Safe Infant Care

to Reduce the Risk of Sudden Unexpected Deaths in Infancy Policy Statement and Guidelines

Queensland Government
Queensland Health

Safe Infant Care to Reduce the Risk of Sudden Unexpected Deaths in Infancy
Policy Statement and Guidelines
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Queensland Health Policy Statement and Guidelines

Background

Queensland Health has developed the *Safe Infant Care to Reduce the Risk of Sudden Unexpected Deaths in Infancy Policy Statement and Guidelines* to assist staff in the promotion of safe infant care practices in order to reduce the risk of sudden unexpected infant deaths and fatal sleeping accidents.

The Policy Statement and Guidelines and set of minimum practice standards are to be implemented in all Queensland Health facilities. These evidence based practice standards are relevant to all nursing, medical and allied health professionals and volunteers providing care and information to mothers, infants and families in all health facilities across clinical, acute and community settings.

The Policy Statement and Guidelines incorporates current Australian and international research on sudden unexpected infant deaths, national public health recommendations and parent information consistent with Safe Sleeping messages developed by SIDS and Kids and the Public Health Association of Australia.

The Policy Statement and Guidelines is underpinned by the *Safe Infant Sleeping Education Program for Health Professionals,* an evidence-based educational resource specifically designed to support health professionals as they role model and educate parents about safe infant sleeping recommendations.

Access to this program is available through www.health.qld.gov.au/publications/childhealth or through contacting the Maternity Child Health and Safety Branch, Queensland Health.

A suite of resources for health professionals and parents has been developed to accompany the Policy Statement and Guidelines.

Reducing infant mortality requires knowledge and action by parents, caregivers and all health care providers.

Objectives

The objectives of the Policy Statement and Guidelines are:

To provide staff, parents, carers, families and communities with accurate and current evidence-based information about sudden unexpected deaths in infancy and fatal sleeping accidents and the infant care practices demonstrated to reduce the risk of infant death.

To ensure safe sleeping environments and care practices for infants in Queensland Health facilities.

To ensure that health professionals, in all acute and community facilities that care for families with young infants (ie. antenatal, birthing, postnatal, paediatric, child health, community and general practice settings), practice, demonstrate and actively promote safe sleeping environments and care practices for infants.

To ensure that parents receive consistent and accurate information and are provided with the opportunity to observe recommended safe infant care practices demonstrated to reduce the risk of sudden infant death and fatal sleeping accidents.

To support parents to use safe infant care and sleeping practices when they are in their home environment by providing practical, evidence-based strategies which take into consideration the needs of the baby and the family circumstances.

Queensland Health minimum standards to reduce the risk of sudden infant death and fatal sleeping accidents

Minimum Standard 1

All well infants in Queensland Health facilities should be placed on their back to sleep from birth never on the front (tummy) or side.

Minimum Standard 2

All staff members who care for families with young infants should provide parent education about Safe Sleeping recommendations and evidence-based infant care practices.

Minimum Standard 3

All staff members who care for families with young infants should provide parents with information about Safe Sleeping recommendations and evidence based infant care practices.

Minimum Standard 4

All expectant and new parents should be made aware of the strong association between smoking and the increased risk of sudden infant death and be supported and referred to smoking cessation or reduction programs as appropriate.

Minimum Standard 5

Parents and carers of infants should be presented with accurate information about sharing sleep surfaces with their baby including benefits, risks and strategies to enhance the safety of this environment so that parents and carers can make informed decisions regarding sleeping arrangements for their baby.

Minimum Standard 6

Parent advice and support provided by staff should consider the culturally specific needs and the circumstances of each family and their baby to ensure safe infant care and sleeping practices are implemented in home environments.

Definitions of terms

Sudden Unexpected Death in Infancy (SUDI) is the sudden, unexpected death of an infant, usually occurring during sleep, in which a cause of death is not immediately obvious. SUDI is essentially a research classification, and refers to a broad category of sudden and unexpected deaths which include Sudden Infant Death Syndrome (SIDS), infections or anatomical or developmental abnormalities not recognised before death, sleep accidents due to unsafe sleep environments and sudden unexpected deaths that are revealed by investigations to have been the result of non-accidental injuries[1–2].

A death is generally classified as a SUDI if it concerns:

- an infant less than 12 months of age
- a death that was sudden in nature
- a death that was unexpected[3].

SIDS is a subset of SUDI and is a classification of exclusion. The definition for SIDS[4], currently accepted in Australia[2] and by a majority of experts internationally, is:

> *"the sudden and unexpected death of an infant under one year of age, with onset of the lethal episode apparently occurring during sleep, that remains unexplained after a thorough investigation including performance of a complete autopsy and review of the circumstances of death and the clinical history."*[4]

Most SUDI deaths occur as a result of either SIDS or a fatal sleep accident.

