeping, particularly the parents' awareness of potential bedsharing dangers. Parents disagree with the notion that they are unable to take needed corrective actions against what the CPSC calls 'hidden hazards.' One mother includes her thoughts on the likelihood of overlaying her baby:

I would like to add . . . . the part about parents rolling over on their children . . . . . I guess it HAS happened . . . . . but honestly . . . . how could you not be aware of the presence of your child? I was so sleep deprived, I thought I was going to lose it, . . . . . yet I never once feared I might sleep so hard that his life would be in danger. Rolling over on my baby?????? . . . . . . . I was more worried about being struck by lightning.

I have been careful while sharing our bed with baby, making sure the blankets and pillows aren't too close to his face. I have aroused my husband on occasion to insure that he doesn't elbow him in the face, although he assures me he won't. I have never worried about rolling over and smothering him though. I am too aware of him while sleeping to do that. I think co-sleeping can be dangerous if the parent is under the influence. But I myself don't drink or take any narcotics or prescription medications that would be dangerous. If I feel more tired than usual, I make sure that the baby sleep on his own lest I sleep too heavily. I think even then it would be okay, but people say it's dangerous.

Other parents similarly questioned the empirical validity of medical recommendations against co-sleeping based on alleged negative developmental consequences which emerged gradually from theories popular during the 20th

century. For example, one mother did an investigation on her own:

I found that the ban on co-sleeping came from several sources: doctors practicing around the turn of the 20th century having read Freud and the Oedipus complex theory and wishing to prevent the conditions for it; these same doctors' attempts to lower contagion to infants ... and the behaviorists of the 30's who thought all behaviour was conditioned and advised parents to regulate everything. These movements produced what I call 'intellectual incest': one authority quotes a previous authority who quotes a previous authority until something becomes the collective wisdom, without it ever being based on proper research.

## Breastfeeding and Co-sleeping

Many parents found that bedsharing was a natural result of frequent nocturnal feeding sessions, and numerous parents explained that, in spite of a planned decision to have their infant sleep in a crib, the ease of nighttime breastfeeding and the emotional security that ensued made co-sleeping in the form of bedsharing the most beneficial and practical arrangement. Explains one mother:

Just a few hours after Dylan's birth via emergency cesarean section due to heavy meconium staining he began to have seizures & was transported to the NICU ... Long story short, we bring him home at 10 days old after countless procedures, never having given any thought to our child sleeping anywhere but in his crib and then a funny thing happened my strongest maternal instinct was telling me to bring him to bed with us. He had yet to latch on and breastfeed which caused me to pump to maintain my supply of breastmilk. We worked with numerous lactation consultants and various alternative feeding methods to no avail. I am convinced that the constant skin to skin contact experienced through sharing sleep helped in eventually getting Dylan to latch on.

Among the co-sleeping mothers in the sample, 93.4% breastfed their infants. Only 15.9% of parents reported a planned decision to co-sleep and the remainder (84.1%) arrived at co-sleeping even though they had not initially planned to do so. The most frequently cited reasons given by parents for engaging in co-sleeping primarily centred on the ease of breastfeeding (25.4%) and the related goal of increasing parental sleep (26.0%). Other parents cited emotional motivations, including the promotion of parent-infant bonding (9.2%), and reduction of infant crying (7.7%). Co-sleeping parents also reported a number of perceived benefits for infant health and safety, such as protection from SIDS (5.6%), an increased ability to tend to a sick child (13.1%), and concern for monitoring the infant's breathing (2.8%).

The duration of co-sleeping among respondents in the current study was less than 1 year for 15% of the sample, 1–2 years for nearly 30% of the sample, between 2 and 3 years for 40%, and greater than 3 years for 15%. There appears to be a similar pattern between the duration of breastfeeding and the duration of bedsharing, as reflected in the present data. Among this sample of co-sleeping mothers, 6.3% breastfed for less than 1 year, 21.1% between 1 and 2 years, 23.8% for 2–3 years, 21.1% for 3–4 years, 8.8% for 4–5 years, 8.0% for 5–6 years and 4.3% for greater than 6 years. The remaining 6.6% did not breastfeed.

## Emotional Basis of Co-sleeping

In addition to the practical benefits related to breastfeeding, the respondents in the current study also felt strongly that bedsharing enhanced or strengthened the emotional connection with their infant. As with breastfeeding, co-sleeping was described both as a reflection of how parents feel towards the infant ('comforting,' 'peaceful,' 'loving,' 'protective') and a mechanism by which those emotions could be sustained and/or enhanced.

Previous studies of low-risk co-sleeping dyads have shown how responsive and attentive mothers can be, often within seconds of a movement or sound by her infant, even while in the deepest stages of sleep (Mosko *et al.*, 1997a, 1997b). The responses suggest that before such maternal sensitivity emerges mothers have 'decided' to respond and 'want' to respond to the infant's activities and needs. Mothers repeatedly explain how co-sleeping allows them to attend instantly to their babies cues, signals and needs, and they describe repeatedly how much pleasure they derive from sleeping in contact with their infants and being close enough to engage in periodic affectionate interactions (kissing, holding, hugging, and whispering love words to), all of which contribute greatly to the overall emotional health of the family.

Our bed remains the most sacred place in our house, and we are occasionally all in it together for storytime or comfort during illness or a bad dream.

I could parent in my sleep; she could feel my presence.

Sleeping next to them I just find anything different that's happening wakes me straight up. I just snuggle up to them and they breathe rhythmically again.

I have loved knowing where my babies are and being able to immediately meet their nighttime needs without disturbing the family's sleep and without myself having to fully awaken. Babies fall back to sleep much more quickly, because most of the time they haven't even had to work up a cry to have their needs met.

I've always found that mother's intuition and 'mommy radar' is on when my kids are right there beside me in bed. Any change in their breathing or well-being and I am instantly awake. I've even found that when they started having a fever in the middle of the night, I woke up—perhaps I could sense even these few degrees of difference and knew subconsciously that something was wrong.

Furthermore, several of the respondents in dual-income families, whose infants spent large portions of the day away from both parents, felt that co-sleeping allowed them to compensate for daytime separation by promoting attachment and bonding through nighttime contact and affection.

My husband really appreciates the bonding that it gives him as he works long hours and doesn't get to spend as much time with them as I do as a stay at home mom.

I work in an office all day long, co-sleeping is a means to reconnect.

#### Transition to Separate Beds

Many parents provided a wealth of information about their children's transition to separate beds. For many, the transition to separate rooms and regular beds was an important rite of passage that was often driven by the children themselves. Far from the picture of clingy children incapable of falling asleep alone that the western medical paradigm might predict, the respondents wrote of secure children who adapted well to a transition to solitary sleeping arrangements:

My first child, who slept in his own crib and own room, was a 'high-need' child who kept my husband and me in sleep deprivation for many months until I finally let him 'cry it out' at the age of nine months, something I regret bitterly to this day . . . So I

decided my next child would sleep with me. At that point I didn't care if she were in bed with me until she was 21 years old; I was not going through again what I went through with the first child.

They moved into their own bedrooms at their own speed. We never pressured them into moving out of our bed. They slept with us when they wanted to and in their own beds when they felt like it . . . I will not change that co-sleeping relationship for anything in the world!!! It was the most wonderful sight to wake up to my children, lying there in our arms, smiling peacefully at us, or playfully tugging our hair.

