NCT EVIDENCE BASED BRIEFING
Assisted Vaginal Birth - Part 2

By Cynthia Clarkson, Co-Chair of Research Networkers Panel

Introduction

Part 1 of this briefing (***New Digest*** Edition 25, December 2003) covered the development of instruments to assist vaginal birth, rates of forceps and ventouse (vacuum extraction), and the indications and contra-indications for use. It addressed ways of reducing assisted vaginal births by implementing practices known to increase normal births. It examined the available evidence about the benefits and risks of using forceps compared with ventouse and compared the effects of using soft and hard ventouse cups.

In part 2, complications associated with assisted vaginal births, for both mothers and babies, and the outcomes when both instruments are used in sequence, will be examined. Assisted vaginal birth will be compared with caesarean birth, (for situations when intervention in labour is required), and women's views of assisted vaginal birth will be discussed.

Complications in the mother

The most common complications of assisted vaginal birth for the mother involve perineal trauma. Life-threatening complications are thankfully very rare. The risk of death is higher than the rate of deaths associated with a spontaneous vaginal birth, yet lower than deaths associated with a caesarean birth. However, most deaths are caused by the underlying condition that gave rise to the intervention[1].

Perineal trauma is associated with both the use of instruments to assist birth and the use of episiotomy. There is a growing perception that episiotomy may be needed less often for the ventouse than for forceps and that episiotomy rates can be reduced by using the ventouse in preference to forceps. For outlet or low vacuum extractions, episiotomy is indicated only as for unassisted vaginal births. For skilled operators, episiotomy may be reduced, but additional pulls and stronger traction force may be required to deliver a baby through an intact perineum, particularly if the mother is having her first baby[2]. Episiotomy is, however, theoretically required for mid pelvis ventouse procedures to allow correct position-ing of the vacuum cup and facilitate posteriorly directed traction in the correct axis of the birth canal[3,4].

Rates of third degree perineal tears (when the tear extends into the anal sphincter) are greater with forceps deliveries than with ventouse. However, it may be the obstetric problems which prompted the use of forceps rather than ventouse which explain the higher rates of tears rather than the use of forceps per se. For the ten year period, 1991-2000, in Scotland, rates of third degree tears were:

- Spontaneous vertex delivery 5.4/1000,
- Forceps deliveries 16.1/1000,
- Ventouse deliveries 9.9/1000[5].

For women who have had an assisted vaginal birth, long term bladder and bowel symptoms are horrifyingly common. One follow up study of women five years after childbirth found urinary incontinence of various degrees reported by 47%, 'bowel habit urgency' reported by 44%, and loss of bowel control 'sometimes' or 'frequently' experienced by 20% of women[6]. There were no significant differences between instruments in terms of either bowel or urinary dysfunction.

A large community-wide study of pelvic floor dysfunction in people aged 15-97 years old found that dysfunction is greater among women who have had children than those without children. Contrary to popular belief, this included women who had had only caesarean sections, who had some increase in bladder and bowel symptoms. Compared with women who had not had children, symptoms were more common in women who have had a spontaneous vaginal birth and most common in those who have had an assisted vaginal birth[7].

Women may, in the short term, experience more sexual problems after an assisted vaginal birth than after an unassisted vaginal birth, but after six months there is little difference[8]. Comparing three groups of first-time mothers, those who had had an unassisted vaginal birth, those who had had forceps or ventouse, and those who had had a caesarean section, Barrett found that during the first three months after childbirth, dyspareunia (pain during sexual intercourse) was highest among women who had had an assisted birth. In this group, 78% of women experienced dyspareunia compared with 62% of those who had an unassisted vaginal birth and 43% who had a caesarean birth. In contrast, by six months the figures were 37%, 30% and 26% respectively, differences that were not statistically significant.