Epidemiological investigations have shown that many of the maternal, infant and socio-demographic risk factors for SIDS are common to SUDI and fatal sleep accidents, therefore safe sleeping strategies will target all three of these causes of infant death[1–3,5]. Research has clearly shown that babies who are placed to sleep on their tummy or side, who are exposed to tobacco smoke (both before and after birth), or who do not have a safe sleeping place, are at a greater risk of sudden infant death[6–8].

The risk of sudden infant death and fatal sleeping accidents can be reduced by following some simple advice for taking care of baby. *(Recommendations for Safe Sleeping to Reduce the Risk of Sudden Infant Death can be found on page 11)*.

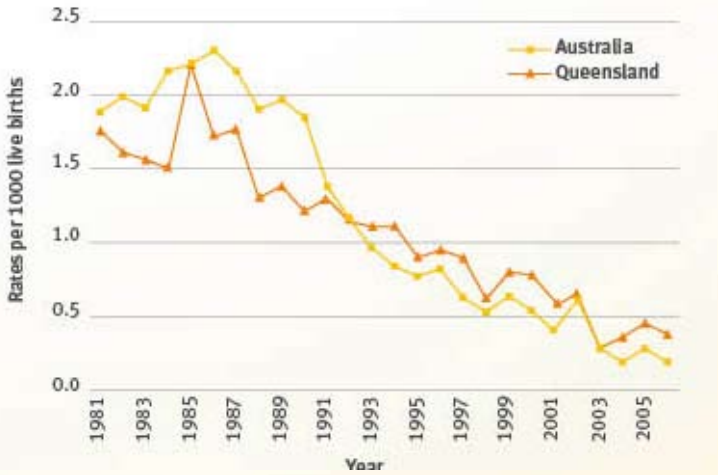
Incidence

Infant mortality, defined as deaths in children from birth to the first year of age per 1000 live births, is an important social indicator reflecting general population health and well-being. In Queensland, deaths attributed to sudden and unexpected deaths in infancy were at a rate of 0.9 per 1,000 live births (82.0 deaths per 100,000 infants) for the 2006–07 annual period[2]. Most SUDI deaths occur as a result of either SIDS or a fatal sleep accident.

In Australia, infant deaths attributed to SIDS have fallen approximately 83 percent during the last 20 years[7]. Evidence suggests that the marked reduction in SIDS incidence can be directly associated with Australian public health campaigns which promoted safe sleeping practices, particularly advice given to parents to place baby on their back to sleep[8]. *(See Figure 1)*. These findings are consistent with international studies that have reported marked declines in SIDS in countries which have introduced similar public health campaigns to reduce known risk factors[9–12].

Queensland has also experienced a reduction in SIDS deaths during the period 1989–2005, from 1.38 per 1,000 live births in 1989 to 0.39 per 1000 live births in 2006[2,13]. Despite these significant reductions in infant mortality, SIDS continues to comprise the largest category of deaths occurring in the post-neonatal period (between 28 and 365 days after birth)[2]. Queensland has continued to experience higher mortality rates compared to several other Australian states and territories since the first 1991 Back to Sleep Campaign[14]. Most recent data available indicates that SIDS rates in Queensland (0.39 per 1,000 live births in 2006) remain higher than the national average (0.2 per 1,000 live births in 2006)[2,15].

Figure 1: Mortality rates attributed to SIDS: Queensland and Australia, 1981–2006



Data Source: Table 5. SIDS by year of occurrence and state and territory of usual residence, p11 cited in Burke[14] and data courtesy of CCYPCG[2,13] and Australian Bureau of Statistics[15].

Risk factors

SIDS is understood to be multifactorial in origin[16–17]. A number of infant, parental, and environmental factors are known to increase the risk of sudden and unexpected infant death.

Infant factors

Infant factors relate to the vulnerability of the infant. Most at risk for SIDS are infants who are born prematurely (less than 37 weeks), of low birth weight (less than 2,500 grams) or from multiple births and those who have had neonatal health problems. This includes a history of minor viral respiratory infections and/or gastrointestinal illness in the days leading up to the death[1–2]. The risk of SIDS is higher for males and for first born infants[16]. There is a characteristic age distribution for SIDS which differs from most other causes of infant death. The risk of SIDS peaks between two and four months of age, with the likelihood of SIDS reducing as the baby gets older. Infants of Aboriginal and Torres Strait Islander descent are at an increased risk of SIDS with figures from the period 2006–07 indicating that these infants died suddenly and unexpectedly at a rate 4.8 times higher than non-Indigenous infants[2].

Parental factors

SIDS is more common in babies of younger mothers (less than 20 years), and particularly those without a supportive partner, where there was a short interval (less than six months) between pregnancies and higher parity (number of births by mother)[2,16]. Previously firstborn infants were at a lower risk of SIDS but these now form the largest single group, significant only for socioeconomically deprived families[16]. Babies of mothers who have poor or delayed prenatal care, smoke during pregnancy and after birth, abuse alcohol or illicit drugs, suffer from depression, or are of Indigenous ethnicity, are also at an increased risk[2].