## Co-sleeping and Children's Socioemotional Development

Parent Infant Co-sleeping

The parental narratives reflected a general feeling that co-sleeping had contributed to happier, healthier emotional development in their children. Mothers expressed the relationship between co-sleeping and children's socioemotional development in the following ways:

I credit co-sleeping with his increasing ability to handle new things, because I believe it fosters the kind of independence only feeling secure can give. I believe that babies and children left alone too much can learn to present an independent nature, but it is one based on insecurity and bravado, and leads to an insecure and needy adult.

I believe that co-sleeping has saved her life in a less dramatic way than you mentioned. Her father was abusive to her; there was a lot of visitation. I was unaware of the extent of the abuse; however, the fact that she could nurse when she was with me and sleep with me gave her a certain stability of personality and an experience of peace in life that I know she would not have had if we hadn't shared a bed.

Both of our two children coslept with us from infancy up until around ages 5 to  $5\frac{1}{2}$ ... Today, at ages 10 and 6, they are bright, imaginative, independent, emotionally well-adjusted young people with no sleep disturbances or problems whatsoever. I am confident that co-sleeping, in the context of attachment parenting, played an important part in the successful emotional development of our children.

I love our story because of all the people who cautioned me that he would never learn to sleep on his own, would never leave our bed, etc. He proved all the experts wrong!

I believe his knowing we are always available to him has made him emotionally independent and socially very confident. He makes friends easily, has never been clingy or needy and enjoys new situations and environments. He takes criticism fairly well and he is non-aggressive but stands up for himself verbally and loudly.

We are pleasantly surprised to see that our oldest daughter has such a positive association with sleep now. We rarely get a battle when bedtime rolls around because she's never been left in a dark room by herself to fall asleep.

I know that we have been much better rested than most of our peers with similar aged children. I also feel strongly that the reason that children under a year sleep through the night with the cry it out method (tried with my eldest for 5 minutes a few times) is that they are traumatized. My kids seem great to me. Extremely able to state their needs and desires clearly and freely which I think is due to conscious parenting which for us has included co-sleeping.

#### Parental Perceptions of Potential Life-saving Events

It is clinically significant that forms of co-sleeping may potentially allow parents to intervene to protect their infants during an apparent life-threatening event.

While it is not possible to affirm whether the parents represented here actually saved their infants' lives, many of their ethnographic accounts raise the possibility that proximity to infants during sleep increases the likelihood that parents will detect and respond to a health crisis compared with those sleeping apart. Of those parents who reported a possible 'saved life episode' (n = 65), the majority of respondents (53.8%) were those who intervened during a respiratory crisis which involved either an apnoea or asthma attack or a vomit-induced choking incident. The other most frequently reported episodes involved responding to a seizure (10.8%), preventing an allergic reaction (4.6%), terminating a strangulation involving bedding materials (3.0%), rapidly evacuating from a burning house (1.5%), or promoting weight gain in underweight infants by increased nocturnal nursing sessions (1.5%). These data indicate a need for further inquiry into the potentially life-saving benefits of close proximity of parents and infants during sleep and offer additional repudiation of the blanket medical recommendations against all forms of bedsharing (see Appendix A). Consider the following profiles of potentially life-saving cosleeping scenarios:

Well one early morning when J. was about 4 months old, she was in bed laying right next to me in my queen size bed and I put my hand over on her like I probably do ten times a night out of habit just to check on her and something felt very strange. I woke up more and touched her again and she was cold. (Her face was not near my pillow and there was no bedding wrapped around her or anything, and she was laying on her back, It was July and though the window was open the room was not cold). At this time I didn't panic but just shook her shoulder thinking her little hand would move or something but she did not rouse at all. I put my hand on her chest and shook her again, saying Julie, Julie. Still she did not rouse. Now I got nervous, and I picked up a basically limp baby and rubbed her hands, rubbed her feet, said her name over and over, and gently shook her trying and trying to get her to wake up. Finally my cold little baby's hand moved and her eyes kind of blinked and she whined for half a second and then went back to sleep. I got on the phone and called children's hospital and the first thing they asked me was if I had accidentally laid on my baby, I said of course not l just put my hand on her when she was sleeping and she was cold and very difficult to rouse. They told me that she may have had a near SIDS incident. They went on to say that babies who sleep very very soundly are at risk for SIDS and it was probably a good thing that I woke her when I did. I truly believe that having my baby in my bed that night may have saved her life, because if she were in a crib I wouldn't have known that she felt cold, and I wouldn't have tried to rouse her. I also believe that because we practice attachment parenting and because we are so in-tune with one another that it was my intuition that woke me up that night and made me check on my sleeping infant.

When my daughter, M., was 13 months old she had a seizure next to me in bed. As I just finished feeding her, I immediately knew something was wrong. When I turned the light on she was busy going blue already. I pulled her up, and rushed to the hospital with her. This happened a few times afterwards, but she was fine. If I was not cosleeping with her, I am absolutely positive, I would have found my baby dead in her bed the next morning.

When my first of three children was two and a half, she began panting in the middle of the night. She slept between us or on a futon that was next to us, set up as an extension of our existing bed. She did not fully awaken or make much noise, but because I had been sleeping with her for her whole life, I was used to her normal breathing patterns and woke up because of the difference that night. It turned out she

had a fever of 104 degrees. My husband and I immediately took measures to evaluate and help her. . . I don't know if the high fever that night was life-threatening, but my heart shudders to think what could have happened if she had been in a separate room all alone.

## Deaf Families

An additional category of parents who felt that co-sleeping served as a critical means of protecting their children, in some cases a potentially life-saving arrangement, involved families with either deaf parents or deaf children. Because auditory cues were unavailable to these families, increased proximity to one another during the night was essential to ensuring the parents' ability to respond to hunger cues or other signs of distress, as well as to detect and respond to a more serious health crisis. Moreover, many families felt that the arrangement made both parents and babies in deaf families less anxious during nighttime routines, and enhanced and fostered communication and attachment.

I have two deaf boys, now 5 and 8. They both slept with us until this past year. We began by accident when nursing them made co-sleeping much easier. When we found out the oldest was deaf we were so happy we had made that decision. Because they couldn't hear at night. . . they felt much more comfortable with us near them.

I always felt a little weird about [my son] being in the dark and unable to hear. . . . so once I gave up my 'preconceived notions' that children sleeping in their parents' bed was bad, bedtime has been much more peaceful.

My mother's parents were deaf-mutes and the doctor insisted that she sleep with her children. She laid the babies at the head of the bed on a pillow and slept with her hand on the baby all night.

# Co-sleeping: A Personal Decision

The majority of responses support the idea that the decision to co-sleep is highly personal, and ultimately not dependent on recommendations by friends, family or medical professionals. It appears that co-sleeping practices are extensions of the kind and nature of care extended to the infants during the day, and a reflection of specific relationships, family circumstances, and preferred styles of showing and receiving affection. For many of the parents, choosing a particular sleeping arrangement is not a medical issue at all. As one mother put it:

I think we did it for convenience and because it felt right. If I awakened in the night, I knew the baby was all right. I loved to cuddle with the babies and nursed them all. None of my children have ever wanted to come back into our bed once they left, except occasionally if they were sick, and once the night my son broke his arm. They are well adjusted ... All are academically gifted. I disagree with anyone who tries to decide these types of personal decisions for parents. It is not a medical concern. I believe the rest of the world is a lot smarter about these things than Americans.