For some women, the experience of childbirth or aspects of their postnatal experience have a negative influence on their attitude to having another child. In a similar cohort study, Jolly et al. found that a disproportionately large number of women who had had an assisted delivery or a caesarean section had not given birth for a second time within five years of having their first child. Results showed that 25% of women who had an assisted vaginal birth, 26% of those who had a caesarean birth, and 10% of women who had a normal vaginal birth were 'still afraid' about future childbirth[9]. This fear is likely to affect behaviour and decision making. In addition to social and psychological factors influencing the number of second babies born to these women, there may also be some physiological differences. Of the women who had no further children, 28% of the assisted vaginal group and 30% of the caesarean group, compared to 16% of the normal vaginal group, said they had 'involuntary' infertility (i.e. not of their choice). A similar relationship between mode of delivery and subsequent relative infertility was found in Aberdeen by Hall et al[10]. Very recently, when a cohort of women, who had either a difficult assisted vaginal birth in theatre or a caesarean at full dilatation, were followed up after three years, considerably more of those that had had a caesarean reported difficulty in conceiving another baby than those who had had an assisted vaginal birth[11].

Complications in the baby

Not surprisingly, perhaps, a more complicated labour is associated with a higher rate of complications for the baby. Fortunately, most of the complications are fairly superficial and of short duration. For example, marks on the baby's face are common with forceps, there may be a 'chignon' (a lump like a bun, where the scalp has been pulled into the cup) with a metal or rigid cupped ventouse and the baby may have scalp lacerations or bruising with either instrument. Fortunately, most soft tissue injuries last only a short time and are of no long term consequence.

More serious complications associated with assisted vaginal births include intracranial haemorrhage, subgaleal haematoma and higher than average neonatal death rates. However, in most cases the higher mortality and morbidity rates associated with assisted deliveries, and also with emergency caesarean births, are likely to be causally related to the underlying condition which prompted the intervention, rather than to the mode of delivery itself. Nevertheless, as intervention rates rise, more babies are exposed to the risks inherent in invasive procedures.

Mode of delivery and birth injury data for over 580,000 live-born, first-born singletons with birth weights of 2500 to 4000g have been collected. Babies whose birth was assisted by forceps or ventouse had a significantly higher rate of intracranial haemorrhage, brachial plexus injuries, convulsions, central nervous system depression and the need for mechanical ventilation, compared with those born spontaneously[12]. However, there were no significant differences in the rates of the more severe neonatal injuries, when comparing babies born by caesarean during labour (0.25 per 1000), those assisted by ventouse (0.15 per 1000) or forceps (0.26 per 1000). These data implicate dysfunctional labour, rather than any specific mode of delivery as the major risk factor.

Subgaleal haematoma, which is quoted as occurring in 1-4% of babies born with vacuum extraction[2], is the most important life-threatening complication of this mode of delivery[3]. When subgaleal haematoma occurs, blood from damaged blood vessels can accumulate in a large space from the ridges above the baby's eyes to the nape of the neck and laterally from ear to ear. The blood loss may be large and may result in haemorrhagic shock and death. It can spread quietly and unnoticed over the first hours or days after birth. Early recognition and treatment are essential[13]. Subgaleal haematoma can occur when the delivery has not been particularly difficult and traction not prolonged or excessive[14].

Forceps rotations can result in the rare, but serious complication of spinal cord injury - data from the mid 1960s show this occurring in 1/1000 rotations and it is undoubtedly much less frequent today[15]. Pressure from forceps blades can traumatise the facial nerve, but it usually recovers of its own accord. Skull fractures very occasionally occur with either instrument[15, 2].

Cephalhaematoma, another less serious complication (discussed in part I), occurs more commonly with the ventouse, but also with forceps. In the trials included in the Cochrane review comparing the two instruments, it occurred in 9.8% of ventouse assisted births and 4.1% of forceps[16]. The incidence of cephalhaematoma reported in trials comparing different vacuum cups was 4.8% for soft and 7.0% for rigid cups, not a statistically significant difference[16]. No specific treatment is required for the haematoma, which will resolve spontaneously.