Environmental factors

SIDS is significantly associated with families of low socioeconomic status who are socially disadvantaged by occupational status, a lower educational level and unemployment[2]. Seasonality was a feature of SIDS with more deaths occurring in winter months. However since the 1991 Back to Sleep campaign the winter peak has progressively become less marked[16]. Since the 1800s more infant deaths have been reported on weekends and public holidays, hypothesised to be due to changes in infant care practices and factors related to high risk lifestyles (alcohol and drug use)[1].

The most important modifiable environmental factors that have been demonstrated to increase an infant's risk of sudden and unexpected death are related to sleeping position, sleeping environment and exposure to tobacco smoke.

Sleep position

Prone and side sleeping positions significantly increase the risk of SIDS, a finding supported by a large body of international studies[2,6,11,17]. SUDI and SIDS share many risk factors however a recent evaluation indicates that the increased risk of death with prone sleeping position is unique to SIDS[5].

Sleep environment

Sleeping infants on soft surfaces and with loose bedding that can cover the infant's head increases the risk of SIDS[18]. Thermal factors such as heating the room and excess clothing and bedding increase the risk predominantly for infants placed on their tummy to sleep[11]. Room-sharing with baby, for both day and night sleeps, has been shown to reduce the risk of SIDS and has been recommended for the first 6–12 months of life[19].

In some circumstances, sharing a sleep surface with a baby increases the risk of sudden infant death and fatal sleeping accidents. Current evidence has shown that it is not so much bed-sharing, but the circumstances in which bed-sharing occurs that carry the risk. Infants who are more at risk when bed-sharing are babies less than 4 months of age, born preterm or of low birth weight. SIDS deaths attributable to bed-sharing occur predominantly amongst infants whose parents smoke[20–21]. Sleeping with an infant on a couch, sofa or chair, or placing an infant alone in an adult bed, significantly increases the risk of SIDS and fatal sleeping accidents[1,22].

Exposure to tobacco smoke

Exposure to tobacco smoke is a major risk factor associated with SIDS. Maternal smoking during pregnancy is associated with a four-fold risk, with postnatal exposure increasing the risk further. The risk is also dose dependent and increases with the number of smokers in the household and the daily hours the infant is subjected to a smoke-filled environment[23].

Other infant care practices associated with risk

Infants who are not immunised experience an increased risk of SIDS. Evidence indicates that immunisation halves the risk[24]. While breastfeeding is associated with reduced infant mortality worldwide,[25] some studies have shown that adjustment for socioeconomic status decreases the level of protection when specifically examining the association between SIDS and breastfeeding[1]. However, in socioeconomically deprived families, not breastfeeding in the first two weeks of life is associated with an increased risk of SIDS[5,16]. Breastfeeding is beneficial and should be encouraged and supported, as it promotes healthy outcomes for infants and mothers.

Factors less amenable to change, such as prematurity and socioeconomic circumstances, can serve as markers of the infant or family at risk. Understanding risk factors for SIDS and SUDI that are potentially modifiable through behavioural, social and environmental changes can help health professionals to educate and support high risk infants and their families[3,26].

The role of Health Professionals

SIDS remains the leading cause of death for infants between one month and one year of age[2]. A national comparison of SIDS and undetermined causes for 2004–05 showed that Queensland had the third highest rate of SIDS and undetermined causes in Australia for infants under one year (272.6 per 100,000), which was five times the national rate (52.2 per 100,000)[2].

Several studies conducted in Queensland have contributed to a body of evidence that strongly suggests improvements can be made in the implementation of safe infant sleeping recommendations by both health professionals and parents that will reduce the risk of sudden infant death[26–33]. Results from these studies demonstrate current advice relating to safe sleeping recommendations may not be received, or may not be implemented, by a proportion of the population at risk. These studies highlighted several areas specific to modifiable risk factors and the uptake of safe sleeping messages that could be addressed by improved parent education provided by health professionals[32,33].

Research has demonstrated that the knowledge parents had of risk factors, information provided by health professionals, printed material distributed by hospitals and health services, the attitudes and behaviours of nurses and midwives, and whether alternative settling techniques were provided, all contributed to the decisions parents made in caring for their baby[3]. Recent studies conducted in Queensland[30,32] and in the United States[34] have demonstrated that parents who received health advice relating to their baby's sleeping position were significantly more likely to use the supine (on the back) position for sleep compared to parents who did not report receiving health advice. These findings have important implications for parent education by all health professionals caring for families with young infants.

Health professionals are in a unique position to educate parents and caregivers about SIDS and sudden unexpected infant death. All health professionals who have contact with families with young infants have to the power to directly influence the behaviour of parents and caregivers, by modelling safe infant sleep practices while the infant is in hospital and by providing parents with information and support strategies, to ensure parent practices used at home are consistent with public health safe sleeping recommendations.