One mother mirrored the sentiments of the majority of respondents when she referred to co-sleeping as 'a subject dear to my heart,' and another reinforced the idea that positive caregiving behaviours, including attentiveness and physical

proximity, applied no less to nighttime parenting than they do during waking hours:

My two children were born before I had read about co-sleeping, but sharing sleep seemed to be the right fit for us. I have always just had a deep sense of knowing that mothers and babies belong together – why should it be different at night?

Babies like co-sleeping. It's good for attachment. It's good for the baby's health! It's good for tired moms, too. It's REALLY good for dads who sometimes feel left out with all the breastfeeding attachment (in the literal sense) going on with mom and baby. And I think it's good for big kids to know that their parents aren't trying to push them out of the nest. Kids grow up quickly, opportunities are easily missed.

The most important benefit that I experience from the family bed is the close relationship my family shares till this day. My children know that they can depend on my husband and I, day or night, to meet their needs. They trust that we will always be there.

The biggest and happiest thing is how peaceful bedtimes are for our family in contrast to the angry, frustrated, hellish nighttimes I had as a child being forced to go to bed at certain times, etc.

Summarizing the predominant theme of co-sleeping as normal, protective and highly beneficial, one mother expressed surprise that such a positive practice was a topic of medical debate:

This sort of research is important in our society, but ridiculous overall. Why should you or anyone have to spend time, money, and effort to prove what has been proven in the biggest lab of all, namely 300,000+ of mothers and babies? It is like doing research to prove that wheels are round and roll downhill...

### DISCUSSION

If we are ever to know what underlies parental caregiving choices and implement efficacious, population-based, paediatric public health recommendations meant to change behaviour at a family level, we need first to become aware and respectful of the experiential knowledge acquired and used by parents as they interact with and care for their infants and children. We must learn, from the ground up, whether recommendations concerned with sleeping arrangements resonate with the legitimate emotions, experiences, and parentally constructed interpretations and solutions to nighttime caregiving needs of both parents and infants alike. What makes ethnographic data like those collected in the present study so powerful is that they provide a deeper understanding or interpretation of the psychological genesis of maternal physiological arousability in relationship to the infant's behaviour.

Although breastfeeding and sleeping arrangements are typically discussed and conceptualized as separate and distinct processes or child-care practices, this is a culturally and historically based misconception. These assumptions did not emerge from studies of actual behaviour, but emanated from a priori cultural beliefs about the alleged inherent benefits (moral, physiological, psychological) of solitary infant sleep, and the belief that cow or artificial milk is, if not normal, at least equivalent to human breast milk, which we now know to be incorrect (Gartner & Black, 1997). Data collected here, and during at least four major studies of bedsharing over a decade (Baddock, 2004; Ball et al., 1999; McKenna &

McDade, 2005; Young, 1999) lead us and others to conclude that breastfeeding and forms of co-sleeping are biologically, socially, and psychologically (emotionally) interdependent. This should come as no surprise insofar as throughout all of human prehistory and most of western history, co-sleeping with breastfeeding was both inevitable and inseparable, and infant development itself at least for the first two years of life occurred within the context of either contact or close proximity to a caregiver. This means that any study of specieswide 'normal' infant sleep physiology and development that fails to account methodologically for both the proximity to, or separation from, the mother and/or method of feeding and delivery (bottle vs breast) must be regarded as inaccurate and inherently flawed (McKenna et al., 1991; Mosko et al., 1996).

Indeed, in a recent policy statement on breastfeeding and the use of human milk, the American Academy of Pediatrics Work Group on Breastfeeding recommended that breastfeeding infants sleep 'proximate' to the mother to facilitate breastfeeding (AAP Work Group on Breastfeeding, 2005). While the AAP Task Force on Sudden Infant Death Syndrome concurs and recommends that infants sleep proximate to their mother, they go on, without approval of the breastfeeding section of the AAP, to recommend against any and all bedsharing, labelling it 'hazardous' (AAP Task force on Sudden Infant Death Syndrome, 2005). This position against bedsharing lacks scientific consensus and many research groups both in and outside the SIDS research community disagree with an unqualified recommendation. Instead, many research scientists favour educational strategies which teach safe bedsharing practices (see Gessner et al., 2006). This new recommendation, that infants sleep proximate to the mother (i.e. roomshare, which is a form of co-sleeping), makes it even more important that other medical institutions and/or public agencies such as the CPSC adopt more precise language regarding what types of 'co-sleeping' they find objectionable because clearly not all forms are so considered.

Oddly, infant sleep physiology has never been studied with respect to how breast milk (both the act of sucking and milk digestion) affects or interacts with infant sleep stage progression, a significant lacunae in our present knowledge. Moreover, cross cultural and psycho-biological research, including the many responses by parents reported here, illuminates evidence for pan-human emotions that appear to underlie or motivate parental decisions to co-sleep. Given the universal link between breastfeeding with co-sleeping and emerging knowledge of the degree to which maternal contact regulates infantile responses (i.e. calming, breathing, heart rate, elongating sleep duration, sleep architecture and breastfeeding frequency and duration, to name a few) there is strong evidence that breastfeeding and co-sleeping are at very least complementary, if not interdependent, and that the two 'co-evolved' (McKenna et al., 1999). We might presume that the reason co-sleeping with breastfeeding persists across cultures, including in our own, despite strong cultural opposition is because breastfeeding with co-sleeping maximizes maternal and infant survival and well being amongst contemporary mother-infant dyads, and not just amongst a few isolated cultural groups, as is suggested in a popular parenting book (Ezzo, 1995).

These detailed accounts of co-sleeping reported here reinforce the notion argued elsewhere that decisions about where babies sleep are, in part, relational as well as motivated by deeply embedded maternal emotions and hence must not be considered a simple medical issue (McKenna, 2000), at least amongst this subgroup of relatively middle class, low-risk families. Rather, infant sleeping arrangements and practices often appear to function as part of a continuum of daily favoured normative patterns of caregiving and affection, one that may well

and for all the right reasons be resistant to change. The degrees of infant protection and reassurance made possible by maternal-infant contact and proximity may never be completely, if at all, suppressed by medical recommendations anyway, particularly as increasing rates of breastfeeding bring babies and mothers into ever closer proximity to one another during the night.

Mothers' perception, heard repeatedly throughout this study, that bedsharing makes nighttime breastfeeding easier and 'just simply feels right' and leads to more sleep is validated by the work of several research teams, including Quillin and Glenn (2004). They found that breastfeeding mothers obtained more sleep when sleeping with their newborns (Quillin & Glenn 2004), a finding consistent with previous studies by McKenna et al. (1997) who compared maternal sleep behaviour of solitary vs bedsharing breastfeeding mothers and their eight- to eleven-week-old infants. In that study, while not statistically significant, routine bedsharing mothers and infants experienced between 13% and 18% more sleep time compared with breastfeeding mothers who slept apart from their infants.