A statistical correlation has been demonstrated between assisted vaginal delivery and shoulder dystocia, but the relationship is largely coincidental. Slow progress or arrest in descent of the baby's head and increased birth weight is associated with both assisted delivery and shoulder dystocia[15].

Outcomes when both instruments are used in sequence

The likelihood of serious injury to the baby is increased when forceps or ventouse is followed by a failed operation with the alternative instrument[17,12]. In a cohort study to assess maternal and neonatal morbidity following operative delivery in second stage, the use of multiple instruments was associated with increased neonatal trauma[18]. In the same study, more than three pulls at attempted instrumental delivery was associated with increased serious trauma in the baby for completed and failed deliveries. An excessive number of pulls and multiple instrument use both occurred more frequently when care was being provided by less experienced doctors[18].

Assisted vaginal or caesarean birth?

In deciding between assisted vaginal and caesarean birth, a caesarean is indicated if there is real disproportion and the baby's head has not entered the pelvis, or the cervix is not fully or almost fully dilated, or the baby's head is very high up. There are complex issues and divergent views regarding the place of caesarean birth in modern obstetric practice. On the whole, there is a tendency for more rapid recourse to both planned and emergency caesarean section than was once the case, perhaps because of greater fear of litigation[19] and in recognition that the risks of caesarean have been reduced. While the overall rate of assisted deliveries has not been reduced[20, 5], the more difficult procedures, such as rotational forceps are less widely practised.

In contemplating assisted vaginal birth, the principal issues include:

- The indications.
- The condition of the mother and/or the baby.
- The degree of perceived difficulty. Straightforward 'lift-out' operations are the most common, and the complexity increases when the baby's head is high in the pelvis and/or malpositioned[15].
- The available alternatives. In developing countries, caesarean sections may not be available. In many hospitals in the UK, only soft cups are used with the ventouse, and metal cups are unavailable[21]; other hospitals do not use rotational forceps.
- The skill of the operator, who must be familiar with the instrument used, appropriately trained and sufficiently practised to maintain skills.

Caesarean section is relatively easy to perform. Assisted vaginal birth has the potential to be the most complex and difficult of all obstetric procedures[22], yet in expert hands an assisted vaginal birth can also be safe for the baby and avoid long term consequences for the mother, some of which are inherent in caesarean section. The availability of a consultant obstetrician to provide supervision on the labour ward for a minimum of 40 hours in consultant-

led units, with no additional commitments, should contribute to the improved training of junior and middle grade doctors[23].

Assisted vaginal delivery has never been free from criticism and is not without risk. When a comparison was made between the types, numbers and proportions of various assisted births and emergency caesareans, it was shown that less experienced doctors performed a greater proportion of caesareans and few or no Kielland's forceps deliveries[24]. It was, however, difficult to draw any valid conclusions as to whether it was better to be treated by a less experienced doctor, with a higher caesarean rate, or a more experienced one with a higher assisted vaginal birth rate.

A dilemma encountered by about 4% of women and their obstetricians is how to keep maternal and neonatal morbidity to a minimum when given a choice between difficult assisted vaginal birth and a caesarean at full dilatation. On the one hand, caesarean sections performed in the second stage of labour are not infrequently traumatic and are associated with significant morbidity and mortality[25]. And a successful, assisted vaginal birth may increase the likelihood of an uncomplicated normal birth in a subsequent pregnancy[26,11]. However on the other hand, there have been reports of maternal and neonatal morbidity after assisted vaginal birth, compared with caesarean, for midcavity arrest (albeit with inconsistent reports). This inconsistency may relate to the retrospective design of such studies and the methodological biases inherent in them.