The Safe Infant Sleeping Education Program for Health Professionals is an evidence-based educational resource that has been specifically designed to support health professionals working in Queensland Health facilities as they role model and educate parents about safe infant sleeping recommendations. The guidelines for clinical practice and parent education contained within the education program underpin the minimum practice standards contained within the Policy Statement and Guidelines.

Greater efforts must be made to communicate and encourage safe sleep practices among all parents and carers. Reducing the rate of sudden infant death requires knowledge and action by parents, caregivers and all health care providers.

Safe Sleeping to Reduce the Risk of Sudden Infant Death

Research has identified several key infant care practices that reduce the risk of sudden and unexpected infant death, including SIDS and fatal sleeping accidents. The following recommendations incorporate current Australian and international research on sudden unexpected infant deaths, national public health recommendations and parent information consistent with Safe Sleeping messages developed by SIDS and Kids[35,36] and the Public Health Association of Australia[37].

To reduce the risk of sudden infant death and sleep baby safely[35,36]:

- **sleep baby on the back** from birth – never on the tummy or side
- sleep baby with **head and face uncovered**
- **avoid** exposing babies to **tobacco smoke** before and after birth
- provide a **safe sleeping environment night and day: safe cot, safe mattress, safe bedding and safe sleeping place**
- sleep baby in their own cot or bassinette in the **same room as the parents** for the first 6–12 months.

A safe sleeping place reduces the risk of sudden infant death and fatal sleeping accidents. To provide a safe sleeping environment for an infant[35,36,38]:

- put baby's feet at the bottom of the cot
- the cot must meet the Australian standard for cots
- use a firm, clean mattress that fits snugly in the cot
- no additional mattresses or extra padding should be placed in a travel or porta cot
- tuck in bedclothes securely so bedding is not loose
- keep quilts, doonas, duvets, pillows, cot bumpers, sheepskins and soft toys out of the cot or sleeping place.

An infant sleeping bag that is the correct size for baby with a fitted neck, arm holes or sleeves and no hood is a safe and effective way to keep a baby's head and face uncovered as it makes extra bedding unnecessary[38].

Bouncinettes, prams and strollers have NOT been designed as sleeping products and therefore no baby should be left unsupervised if they fall asleep in these environments.

Queensland Health's minimum standards to reduce the risk of sudden unexpected deaths in infancy are based on these evidence-based strategies.

Queensland Health Minimum Standards

Minimum Standard 1

All well infants in Queensland Health facilities should be placed on their back to sleep from birth never on the front (tummy) or side.

Evidence

The causal association between prone (tummy) sleeping position and SIDS is beyond dispute[11]. Studies from many countries have provided evidence that prone sleeping increases the risk of SIDS by between 3 to 14 times[6,39–40]. A recent systematic review and meta-analysis of 22 studies that examined the relationship between infant sleeping position and SIDS[10] since the recommendation changed to back sleeping, reported an increase in SIDS risk of almost seven times (Odds Ratio 6.91) for infants placed prone compared to infants placed on their back to sleep. A higher risk of SIDS also exists in infants who have been placed to sleep prone for the first time, the so called *unaccustomed prone*[9,41].

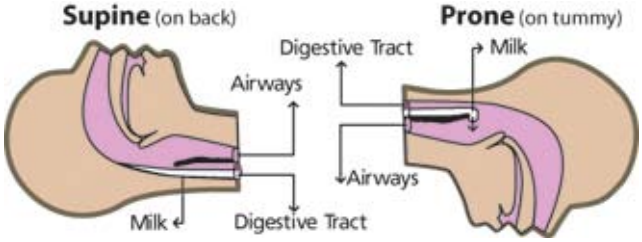
The side sleeping position also increases the risk of SIDS between two[11] to four times,[40] attributed mainly to the side position being relatively unstable, resulting in some infants rolling to the prone position during sleep. Side sleeping is *not* recommended as a safe alternative to sleeping on the back. All aids and devices intended to keep infants in a certain sleep position are *not* recommended as they do not prevent infants from rolling prone and limit the movements of the baby as they get older[38].

Studies have demonstrated that even in healthy infants, respiratory rates, swallowing and arousal are each reduced in the prone position compared to the supine position[12,42,43]. Common airway protective mechanisms may therefore be compromised significantly in infants positioned to sleep prone compared with infants positioned supine to sleep. In particular, this prone-supine difference may be more significant during an upper respiratory tract infection[43].

There is no epidemiological, forensic or pathological evidence of any increased risk of aspiration associated with the use of the supine position[9,42]. On the contrary, significant aspiration occurs instead in infants who have been placed to sleep prone[9]. Healthy infants protect their airway when placed supine, provided that swallowing and arousal mechanisms are intact (normal)[42–44]. Figure 2 shows why the supine position is safest for baby and how the prone position increases the risk of aspiration (inhalation) of milk or fluids into the baby's airway[42,44].