As presented elsewhere, for both the mother and infant a cascade of mutually regulating behavioural and physiological events is set in motion once breastfeeding is established and bedsharing is adopted for part or all of the night (Ball, 2003; McKenna & Mosko, 2001; McKenna et al., 1993; Mosko et al., 1993). For example, compared with breastfeeding mothers who routinely sleep apart from their infants, routinely breastfeeding-bedsharing mother-infant pairs experienced significantly increased and temporally synchronized mutual arousals identified on polysomnographic recordings. Most of these arousals were transient (between 1 and 3 seconds in length) in form, reflecting enhanced sensitivities to the presence of the other compared with mothers and infants who do not routinely share a bed (Mosko et al., 1993). Also, routinely bedsharing mothers and infants on average spend less time per any given bout, and less overall sleep time, in deep stages of sleep (stage 3-4) switching instead to more light sleep (stage 1-2), and they experience twice the number of breastfeeding sessions with an average of 39% more total sleep period time spent breastfeeding each night (McKenna et al., 1997; Mosko et al., 1997a, 1997b).

These short-term nightly effects induced by mother-infant bedsharing may well be linked to certain long-term developmental effects as well. Ball (2003) reports, for example, that amongst mothers in the United Kingdom, bedsharing breastfeeding mothers are more likely to continue breastfeeding for a longer number of months compared with breastfeeding mothers who do not routinely share a bed, but sleep separately from their infants. Most importantly, insofar as infant survival is concerned, recent SIDS epidemiological studies show that when infants sleep within the social space (room share) with a responsible adult caregiver, usually the mother, but not when with siblings, infant deaths from SIDS are reduced by one half (Blair *et al.*, 1999; Carpenter *et al.*, 2004; Mitchell & Thompson, 1995).

For at least six decades now, childcare advocates including paediatric sleep experts have often emphasized the need for solitary infant sleeping arrangements which are presumed to promote independence and autonomy in early childhood, often without defining what actually is meant by an independent or autonomous infant, toddler, or juvenile. Furthermore, what is needed is a critical examination of whether 'independence' as a social familial outcome is tied to any developmental benefit such as happiness or educational achievements, and whether or not families or parents actually want or are satisfied with such attributes in their children when they reach, say, puberty.

Health professionals often advocate solitary sleeping arrangements as the best if not the only way to 'teach' infants how to return to sleep following nighttime awakenings, as if this skill is not learned in other contexts, by other social experiences, or in other more social sleeping arrangements. This traditional advice is designed to promote self-regulation and self-reliance even though, due to the slow development and extreme species-wide neurological immaturity of infants during the first year of life, by definition human infants are entirely dependent on a caregiver for their physiological and socio-emotional regulation and support. Indeed, the first longitudinal studies of individuals who co-slept during infancy contradict the conventional medical beliefs that co-sleeping leads to negative psychological or social outcomes later in life (Okami, Weisner, & Olmstead, 2002), and any direct correlation between infant sleeping arrangements and adult behaviour and personality mistakenly assumes an overly simplistic relationship (Lozoff et al., 1985). However, existing data suggest a relationship where parenting practices that promote attachment and include co-sleeping can be associated with increased levels of self-esteem, confidence, and decreased behavioural problems in adulthood (see Crawford, 1994; Forbes et al., 1992; Heron, 1994; Lewis & Janda, 1988; Mosenkis, 1998). The ethnographic narratives provided by the current study corroborate these findings.

One indirect inference from this small study, but which is confirmed by larger studies cited earlier, is that the greatest demographic changes concerning which racial or ethnic groups bedshare have taken place amongst middle- and upperclass whites, the very groups for which the greatest declines in SIDS are found (Blair & Ball, in press; McCoy et al., 2000; Willinger et al., 2003). This fact validates the critiques levelled against the CPSC, whose recommendations suggest that varying conditions or circumstances do not modify risk factors associated with bedsharing. For example, based on infant deaths for which critical details are missing, the CPSC suggests that bedsharing is anywhere from 20 to 40 times more likely to lead to an infant death than is crib sleeping (Scheers et al., 2003). Until the mid-nineties, previous studies suggested that African American, Asian, and Latino families bedshared significantly more than whites by a ratio of perhaps as much as four to one (Lozoff et al., 1985; Schachter, Fuchs, Bijur, & Stone, 1989). However, this discrepancy between the numbers of white and nonwhite co-sleepers has been significantly reduced in recent years (McCoy et al., 2000; Willinger et al., 2003). In fact, while studies in the United States suggest that single maternal status and lower socio-economic status in addition to breastfeeding predict those most likely to bedshare, in Great Britain bedsharing behaviour is not found distributed along any racial or economic continuum (Blair & Ball, in press). These new data represent a dramatic and significant change within a western industrialized context, and one likely to be found increasingly amongst breastfeeding middle class white Americans, especially when breastfeeding is involved.

These data also remind us that even amongst a somewhat homogenous socioeconomic class of breastfeeding families who co-sleep in the form of bedsharing, how parents describe and perceive of their own behaviour is often diverse; bedsharing proves not necessarily to be a coherent practice, as it has been defined and assumed to be the case by the some health agencies. The families in our survey give a range of explanations for their sleeping arrangements and describe in detail specific family characteristics such as infant personality and experiences with previous children, and their subsequent developmental histories which altogether underlie and give meaning to their own unique practices.

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It is necessary, therefore, that the discourse with parents on this important subject be open, fluid and multi-faceted, and not presented as if there is only one answer to the question: where should a baby sleep? Discussions about crib vs cosleeping between physicians and parents should never be framed in dichotomous terms, as an either/or decision. Ball and colleagues' (Ball *et al.*, 1999; Hooker, Ball, & Kelly, 2000) studies are the best to date showing that babies often encounter more than one kind of sleep environment or arrangement during any given night. For example, they found that amongst parents who classified their babies as crib sleepers, while they may start their babies in cribs in the beginning of the night, after the first feed it is routinely the parental bed to which they are relocated to spend the rest of the night. These data seem to be characteristic of American practices as well (McCoy *et al.*, 2000; Willinger *et al.*, 2003).

During the last 15 years, the medical community has rightly placed a renewed emphasis on characteristics of the infant's sleep environment following the discovery that placing infants in the supine position, a change in a child-care practice rather than a physiological, surgical, or otherwise medical intervention, reduced at least by one-half the number of infants dying annually from SIDS (Willinger & Rognum, 1995). In 1994, the American Academy of Pediatrics (AAP) initiated its 'Back to Sleep' campaign, resulting in more than a 50% decrease in the USA national rate of SIDS (Willinger & Rognum, 1995).

We suggest that the anecdotal narratives describing possible life-saving events, reported here in detail, provide a richness that expands the scope of existing research on infant sleeping arrangements, offering not only insights into the parental decision-making process and subsequent evaluations of the importance and legitimacy of their own behaviour, but also offering previously unpublished reports of apparent life-saving instances resulting from bedsharing. Much of the discourse, as indicated by the plethora of studies cited here, concentrates on the question of whether or not bedsharing is dangerous and not whether it is protective. But the parental examples of life-saving events reported here are powerful and credible. At times, the possibility that an infant's life may well have been saved by the bedsharing parent is validated by a local physician. These parental stories provide yet another reason to support the notion argued here and elsewhere that it is not whether bedsharing is practised that reveals much about likely outcomes, but exactly how and by whom it is practised that matters. And, when practised safely, and by a devoted breastfeeding mother, one outcome may well be an infant who will live who might not have done so had he or she been sleeping alone.