A prospective cohort study of 393 women requiring operative delivery in theatre at full dilatation at term, for a singleton, live, cephalic baby was carried out for one year[27]. Of these, 102 had a caesarean section with no attempt at an instrumental vaginal birth. Vaginal birth was successful in 184 of the 291 attempted vaginal deliveries. Women giving birth by caesarean section were more likely to have a major haemorrhage (>1000 mls) than those giving birth vaginally. There was a high rate of third degree tears (8%) in those giving birth vaginally, but there was a comparable morbidity of an extension of the uterine incision into the cervix, vagina or broad ligament (24%) in those giving birth by caesarean (both those having caesarean alone (22%) and when caesarean was carried out after an attempted assisted vaginal birth (26%). Babies born by caesarean were more likely to require admission for intensive care but less likely to have received trauma than babies who had an attempted vaginal birth, whether successful or not. Overall, neonatal morbidity was low, but a few babies in each group had serious complications (serious trauma, 8 vs. 3; sepsis, 6 vs. 13; and jaundice, 10 vs. 12 after assisted vaginal and caesarean birth respectively). Women in this study were less likely to proceed to a caesarean or to have a major haemorrhage if they were treated by a senior obstetrician.

Rotational forceps delivery (Kielland's) has been abandoned in many institutions[25]. In comparison with caesarean birth, use of rotational forceps is undoubtedly associated with an increased, but very small, risk of trauma to the baby. However, for the mother it is likely to compare favourably taking into account the added risks for her of an emergency caesarean in this pregnancy and the associated risks of having a scarred uterus in any subsequent pregnancies[28]. Ventouse can be used to improve the baby's position in some circumstances; however, rotational ventouse is associated with higher failure rates. Manual rotation may be attempted but is not always successful - so (skilful) use of rotational forceps may be the only way of delivering some women without recourse to a caesarean[29]. Rotational forceps should be reserved for situations when assessment of the mother and baby before the procedure suggest a high likelihood of success[30]. Most hospital protocols require rotational forceps to be used as a 'trial' of forceps, conducted in theatre with everything prepared for a caesarean if the rotation and descent do not proceed easily.

Women's views

Most researchers have found higher levels of intervention to be associated with women having lower levels of satisfaction with their birth experience. A sample of 1,714 postnatal women were asked about interventions they had experienced, including 'how much of a medical procedure' they rated each one. They rated both ventouse and forceps as a major intervention, which was only surpassed by a general anaesthetic or a caesarean[31].

Operative birth has been associated with considerable maternal morbidity, including depression, guilt, regret, loss of esteem, prolonged pain, discomfort, infection, grief reactions, feeling of violation and dissatisfaction with care. Women were significantly more likely to report at least one health problem at 0-13 days, eight weeks and two to 18 months after an assisted vaginal birth than after a normal or a caesarean birth. Painful perineum, constipation, piles and stitches breaking down were particularly common[32]. In comparison with forceps, women who birthed with the assistance of the ventouse reported less pain but had more worries about their babies[33].

However, there is a place of assisted vaginal birth in appropriate circumstances, with a skilled practitioner carrying out the procedure. Green et al. found that it mattered more to women whether they felt in control of what happened to them during labour, than whether or not they had medical interventions. One of their key findings was that 'positive psychological outcomes were associated with the belief that the right thing had happened rather than the activity itself'[34]. Therefore, when a woman feels that the likely benefits of an intervention outweigh the likely risks, and every effort has been made to involve her in weighing up the relevant factors and deciding what should happen, she is likely to feel positive about her experience.

Despite the potential for harm, an assisted delivery by a skilful practitioner can be one of the components of woman-centred care. For example, for women with an otherwise uncomplicated pregnancy giving birth at a community-based midwife-led unit, the opportunity to have some necessary help to get the baby's head over the perineum (only offered if the baby's head is well positioned), can keep the birth experience as normal as possible, and minimise physical and emotional trauma for them[35]. At Trowbridge, a stand-alone community midwifery unit, midwife ventouse practitioners provide 24 hour cover. When they are called, they first try any further approaches to achieve a spontaneous vaginal birth and then use hand-held ventouse if it is necessary. This approach, has led to a 16% decrease in the rate of transfer in labour[36].