Figure 2: Infant in supine and prone position

In the supine position the upper respiratory airways are above the oesophagus (digestive tract), therefore regurgitated milk can be easily swallowed and aspiration into the respiratory tract avoided. When baby is placed on their tummy the digestive tract sits above the baby's upper airways. If baby regurgitates or vomits milk or fluid, these substances are more likely to be inhaled into the baby's airway and lungs.



Infant medical conditions and advice for sleeping position

A recent systematic review of the evidence for appropriate positioning of babies with gastroesophageal reflux concluded that *all* babies should be placed on their back to sleep, and that there is *no* evidence to support the elevation of the head of the cot[45]. Sleep recommendations for infants with Gastroesophageal Reflux Disease (GORD) are consistent with safe sleeping recommendations. Prone sleeping is only considered in unusual cases where the risk of death and complications for GORD outweigh the potential increased risk of sudden unexpected infant death[41,46].

Babies who are born prematurely or of low birth weight have a risk of SIDS up to four times higher than infants born at term, with SIDS risk increasing with decreasing gestational age or birth weight[12,47]. Infants born prematurely are often placed prone in the intensive care setting due to respiratory mechanics. Studies have demonstrated that before neonatal unit discharge infants born prematurely slept longer, had fewer arousals during sleep and experienced more central apnoeas, when sleeping prone[12,48]. All infants nursed in neonatal units should only be placed in the prone position if continuous cardiorespiratory monitoring is used[47,49,50]. Premature and low birth weight infants should be placed supine as soon as their oxygen requirements allow and well before discharge, to ensure that the infant and parents are accustomed to placing baby on their back to sleep[12,26,47].

In some rare conditions where an infant may have specific special needs, for example Pierre Robin Syndrome, there may be a specific medical directive for altering the infant's sleep position from the supine position. It is essential that any alteration to an infant's sleep position is *documented* in the child's medical and nursing records together with a full explanation to the parents as to why their baby should be placed in this position. The infant should be returned to the supine position as soon as their condition allows.

Strategies to overcome potential barriers to supine positioning

Infant wrapping

Managing unsettled infant behaviour and promoting infant sleep is sometimes difficult for parents. Infant wrapping is a safe, evidence-based strategy that health professionals can use to assist parents to settle and sleep infants on the back and to maintain the supine position during sleep[38,51,52].

Principles of safe wrapping include:

- infant must be supine
- infant's face and head must not be covered
- wrap should be of muslin or light cotton material
- infant must not be overdressed under the wrap
- wrap should be firm, not tight
- infant must not be bed-sharing or sharing a sleep surface with another person while wrapped
- appropriate age: up to 6–12 months depending on infant
- modify wrap to meet developmental changes, eg. arms free once 'startle' or Moro reflex begins to disappear (around 3 months of age).

For further information see SIDS and Kids Information Statement on *'Wrapping Infants'* available at www.sidsandkids.org under Current Topics[52] and Queensland Health's *Safe Infant Sleeping Education Program for Health Professionals*.

Tummy time

A baby's skull is soft and deformities in shape can occur if a baby always places their head in the same position. Flattened areas on the baby's head that develop in this way are called deformational or positional plagiocephaly. Studies have demonstrated that factors associated with the development of plagiocephaly after birth are:

- male gender
- prematurity
- first born birth rank
- multiple births
- positional preference (head to one side) during sleep and when being changed and dressed

- only bottle feeding
- positioning to the same side during bottle feeding
- tummy time when awake less than three times per day
- slow achievement of motor milestones[53,54].

Placing an infant in the prone position when awake for five minutes per day is protective[53,54]. A recent study[54] has also shown no significant relationship between supine sleeping and the development of deformational plagiocephaly, with positional preference and infant care practices playing a greater role.

Several reports have suggested that concerns about a baby's head shape have caused some parents to use unsafe non-supine sleeping positions,[53,54] while other parents may over interpret safe sleeping recommendations and avoid prone positioning during daytime awake periods[54]. Parents need to be reassured that positional plagiocephaly is largely preventable if baby's head position is alternated several times per day and baby spends time on their tummy while awake and supervised[53,54]. Devices that restrict the movement of the baby or the baby's head are not recommended[38,56]. There is no evidence that positional plagiocephaly affects brain growth and development and for most babies. The shape of the head becomes rounder as babies get older and move their heads more during sleep. Tummy time while awake and supervised is important for infant motor development[57]. Useful advice to parents includes 'back to sleep, tummy to play and sit up to watch the world'.

For further information and strategies to reduce the risk of positional plagiocephaly developing see SIDS and Kids Information Statement on *'Baby's Head Shape'* available at www.sidsandkids.org under Current Topics[56] and Queensland Health's *Safe Infant Sleeping Education Program for Health Professionals*.