One limitation of our own study is, of course, that the informants are biased towards a positive perspective on bedsharing and breastfeeding. Yet, to a degree which exceeded our expectations, parents often provided highly detailed information and intense narratives of their experiences and practices pertaining to where their children sleep and many unanticipated aspects of parent–infant nighttime activities were reported. An additional limitation is that this sample consists of a self-selected group of mostly middle-class mothers from the internet. In addition, limited information about the sample impedes generalizability.

While physicians and researchers recognize that sleeping arrangements are integral to promoting infant health and safety, health authorities in western countries often recommend against parent-infant co-sleeping, or do not support it, in any form, based on an unwillingness to differentiate between conditions and circumstances within which bedsharing is practised. Indeed, for the first time, the AAP issued recommendations against bedsharing (AAP, 2005). But the findings from this survey study reveal how parents feel, think, and translate their

emotions into actions. Specifically, these data suggest that to be effective, medical policies or recommendations related to infant sleeping arrangements must acknowledge that infants will likely encounter several different and legitimate sleeping locales or arrangements. Policy formulation must be informed by a full understanding of how individual parents actually structure their infant's sleep, what their goals and expectations are, and by an awareness of the factors motivating parents to choose certain sleeping arrangements over others.

# APPENDIX A: REPORTS OF POSSIBLE LIFE-SAVING EPISODES DURING CO-SLEEPING

Seven years later we were surprised to find we were expecting our 5th child, another girl. At this time I was 40 years old and had a rough pregnancy. When she was born we again co-sleep and nursed. When she was just six weeks old I awoke suddenly one night as I felt something was wrong. I reached over and touched her and she wasn't breathing and was cold to the touch. I screamed and started shaking her and she took a deep breath and started to breath. We took her to the Doctor who found nothing wrong and said I must of been dreaming. Two days later I had placed her in the bassinet next to my bed after she had fallen asleep nursing. I felt impressed a short time later to go in to check on her. Once again she was not breathing and turning blue. I grabbed her and dropped her on my bed screaming and once again she took a deep breath and started breathing. After running tests the Doctors found that she was sleeping to deeply at times and forgetting to breath. They hooked her to a monitor and between the monitor and having her with me both during the day in a body carrier or at night in bed she made it through her first year until her brain reached a maturity that it remembered to breathe even when she was sleeping. I had one Doctor tell me that if I had not been so in tune with my baby that I had been awakened by her the first time and checked on her the second she would of probably of been a SIDS baby.

END

The last two babies we have used the crib side baby bed and it hasn't worked nearly as well I must say. They are never in it; There are two children I feel completely confident saying being near their parents at night saved their lives. N. our 5 yr old son throughout his first year of life would for no reason we knew of, just stop breathing. When we would rouse him he would then gasp for air. N. now has serious asthma. We think and the Dr. agrees that this was possibly a pre-asthma situation he was going through; I believe without such careful monitoring and also just the constant motion of people around him in bed we could have had serious consequences.

ENI

We co-sleep with our 2 year old son. When he was 5 months old one night I awoke to some moving and noticed my son was blue. There was NOTHING around him and he was on top of the blanket in a shirt and not breathing. I picked him up and gave him some thumps on his back and he started crying. We took him to the hosp and the Dr concluded he must have had a mucus plug. Had he been in his own bed I would not have known and I would have lost him. From that day on we were FIRM believers in co-sleeping. If my son were to have passed that night I would have had comfort knowing that his last scent was of his parents, his last meal was my milk, and he was not alone. He was surrounded by

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love. I pray to God that he let us keep him and I am so thankful I had become lazy in my parenting and just left him in bed with me.

END

She had obvious cessations of breathing and would choke while sleeping and upon awakening numerous times. It was quite frightening and happened even until the age of sleeping upright in an infant car seat when she was of the weight to change to one. This choking never happened while awake. It was also worse when flat on her back so I often slept half upright against a bed pillow with her tummy to tummy with me on my chest. This kept her airway clear. Being prone at a 45 degree angle seemed the best for her, especially when teething, as she had a lot of mucous accompanying a feverish state with each tooth. At age 21 she had the same symptoms with 4 impacted wisdom teeth attempting to erupt and had them surgically removed. Symptoms disappeared.

END

I believe our youngest would not be alive today had she slept out of our sight. She was a foster child placed with us at birth. Diagnosed IUGR (5#, full term), she thrived for 8 weeks. She then developed an occasional cough...the cough itself was frightening, but it occurred only two or three times a day. There was no fever or other symptom, and she looked and behaved normally between coughing spells. I slept with her propped up on my chest the last two nights before she was hospitalized with pertussis (which took two days of outpatient testing to diagnose–testing that was done only because my pediatrician trusted my judgment that this was an atypical cough.) I believe that had she slept elsewhere she would have quietly choked to death any night that week before diagnosis. (So many parents of SIDS babies say, 'She only had a little cough.')

EŃĎ

.... An induction was attempted at 37 weeks, but my baby started to have minor decelerations with every contraction, so I was rushed to an emergency c-section. When they delivered the placenta it was almost completely grey with only a few pink patches left. Apparently it just slid right off when they delivered the baby. I was so glad and felt so blessed to have him!

He had difficulties breathing for the first couple of days with minor apneas and rushed breathing and some tachycardia. But over the course of a few days that seemed to resolve itself. He was a very weak and sleepy baby. It was a real effort to try and get him latched on and keep him awake long enough for him to get any milk. For the first few days I pumped out my colostrum and they gavage fed him [i.e. using a feeding tube]. By the time my milk came in he was still sleepy, but starting to work more at the breast. On the fourth day, we were sent home.

He slept with me from the first night home. I made a little elevated baby nest for him as he had a bit of reflux. I seemed to hang on his every breath. On the second night home I woke up to find he had a pause in his breathing. I felt a bit panicked and rubbed his chest, and he started to breathe immediately upon touching him. I thought it must have been my imagination.

When my baby was 3 months old my nightmare began. I had nursed him to sleep after a night of much fussing and crying. He had been a really happy and contented baby until about 2 weeks before when he received his DPT. I do not know if the DPT had anything to do with it or not, but from that day he started a pattern where he would cry for hours at a time with nothing to soothe him. He sounded like he was hurting. It didn't seem like colic (which my firstborn had). Well that night after I had nursed him to sleep in my bed, I fell asleep myself.

Some time about 3 in the morning I awoke with my senses just screaming 'LOOK AT THE BABY!' I looked over to where he lay in the bed and he just

glowed this horrible white colour. It was awful. He was so still. His chest was not moving. I leaned over him to feel for his breath on my face, but there was none. I put my hand on his chest, it was not moving. I rubbed my hand on his chest, jiggling him a bit. Panic set in at this point. I did it again, only this time more rigourously. All of a sudden he took this ghastly breath in, that was so forceful it lurched his tiny chest up in the air a bit. It was so deep and sudden, it was like he was sucking the life back into him.