At the other end of the scale of labour complications, for women whose labour complications, including mid-cavity arrest, meant they were treated in theatre in case a subsequent caesarean was needed without delay, there are also some positive benefits of assisted vaginal birth. In Murphy's prospective study, approximately 70% of those who had had a previous difficult assisted vaginal birth in theatre, would prefer a vaginal birth in a future pregnancy, compared with approximately 40% of those who had a caesarean birth at full dilatation, whether after a failed assisted birth or an immediate caesarean[26,11]. This shows that provided difficult assisted deliveries are well managed, according to thoughtfully developed, evidence-based protocols, a high proportion of women who experience a difficult assisted birth can feel more positive about the prospect of a future vaginal birth.

In a qualitative study of the views of 27 women from the same cohort, women generally felt unprepared for an operative delivery and thought that their birth plan or antenatal classes had not catered adequately for this event. In addition, they had difficulty understanding the need for operative birth despite having had a meeting with one of the medical and/or midwifery staff to discuss their care before discharge. It is felt by the authors that maternal satisfaction with the birth experience must be fully addressed, particularly in the context of adverse clinical events necessitating major intervention[37,11].

A trial offering midwife-led debriefing after birth to women who had had either an assisted vaginal birth or a caesarean, designed to minimise potential adverse psychological effects of operative delivery, did not result in reducing depression at six months postpartum[38].

Summary

The most common complications of assisted vaginal birth for the mother involve perineal trauma. Perineal trauma is associated with both the use of instruments to assist birth and the use of episiotomy.

- For women who have had an assisted vaginal birth, long term bladder and bowel symptoms are horrifyingly common. However, pelvic floor dysfunction is greater among all women who have had children than those without children, including those who have only given birth by caesarean section.
- In the short term, women tend to experience more sexual problems after an assisted vaginal birth than after an unassisted vaginal birth, but after six months current evidence suggests that there is little difference.
- Women who have had an assisted birth or a caesarean delivery are less likely to go on to have subsequent children, with social, psychological and physiological factors all potentially playing a part.
- A more complicated labour is associated with a higher rate of complications for the baby, most of which are fairly superficial and of short duration. The higher mortality and morbidity rates associated with assisted deliveries and emergency caesarean births tend to be causally related to the underlying condition which prompted the intervention, rather than to the mode of delivery itself. However, as intervention rates rise, more babies are exposed to the risks inherent in invasive procedures.
- When comparing emergency caesarean section with assisted vaginal delivery, the issues are complex, giving rise to divergent views. The emergency caesarean rate has increased and while the overall rate of assisted deliveries has not been reduced, the more difficult procedures, such as rotational forceps, are less widely practised. Carrying out the more complex assisted vaginal births requires great skills and has the potential for damaging both the mother and the baby, yet in expert hands forceps and ventouse can also be safe for the baby, and avoid long term consequences for the mother, some of which are inherent in caesarean section. Additional supervision on the labour ward from a consultant obstetrician should contribute to the improved training of junior and middle grade doctors.
- About 4% of women (and the obstetricians caring for them) face the dilemma of what to do when the options are between a difficult assisted vaginal birth and a caesarean at full dilation. There is no simple answer, but it requires careful consideration of all the relevant factors, as outlined in the briefing, by the woman, her partner and her carers.
- Further attention, including more research, is needed to develop better ways of preparing women for labour, including the prospect of an assisted delivery or emergency caesarean section. This may include a better understanding of the physiology of childbirth, and the various factors that influence spontaneous birth, as well as the factors which determine what kind of intervention is more likely to be appropriate, should it be needed.