Implications for practice

Recent studies conducted in Queensland[28,30,32] and in New South Wales[3] have demonstrated that many parents are not implementing safe sleeping recommendations, particularly relating to recommended sleep position. A Queensland study[32] of over 2500 parents identified that routinely, 38 percent of infants aged approximately three months were not placed in the supine position to sleep, 12 percent were placed prone, 22 percent were placed on their side, and a further 4 percent used a combination of positions including non-supine positions. Indigenous infants were significantly more likely to be placed by caregivers in a prone or non-supine position compared to non-Indigenous infants[28,32]. In addition, recent evaluations of knowledge, beliefs and practices relating to safe infant sleeping recommendations highlighted deficits in health professional knowledge, implementation of recommendations in clinical practice, and parent education[3,26,29,33].

These findings have important implications for parent education by all health professionals caring for families of young infants in Queensland.

The following guidelines for clinical practice and parent education support the implementation of Minimum Standard 1:

All well infants in Queensland Health facilities should be placed on their back to sleep from birth never on the front (tummy) or side.

- Place all infants on their back from birth in Queensland Health facilities.
- All babies, including infants with gastro-oesophageal reflux, should be placed on their back to sleep on a firm, flat mattress that is *not* elevated.
- Emphasise with parents and caregivers why supine is safest for babies, and the risks associated with side and prone positioning.
- Emphasise that every parent and caregiver should use the supine sleep position during every sleep period, particularly when the infant's accustomed position is supine (include child care, grandparents, babysitters).
- Emphasise that supervised tummy time and prone play when baby is awake is important and should be encouraged to promote healthy infant development.
- Discuss and encourage settling and sleep strategies with parents and caregivers that support the use of the supine position for their baby, eg. discuss and demonstrate safe wrapping principles.
- Documentation and full explanation to parents are *essential* requirements for all infants with a medical condition that requires non-supine positioning as part of the child's health management.
- Continuous cardiorespiratory management is required for all infants nursed in the prone position as part of their acute respiratory management.
- For infants nursed in maternity and neonatal units, back sleeping needs to be introduced as early as possible before discharge.
- Aids, devices and rolls that are used to keep infants in a certain sleep position are not recommended and should *not* be used in Queensland Health facilities.

Minimum Standard 2

All staff members who care for families with young infants should provide parent education about Safe Sleeping recommendations and evidence-based infant care practices.

Evidence

Sudden and unexpected death is understood to be multifactorial in nature and currently there is no known way to completely prevent SIDS[1,9]. However known risk factors present during the prenatal period, at birth and throughout the infant's first year of life can be modified by parents to reduce the risk for their baby.

Information regarding optimal infant care and safe sleeping should be included as part of the comprehensive parent education provided antenatally, prior to discharge from maternity units and through community child health consultations. Parent education provided during antenatal and postnatal periods is particularly important as health professionals have an opportunity to reduce the risk of sudden infant death through positively influencing parent decisions about nursery bedding, equipment and sleeping arrangements and also to provide information about the risks associated with maternal and household smoking during a period when many parents are particularly receptive to making positive changes to their lifestyle and behaviour[23,58–60].

The provision of this essential information to parents should be documented in clinical pathways and patient chart notes for both mother and baby.

Potential barriers to parents and caregivers utilising safe sleeping recommendations have been identified and include perceptions of infant safety and comfort, knowledge of SIDS risk factors and a parent's source of health advice[61–62]. Research has demonstrated that parents who have had discussions with health professionals have increased knowledge of SIDS risk factors[32,63–65] and are more likely to follow key safe sleeping recommendations[32,60,65–67].

Knowledge and understanding, together with attitudinal, social and external factors, are closely associated with the intention to perform a particular behaviour[68]. Providing information is only one component of parent education. Parents understanding the evidence to support safe sleeping recommendations, particularly relating to the safety of the supine sleep position, is required to improve compliance with public health messages that aim to reduce sudden and unexpected infant death.

Parent education about safe infant sleeping should include the key Safe Sleeping recommendations and the evidence to support these recommendations, as required[58,69]. See section '*Safe Sleeping to Reduce the Risk of Sudden Infant Death Syndrome'* in this Policy Statement and Guidelines for a comprehensive list of key Safe Sleeping recommendations[35–36] together with guidelines for providing a safe sleeping environment.

In addition, parent education should include information about common parental concerns relating to safe sleeping and infant care, infant wrapping as a sleep/settling strategy, the importance of tummy time, immunisation, breastfeeding, pacifier use and sharing sleep surfaces with baby[33,58].