I woke him up, cried my eyes out, and put him to the breast. I was told by his doctor that it was apnea, most likely an ALTE. He consulted with a specialist. It was determined that there was nothing that we could do. We could have used a monitor, but they felt that that would disrupt our family too much. I slept fitfully for weeks with my baby on my chest, hoping that my heartbeat and the sound of my breathing would remind him to keep going.

Eventually he didn't want to sleep on me anymore. We built a co-sleeper and bought an angel-care monitor to track his breathing. That just made us crazy, and nobody slept well. The foot of space between us seemed as wide as an ocean. He moved back to his space beside me, and there he has slept ever since. He is now 20 months old, strong and vibrant. Happy as can be, and the joy of our family.

END

When our older boy was about 6 weeks old, I woke to find him choking next to me. He was on his back, had spit up, and could not clear his mouth. He didn't make a sound - I don't know what woke me. I rolled him on his side, the spit-up came out, and he was fine. I honestly don't know if he could have cleared it himself or not. I DO know that had he been in another room I would not have woken up to help him.

**END** 

My son came 10 weeks early due to pre-eclampsia/HELLP Syndrome. He came home 47 days later just over 4 pounds. He was on Oxygen and an Apnea monitor constantly. That first night I put him in his bassinet next to the bed and spent most of the night checking his cannula or adjusting his monitor belt. The second night for some reason I decided it would be easier if he was just next to me in bed. So I ran his cannula tubing above my pillow along with the apnea monitor wires. It was such a relief to be able to just crack and eye and check him without waking him up. After a few nights I woke one night to realize he had pulled his oxygen out. I had no idea how long he had been without. I quickly put it back in. If he was in his bassinet or a crib I would have never saw it. I would have relied on his monitor and been too afraid of waking him to do a better check. Did it save his life? I'm not sure to that extent. But I knew his body would not cope long without having it. Andrew eventually came off of the Oxygen. He stayed with us until he was about 9 months. That's when he started sleeping through the night in his crib and it seemed to be what he wanted. No crying himself to sleep. It was very peaceful so we knew it was right.

**END** 

We did have one occasion on which I was extremely glad that we were sleeping together. I can't say that it saved her life but it was about that dramatic for me. C. had experienced one grand mal seizure when she was 7 and the doctors wanted to hold off on medication until it could be confirmed that she would have more seizures. By age 8, we had observed no more and thought we were 'home free'. One night, however, I woke because my daughter became rigid in my arms and then began the characteristic thrashing motions. We still had the medication doctors had given us to stop a seizure if it lasted more than 5 min. (point at which it becomes life threatening) so I got it out and called the pediatrician. We were on

the phone together for 4 min 30 sec when the seizure began to subside. Was I ever glad that I had been awake to respond! Even though the seizure was dramatic, it was quite quiet. Had I been asleep in the next room, I don't know that I would have even been aware of anything happening. If the worst had occurred and I found her dead the next day.

**END** 

M., at age 2 months, was sleeping propped up because of gastroesophageal reflux. She once fell off the little mattress we were using to prop her up with, and was hanging off it, face down. I immediately woke up (interestingly, because I had a dream where my son V. told me to wake up because M. was in danger) and was able to place her on her back. V. has woken up, on a couple of occasions, with a fairly severe case of croup, almost being unable to breathe. I doubt that we would have been able to hear him if he would have been sleeping in another room. Whenever they are ill, having them right next to me lets me know, all through the night, that they are okay, and not in any kind of danger. Sleeping with them next to me also allows the sick child to nurse as much as she needs to during the night. Both children wake up a bit at night and, if not in immediate contact with our bodies, reach out to feel us, making sure that we're there. I could not imagine them reaching out in an empty bed.

**END** 

I did not co-sleep by design with my first child until he was about nine months old. Looking back this nine month period was the only time I think co-sleeping might have been dangerous. (My child had a short frenulum which was diagnosed by his pediatrician and commented on by a nurse when he was newborn but no one knew that this could give him trouble with breastfeeding. Since he was such an inefficient nurser he had to be at the breast almost continuously day and night. This turned out to be a blessing because it ensured that I had to learn to co-sleep with him which in turn ensured all our babies reaped the benefits of co-sleeping.) Although I tried to do the typical American thing- get him to sleep in a crib- I was utterly unsuccessful at this and he never spent more than 10-20 minutes in it a night. I would nurse sitting up in bed (a bed on a frame, with a footboard and a headboard) trying to stay awake so I could put him back in the crib when he seemed asleep. This was exhausting and I once dropped him when I fell asleep sitting up, and he fell out of the bed onto the floor. After that episode I abandoned the idea of trying to stay awake while nursing...I took my bed apart, put the mattress on the floor, and began to nurse while lying on my side. When my child was about nine months old I completely abandoned the idea of getting him to sleep in a crib which was the beginning of our family's liberation from the sleep nazis.

END

My interest started because co-sleeping definitely saved my son's life. I am now a La Leche League Leader in the UK and I am the first to suggest safe co-sleeping to mothers. My son was a colicky baby for 3 months and he cried all day and all night. During the day he was carried around in a sling and if we napped it was in the family bed (a double sprung mattress with sheets and covers). At night we either walked the floors in the bedroom, laid on the bed to breastfeed or dozed off on the bed after a feed. At 3 months of age the colic subsided but we continued to sleep together in the double bed-S. in the middle of my husband and I. This was to stop him falling out of bed. At 4 months of age, S. was ill during the day. He had a temperature and was sleepy (very unusual for him). We gave him Calpol (paediatric paracetamol) but weren't unduly worried until he started to refuse breastfeeds at night. It was his irregular breaths that first made

me worried. We called out a doctor but he told us S. had an ear infection and we should continue giving him Calpol. I described the difference in S.'s breathing but the doctor was not worried by this. Having slept with S. for 4 months I knew him so well- the touch of his skin told me he was very hot, his breathing wasn't in its normal pattern, he refused the breast-I sure sign something more serious was occurring, he didn't look at me-his gaze seemed distant. I demanded that a different doctor come out to our house. His prognosis was the same as the last doctors and made it seem like we were unduly worrying. By the morning I was frantic with worry-S. was dehydrated as he had refused feeds all night and was making whimpering noises that I hadn't heard before. He didn't seem like MY BABY at all-nor did his skin SMELL the same, to me. A third doctor came at 10am that morning and decided to send us to the local hospital as S. was dehydrated. We drove there as quick as we could but S. moaned when we moved him and whilst he was in the car seat. At the Accident and Emergency Unit a doctor examined S. in detail and then went to seek a Consultant for his opinion. The Consultant told us that S. had suspected Meningitis and we were rushed to a quarantine room for an immediate lumbar puncture to be done on S. The results came back that afternoon and we were given the bad news that S. had PNEUMOCOCCAL MENINGITIS and it had not been caught in its early stages! To this day I believe that if the doctors had listened to my reports and I had been taken seriously, we would have caught the infection in its early stages instead. S. did recover. I gave him my expressed breastmilk and as he became more alert, I breastfed him over the sides of his cot. The Consultant Paediatrician said that my breastmilk had helped in his recovery. I am now a firm supporter of co-sleeping, as long as safety rules are followed to ensure there is no risk of entrapment, and my husband and I do not drink. You really get to know your infant well when you breastfeed and co-sleep-so much so it just might save a life!