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Safe Storage of Expressed Breastmilk in the Home

By Anabel Hans, a former dairy microbiologist, Breastfeeding Network Supporter and Trustee, she has three exclusively breastfed children.

Many breastfeeding mothers with full term healthy babies choose to store expressed breastmilk (EBM) in the home for when they return to work, or for the occasional time away. This is particularly important for women wishing to follow guidance from the World Health Organisation (WHO) and the Department of Health (DoH). The DoH states *"Breastfeeding is the best form of nutrition for infants. Exclusive breastfeeding is recommended for the first six months (26 weeks) of an infant's life as it provides all the nutrients a baby needs."* Mothers find the storage times for EBM given in leaflets and other publications inconsistent and confusing. A recently published Breastfeeding Network (BfN) study investigated why, with a view towards providing consistent guidance.

The guidelines from five research-based and ten simplified documents were found to vary from 'use almost immediately' to 24 hours at room temperature; 24 hours to eight days in the fridge; and three to 12 months in the deep freeze. Primary research was investigated, particularly papers whose findings had been used for the guidance documents.

The research papers consistently showed EBM stored in the fridge and at room temperatures could delay bacterial growth, keeping it safe for longer periods than processed (e.g. pasteurised) milk. Freezing was shown to affect these anti-bacterial properties, allowing any unwanted bacteria in previously frozen milk to grow unrestrained when warmed. Enzymes in EBM slowly break down milk fat during freezing, eventually making the milk rancid. Freezing was also shown to destroy white cells and reduce nutrients such as folic acid, vitamin C and triglycerides. It must be remembered however, that these effects are minor and previously frozen mother's milk is still very valuable to her baby. The investigation concluded that EBM could be safely stored in the deep freeze for up to six months, and that previously frozen breast milk should be kept for as short a time as possible before use.

Mothers much prefer to store their expressed milk in a fridge. It is less work and avoids the effects of freezing, as discussed earlier. Refrigerated storage for more than a day gives a mother longer to collect her milk. Careful handling (good hygiene) during collection and accurate storage temperature was shown to be very important. These practices prevent unwanted bacteria from entering the milk and lessen the growth of any bacteria that do get in.

Research studies showed refrigerated EBM to be safe for up to eight days below 4ºC and up to three days at 4 to10ºC. Primary research did not show if milk was safe (or unsafe) for longer at either refrigeration temperature. Many research papers recommended much shorter refrigerated storage times.

These recommendations appeared to be based on the maximum study period, or applied unrealistic bacterial limits, rather than when the EBM became unsafe. One paper found evidence to suggest that milk contaminated with bacteria is safer stored at 4ºC for eight days than frozen.

The BfN investigation concluded that separate and clear guidance, depending on the fridge temperature, should be given to mothers on how to store their milk. With a fridge accurately controlled at 4ºC or below, EBM may be safely stored for up to eight days. Otherwise EBM can be safely refrigerated for up to three days. More recent refrigerators have a built in thermometer and alarm, maintaining temperatures at 4ºC or below.

The full article also gives key points on good hygiene, accurate fridge temperature control, suggested storage times and defrosting and warming milk (Hands A. ***MIDIRS Midwifery Digest***, vol 13. No 3, September 2003, pp 378-385).

What do you think?

In the light of this up-to-date review, NCT is suggesting clear guidelines are established to avoid confusion for parents. To start the process, we propose the following statement:

"Fresh, expressed breastmilk can be kept in a home fridge at less than 4ºC for three to five days, preferably at the back where the temperature is more constant. If you do not have a fridge thermometer, it is probably safest to use breastmilk within a day or two. Breastmilk can be stored for one week in the ice compartment, or three months in the freezer. Frozen milk loses some of its ability to resist bacteria, so should be used soon after defrosting."

Any comments, and volunteers to take this forward, please contact Rosie Dodds, NCT Policy Research Officer, email: r_dodds@national-childbirth-trust.co.uk or tel: 020 8752 2330.