Information regarding safe sleeping is universally provided to all new parents within the information booklet *Child Health Information: Your Guide to the First 12 Months*, included with the Personal Health Record. More specific information for parents about strategies to reduce the risk of sudden and unexpected deaths in infancy can be accessed from the Child Health Information Fact sheet entitled *Safe Sleeping for Babies: Reducing the risk of sudden infant death* available at www.health.qld.gov.au/publications/childhealth and through some Community Child Health Services. The *Safe Infant Sleeping Education Program for Health Professionals* is an evidence-based educational resource specifically designed to support health professionals in the implementation of this policy and provision of parent education about safe infant sleeping recommendations. The organisation SIDS and Kids also provides evidence-based information to parents and health professionals via Safe Sleeping public health campaign brochures, information statements and their website http://www.sidsandkids.org.

Implications for practice

The following guidelines for clinical practice and parent education support the implementation of Minimum Standard 2:

All staff members who care for families with young infants should provide parent education about Safe Sleeping recommendations and evidence-based infant care practices.

- All health professionals involved in the care of expectant parents and families with young infants have a role in parent education about safe infant sleeping.
- Parent education about safe infant sleeping is relevant to and should be reinforced at each point on the care continuum: from the first antenatal contact to the end of infancy.
- Parent education and discharge preparation about safe infant sleeping provided by health professionals should be documented on clinical care pathways and medical and nursing records for both parent and child.
- Parent education and demonstration of safe infant sleeping should be targeted for all parents.

Parent education should include:

- key public health recommendations and evidence to support these recommendations
- emphasis on the safety of back sleeping and the instability and dangers associated with front or side sleeping
- addressing fears of aspiration and other parental concerns
- sleep and settling strategies that support compliance with safe sleeping recommendations.

Minimum Standard 3

All staff members should model and actively promote recommended infant care and sleep practices in all Queensland Health facilities across acute and community settings.

Evidence

Research conducted in several countries[1,6,47,60,62,65,67] including studies conducted in Queensland[27,28,31–33] and New South Wales[3] have identified areas in which improvements can be made in the implementation of safe infant sleeping recommendations by both health professionals and parents that will reduce the risk of sudden infant death. Results from these studies demonstrate current advice relating to safe sleeping recommendations may not be received or implemented, by a proportion of the population at risk. These studies highlighted areas specific to modifiable risk factors, and the uptake of safe sleeping recommendations that can be addressed by parent education provided by health professionals[3,33,47].

People learn best through observation[70]. Infant care advice obtained from health care professionals around the time of birth is particularly influential for parents and the ongoing care of their infant. Research has shown that parents are more likely to follow safe sleeping recommendations, including placing infants on their back to sleep, when they see health professionals consistently model this behaviour in hospital[32–34,47,65,71] in addition to receiving specific information about safe sleeping practices as part of their parent education[32,34,67] before discharge. Knowledge of risk factors, information provided by health professionals, printed material distributed by hospitals and health services, attitudes and behaviours of nurses and midwives, and providing alternative settling activities, all contribute to the decisions parents make in caring for their baby[1,3,30,32,34]. Where possible infant care education should include opportunities for all family members involved with the care of the infant. Evidence suggests that many parents are influenced by experienced family members in addition to information provided by health professionals[32–34,61,71].

All health professionals involved in the care of families with young infants are in a powerful position to correct misconceptions, counter myths, and educate parents and caregivers about SIDS and sudden unexpected infant death. Nurses and midwives are in a unique position to directly influence the behaviour of parents and caregivers. More than most health professionals, nurses and midwives have numerous opportunities to model risk reduction practices while the infant is in hospital and provide parents with information and support strategies that will ensure parent practices used at home are consistent with public health safe sleeping recommendations.

The first step in reducing the risk of sudden infant death is for all health professionals in Queensland Health facilities to actively promote Safe Sleeping recommendations and ensure that all infants in their care are placed on their back to sleep in a safe sleeping place. In achieving this first step, health professionals set an example for parents to follow throughout their baby's first year.

Implications for practice

The following guidelines for clinical practice and parent education support the implementation of Minimum Standard 3:

All staff members should model and actively promote recommended infant care and sleep practices in all Queensland Health facilities across acute and community settings.

- All health professional staff should implement and actively promote Safe Sleeping recommendations to ensure safe sleeping environments are provided for infants in Queensland Health facilities.
- Opportunities for parents to observe recommended infant sleep and settling practices and parent education related to safe infant sleeping recommendations should be provided routinely in clinical areas and community contacts.
- Discharge planning processes and clinical pathways should routinely include safe sleeping demonstrations and education for all parents to facilitate optimal uptake of safe sleeping recommendations.
- Educational messages should be targeted to secondary care providers including day care and child care providers, grandparents, foster parents, babysitters and health care professionals who come into contact with vulnerable families.

The *Safe Infant Sleeping Education Program for Health Professionals* is an evidence-based educational resource specifically designed to support health professionals in the implementation of this policy and provision of parent education concerning evidence-based safe infant sleeping recommendations.

Minimum Standard 4

All expectant and new parents should be made aware of the strong association between smoking and the increased risk of sudden infant death and be supported and referred to smoking cessation or reduction programs as appropriate.