END

We have had a family bed for all three children with great outcomes. Once when my second daughter was 6 months old, I woke up suddenly because she stopped breathing. I picked her up and 'shook' her 4 times before she gasped loudly and started breathing again. Then I was scared I hurt her when I shook her, but it wasn't really hard. I hate to think what could have happened if she was in a crib and I did not notice her sudden silence. (BTW there was nothing obstructing her breathing, no pillows, blankets, people or anything. I woke up reaching over to touch her chest which was not moving.) I spoke to her pediatrician about this the next morning. It happened again when she was 9 months old. The same exact way, except I rocked her back in forth instead of shook her, as her doctor suggested. She has a seizure history and I woke up at least once, maybe twice when she was having a seizure next to me. She is 3 and a half and still sleeps with us most nights. My oldest used to spike high fevers (up to 106) in the night. She would not cry out or anything. I would notice when I touched her in my sleep and felt her burning up. Then I would know to get up and treat her.

**END** 

I had a c-section December 1, 2000 at the hospital Louis Pasteur in Cherbourg, France. I was bound and determined to nurse both babies and had armed myself with La Leche League literature and internet research throughout my pregnancy. The end of my pregnancy was very tiring (I brought the babies to term) and the ensuing operation nearly wiped me out. That's how I kind-of 'fell' into doing the family bed thing. I couldn't easily get up from my bed to feed the babies every two hours and my husband couldn't interrupt his nights (still can't) as he is the

French equivalent of a Navy Seal and must be alert during the day. They slept with us in a queen-sized bed, each in the crook of my shoulder.

My back was killing me from being forced into sleeping in only one position, and there were days when I didn't get out of bed because they did sleep relays one slept whilst the other didn't - but I guess in retrospect I got some much needed time off my feet (though not a heck of a lot of sleep).

At one point, both girls had colds (they were about three-months-old) and had difficulty breathing. We used physiological solution to purge their noses and had drops given to us by the doctor, but not much was working. All of a sudden one night, my husband and I woke up with a jump, at the same moment: K. had made the smallest little sound – just an 'urp' – that alarmed us both out of sleep. We immediately turned on the light and there she was, turning red-blue. She couldn't breathe. We purged her nose and then [my husband] took her downstairs to the bathroom where he ran a hot shower and sat with her in the steamy room. He came back ten minutes later and she was breathing freely.

We're both certain that if she'd been in another room, or even in another bed, we would NOT have heard the little sound she made. Having her right beside us alerted us to the change in her breathing, even though we were sleeping.

Also, my husband is convinced that he's much more attached to his girls as a result of sleeping with them: Waking up to three smiling faces every morning that are happy as can be to see him has made him feel...great.

**END** 

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### REFERENCES

American Academy of Pediatrics, Task Force on Sudden Infant Death Syndrome. (2005). The changing concept of sudden infant death syndrome: Diagnostic coding shifts, controversies regarding the sleeping environment, and new variables to consider in reducing the risk. Pediatrics, 116(5), 1245-1255.

American Academy of Pediatrics; Work Group on Breastfeeding. (2005). Revised policy statement: Breastfeeding and the use of human milk. Pediatrics, 115, 496-506.

Baddock, S. (2000). Bedsharing practices of different cultural groups. In *Program and abstracts of sixth international SIDS conference*, 8–11 February, Auckland, New Zealand.

Baddock, S. (2004). Bedsharing vs. cot-sleeping: An investigation of the physiology and behavior of infants in the home setting. Ph.D. dissertation submitted and accepted by the University of Otago, Dunedin, New Zealand.

Ball, H. L. (2002). Reasons to bed-share: Why parents sleep with their infants. Journal of Reproductive and Infant Psychology, 20(4), 207-221.

Ball, H. L. (2003). Breastfeeding, bedsharing, and infant sleep. *Birth*, 30(3), 181–188. Ball, H. L., Hooker, E., & Kelly, P. (1999). Where will the baby sleep? Attitudes and practices of new and experienced parents regarding co-sleeping with new-born infants. *American Anthropologist*, 101(1), 143-151.

Blair, P., & Ball, H. L. (2004). The prevalence of characteristics associated with parent-infant bed sharing in England. Archives of Disease in Childhood, 89, 1106-1110.

Blair, P. S., et al. (1999). Where should babies sleep-Alone or with parents? Factors influencing the risk of SIDS in the CESDI Study. British Medical Journal, 319. 1457-1462.

Brenner, R. A., et al. (2003). Infant-parent bed sharing in an inner-city population. Archives of Pediatrics and Adolescent Medicine, 157(1), 33-39.

Carpenter, R. G., et al. (2004). Sudden unexplained infant death in 20 regions in Europe: Case control study. Lancet, 363(9404), 185.

Carroll-Pankhurst, C., & Mortimer, A. (2001). Sudden infant death syndrome, bed-sharing, parental weight, and age at death. Pediatrics, 107(3), 530-536.

Couper, M. P. (2000). Web surveys: A review of issues and approaches. Public Opinion Quarterly, 64, 464-494.

Crawford, M. (1994). Parenting practices in the Basque Country: Implications of infant and childhood sleeping location for personality development. Ethos, 22(1), 42-82.

Drago, D. A. (2000). Sleep location and suffocation: How good is the evidence? Response to critiques. Pediatrics, 105(4), 915-920.

Drago, D. A., & Dannenberg, A. L. (1999). Infant mechanical suffocation deaths in the United States, 1980-1997. Pediatrics, 103(5), e59.

Ezzo, G. (1995). Baby wise: How 100,000 new parents trained their babies to sleep through the night the natural way. Sisters, OR: Multnomah Books.

Ferber, R. (1985). Solve your child's sleep problems. New York: Simon and Schuster.

Ferber, S. G., & Makhoul, I. R. (2004). The effect of skin-to-skin contact (kangaroo care) shortly after birth on the neurobehavioral responses of the term newborn: A randomized, controlled trial. Pediatrics, 113(4), 858-865.

Forbes, J. F., et al. (1992). The co-sleeping habits of military children. Military Medicine, 157,

Garner, L. M., & Black, L. S. (1997). Breastfeeding and the use of human milk. American Academy of Pediatrics Working Group on Breastfeeding. Pediatrics, 100(6), 1035-1039.

Gessner, B., Porter, T., et al. (2006). Bed sharing with unimpaired parents is not an important risk for sudden infant death syndrome. Letters to the editor. Pediatrics,

Gomez Papi, A., et al. (1998). Kangaroo method in delivery room for full-term babies. An Espanol de Pediatria, 48(6), 631-633.

Gray, L., & Watt, L., et al. (2000). Skin-to-skin contact is analgesic in healthy newborns. Pediatrics, 105, 1-6.

Hauck, F. R., et al. (2003). Sleep environment and the risk of sudden infant death syndrome in an urban population: The Chicago Infant Mortality Study. Pediatrics, 111(5), 1207-1214.

Heron, P. (1994). Non-reactive co-sleeping and child behavior: Getting a good night's sleep all night, every night. Master's thesis, Department of Psychology, University of Bristol.

Hooker, E., Ball, H. L., & Kelly, P. J. (2000). Sleeping like a baby: Parent-infant co-sleeping in North Tees, England. Medical Anthropology, 19, 203-222.