Evidence on Co-Sleeping and Cot Death: no need to panic

The NCT and the UNICEF UK Baby Friendly Initiative are urging caution in the interpretation of two recent research studies, which conclude that co-sleeping should be avoided for very young babies. The study by McGarvey, carried out in Ireland[1], found that babies under 20 weeks were at increased risk of cot death, while the European multi-centre study found that babies under eight weeks were at higher risk when sleeping with their parents[2]. Both studies were carefully carried out and take many factors into account. However, there are concerns about how these results should be interpreted in terms of information or general advice for parents. Media coverage in the second week of January included advice to parents not to co-sleep with babies under eight weeks old; however, further analysis and review of other findings is needed.

NCT and UNICEF believe the following factors need to be taken into account:

- The Irish study included all kinds of co-sleeping, combining results for sleeping with a baby on a bed, a sofa or an armchair, even though sofa or armchair sleeping are very significant independent risk factors for SIDS (Sudden Infant Death Syndrome).
- This study also reported that only 5% of the babies in the control group shared a bed with a parent. This implies that bed sharing in Ireland may be relatively uncommon, and findings from Ireland may not be generalised to other cultural settings. The prevalence of bed sharing was quite different in an earlier study, led by the team at the Durham Sleep Laboratory[3], who reported that 70% of parents had shared a bed with their baby by three months of age, with more than half having done so regularly. In the European study[2], it is not absolutely clear that all the babies described as co-sleeping were sharing a bed with their parents, rather than a sofa, or other surface.
- The McGarvey study did not control for alcohol consumption, which is a known risk factor for SIDS.
- Breastfeeding rates vary widely across Europe. Only 36% of Irish babies are breastfed at birth, compared with 69% in the UK. The Durham researchers found that almost all mothers who breastfeed for longer than eight weeks routinely bed share with their babies.
- The European study only recorded how the babies were fed at birth. It is therefore not known whether the babies who died while bed sharing with non-smoking parents were breastfed or bottle-fed. There is some evidence that mothers who are using formula milk do not adopt the same 'protective' sleeping position observed in breastfeeding mothers.
- Evidence suggests that many parents work out for themselves that bed sharing is a useful strategy for night-time feeding and caring, although this is influenced by cultural factors. Where mothers do get out of bed to feed their baby at night, there is a danger that this will increase the risk of falling asleep in a chair or sofa - sleeping arrangements which are significant risk factors for SIDS.
- Finally, to put the risk of cot death found by these studies into context, in previous studies the risk for babies not sharing a room with their parents was two to ten times higher than for babies who slept in the same room as their parents, but did not co-sleep.

The UNICEF Baby Friendly Initiative published an evidence-based information leaflet for parents on both the benefits and risks of bed sharing, **Sharing a bed with your baby** with the Foundation for the Study of Infant Deaths (FSIDs) in 2003, available from: www.babyfriendly.org.uk/parents/sharingbed.asp

FSIDs continue to support the leaflet. Once these studies have been discussed with the National Patient Safety Agency and the methodological issues described above have all been explored in detail, the leaflet will be updated if necessary.

References:

1. McGarvey C et al (2003). Factors relating to the infant's last sleep environment in Sudden Infant Death Syndrome in the Republic of Ireland. Arch. Dis. Child. 88: 1058-1064. (Abstract: http://adc.bmjjournals.com/cgi/content/abstract/archdischild%3b88/12/1058?2.)
2. Ball HL (2003). Breastfeeding, bed-sharing, and infant sleep. Birth 30: 181-8. Abstract http://highwire.stanford.edu/cgi/medline/pmid;12911801
3. Carpenter RG et al (2004). Sudden unexplained infant death in 20 regions in Europe: case control study. Lancet 363: 185-91. See: http://www.thelancet.com/journal/vol363/iss9404/full/llan363.9404.original_research.28360.1