Jenni, O., Fuhrer, H., Iglowstein, I., Molinari, L., & Largo, R. (2005). A longitudinal study of bed sharing and sleep problems among Swiss children in the first 10 years of life. Pediatrics, 115(Supplement), 233-240.

Keefe, M. (1987). Comparisons of neonatal night time sleep-wake patterns in nursery versus rooming environments. Nursing Research, 36(3), 140-144.

Keefe, M. (1988). The impact of infant rooming-in on maternal sleep at night. Journal of Obstetrics Gynecology and Neonatal Nursing, 17(2), 122-126.

Kemp, J., et al. (2000). Unsafe sleep practices and an analysis of bed sharing among infants dying suddenly and unexpectedly: Results of a four year, population-based, death-scene investigation study of sudden infant death syndrome and related deaths. Pediatrics,

Konner, M. (1981). Evolution of human behavior development. In R. H. Monroe, R. L. Monroe, & J. M. Whiting (Eds.), Handbook of cross-cultural human development. New York: Garland STPM Press.

Lewis, R. J., & Janda, L. H. (1988). The relationship between adult sexual adjustment and childhood experience regarding exposure to nudity, sleeping in the parental bed, and parental attitudes toward sexuality. *Archives of Sexual Behavior*, 17, 349–363.

Lozoff, B., Wolf, A., & Davis, N. S. (1985). Sleep problems seen in pediatric practice. Pediatrics, 75, 477-483.

DOI: 10.1002/icd

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DOI: 10.1002/icd

- Ludington-Hoe, S., et al. (1999). Birth-related fatigue in 34–36-week preterm neonates: Rapid recovery with very early kangeroo (skin-to-skin) Care. Journal of Obstetrics Gynecology and Neonatal Nursing, 28(1), 94-103.
- McCoy, R. C., Hunt, C. L., & Lesko, S. M., et al. (2000). Population-based study of bedsharing and breast feeding. Program and abstract and press release. Pediatric Academy Society Annual Meetings, Boston, MA.
- McGarvey, C., et al. (2003). Factors relating to the infant's last sleep environment in sudden infant death syndrome in the Republic of Ireland. Archives of Disease in Childhood, 88(12),
- McKenna, J. J. (2000). Cultural influences on infant and childhood sleep biology and the science that studies it: Toward a more inclusive paradigm. In J. Loughlin, et al. (Eds.), Sleep in development and pediatrics. New York: Marcel Dekker.
- Mckenna, J. J., et al. (1991). Sleep and arousal patterns among co-sleeping mother-infant pairs: Implications for SIDS. American Journal of Physical Anthropology, 83, 331-347.
- McKenna, J. J., et al. (1993). Infant-parent co-sleeping in evolutionary perspective: Imperatives for understanding infant sleep development and SIDS. Sleep, 16(3), 263-282.
- McKenna, J. J., et al. (1997). Bed sharing promotes breastfeeding. Pediatrics, 100, 214-219.
- McKenna, J. J., & McDade, T. (2005). Why babies should never sleep alone: A review of the co-sleeping controversy in relation to SIDS, bedsharing and breast feeding. Paediatric Respiratory Reviews, 6, 134-152.
- McKenna, J. J., & Mosko, S. (2001). Mother-infant co-sleeping: Toward a new scientific beginning. In R. Byard, & H. Krous (Eds.), Sudden infant death syndrome: Problems, puzzles, possibilities. New York: Arnold Publishing.
- McKenna, J. J., Mosko, S., & Richard, C. (1999). Breastfeeding and mother-infant co-sleeping in relation to SIDS prevention. In W. R. Trevathan, E. O. Smith, & J. J. McKenna (Eds.), Evolutionary medicine. New York: Oxford University Press.
- Messmer, P., Rodriguez, S., et al. (1997). Effect of kangaroo care on sleep time for neonates. Pediatric Nursing, 23(4), 408-414.
- Mitchell, E. A., & Thompson, J. M. (1995). Co-sleeping increases the risks of the sudden infant death syndrome but sleeping in the parent's bedroom lowers it. In T. O. Rognum (Ed.), Sudden infant death syndrome: New trends in the nineties. Oslo, Norway: Scandinavian University Press.
- Mosenkis, J. (1998). The effects of childhood co-sleeping on later life development. Master's thesis, Department of Cultural Psychology, University of Chicago.
- Mosko, S., et al. (1993). Infant-parent co-sleeping: The appropriate context for the study of infant sleep and implications for SIDS. Journal of Behavioral Medicine, 16(6), 589-610.
- Mosko, S., et al. (1996). Infant sleep architecture during bedsharing and possible implications for SIDS. Sleep, 19, 677-684.
- Mosko, S., et al. (1997a). Infant arousals in the bedsharing environment: Implications for infant sleep development and SIDS. Pediatrics, 100(2), 841-849.
- Mosko, S., et al. (1997b). Maternal sleep and arousals during bedsharing with infants. Sleep, 20(2), 142-150.
- Nakamura, S., Wind, M., & Danello, M. (1999). Review of hazards associated with children placed in adult beds. Archives of Pediatric and Adolescent Medicine, 153(10), 1018-1023.
- Nelson, E. A. S., et al. (2001). International child care practice study: Infant sleeping environment. Early Human Development, 62, 43-55.
- O'Hara, M., & Harruff, R. (2000). Sleep location and suffocation: How good is the evidence? Pediatrics, 105(4), 915-920.
- Okami, P., Weisner, T., & Olmstead, R. (2002). Outcome correlates of parent-child bedsharing: An eighteen-year longitudinal study. Journal of Developmental and Behavioral Pediatrics, 23(4), 244-254.
- Quillin, S. I. M., & Glenn, L. L. (2004). Interaction between feeding method and co-sleeping on maternal-newborn sleep. JOGNN, 33, 580-588.
- Richard, C., et al. (1998). Apnea and periodic breathing in the bedsharing infant. Journal of Applied Physiology, 84(4), 1374-1380.
- Rigda, R., et al. (2000). Bed sharing patterns in a cohort of Australian infants during the first six months after birth. Journal of Pediatrics and Child Health, 36, 117-121.

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Schachter, F. F., Fuchs, M. L., Bijur, P. E., & Stone, R. K. (1989). Co-sleeping and sleep problems in Hispanic-American urban young children. Pediatrics, 84, 522-530.

- Scheers, N. J., Rutherford, G. W., & Kemp, J. S. (2003). Where should infants sleep? A comparison of risk for suffocation of infants sleeping in cribs, adult beds, and other sleeping locations. Pediatrics, 112(4), 883-889.
- Weimer, S. M., et al. (2002). Prevalence, predictors, and attitudes toward co-sleeping in an urban pediatric center. Clinical Pediatrics, 41, 433-438.
- Willinger, M., et al. (2003). Trends in infant bed sharing in the United States, 1993-2000: The National Infant Sleep Position Study. Archives of Pediatrics & Adolescent Medicine, 157,
- Willinger, M., & Rognum, T. O. (1995). SIDS Definition. In T. O. Rognum (Ed.), Sudden infant death syndrome: Trends in the nineties. Oslo, Norway: Scandinavian Press.
- Young, J. (1999). Nighttime behavior and interactions between mother and their infants of low risk for SIDS: A longitudinal study of room sharing and bedsharing. Ph.D. thesis, University of Bristol.