Evidence

Effects of smoking on infants and children

Infants and children are at a higher risk of damage from passive smoking than adults because of their smaller developing bodies, higher breathing rates, and less developed respiratory and immune systems[72–73]. Infants of mothers who smoke or who are exposed to second hand smoke are more likely to be stillborn, born prematurely and of low birth weight, and suffer perinatal death. Specific effects of passive smoking on infants and children include SIDS, respiratory infections and conditions including croup, bronchitis, and pneumonia, ear infections, learning difficulties, behavioural problems, and increased likelihood of childhood asthma[72–74]. Smoking is also associated with low rates of breastfeeding initiation and reduced duration[75].

Smoking in pregnancy

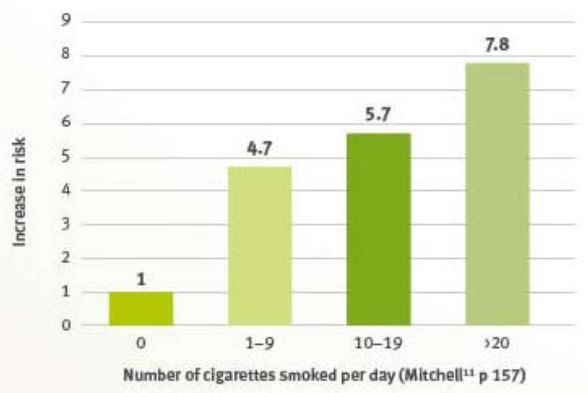
Smoking in pregnancy is common with recent studies reporting that between one in three, and one in five pregnant women in developed countries smoke tobacco[75]. The maternal smoking prevalence in Australia decreased from 23 percent in 1998 to 19.5 percent in 2001[76]. This is consistent with a 2002 Queensland study finding a self reported maternal smoking rate of 20 percent during pregnancy[32]. Smoking rates during pregnancy for Indigenous women have been reported as being as high as 72 percent[77].

Smoking is among the most important modifiable risk factors in reducing the risks of sudden infant death, with international agreement that current evidence demonstrates a causal association between exposure to tobacco smoke and SIDS[9,11,12,23]. Exposure to tobacco smoke may lead to a complex range of effects on normal physiological and anatomical development in foetal and postnatal life which places infants at increased risk of sudden and unexpected infant death[23].

More than 60 studies have shown that maternal smoking in pregnancy is associated with an increased risk of SIDS, with the associated risk increasing in magnitude since SIDS rates have reduced[11]. A systematic review of 34 case-control and cohort studies investigating prenatal smoking and SIDS showed a two to three fold risk associated with *in utero* tobacco exposure[78] after potential confounders including low birth weight, parental alcohol and drug consumption, and socioeconomic deprivation were controlled in the analysis. The most recent reviews examining smoking and SIDS risk since the initiation of public health campaigns encouraging supine sleep, indicate that the pooled risk associated with maternal smoking during pregnancy has risen to almost four fold (RR 3.9 [95 percent CI: 3.8, 4.1]) compared to mothers who do not smoke during pregnancy[79]. The prevalence of maternal smoking during pregnancy has also risen amongst SIDS mothers (from 50 percent to 80 percent) when the rate amongst expectant mothers in the general population has fallen (from 30 percent to 20 percent)[23]. Mothers who smoke are significantly more likely to be younger and of single parent status, have a lower educational and income level and use alcohol while pregnant[80–81]. Current estimates indicate that if in utero smoke exposure was eliminated, a third of SIDS deaths could possibly be prevented[12,23,79].

Most studies have demonstrated a dose-response effect with the risk of SIDS increasing with number of cigarettes smoked[11,17,23,78,82]. *(See Figure 3)*.

Figure 3: The risk of sudden infant death syndrome and the number of cigarettes smoked on a linear scale[11].



Opportunity for intervention

Pregnancy provides a unique window of opportunity to minimise smoking rates and increase the health of women and children. More women cease smoking in pregnancy than at any other time in life[81]. One quarter of Australian women stop smoking when they become pregnant[75]. Most of the women who quit smoking spontaneously upon becoming pregnant have a non-smoking partner, are supported, or have stronger beliefs about the dangers of smoking than do those who do not quit[81].

Smoking cessation programs have been shown to increase smoking cessation, reduce preterm birth and low birth weight, and increase mean birth weight[75]. Cognitive-behavioural strategies have been demonstrated to be the most effective approach in prompting efforts in pregnant women to quit smoking, with a meta-analysis of 20 studies showing a significant effect compared to control conditions[75]. Cognitive behavioural strategies focus on changing beliefs about smoking and the person's ability to quit, using an approach in which the client and the professional work together to identify and understand problems by looking at the relationship between thoughts, feelings and behaviour. This approach includes self report of daily cigarette consumption, delay in lighting up, altering ways of smoking, reinforcement control and maintenance strategies such as stress management[81]. Programs involving both social support and rewards for abstinence have been supported by two studies[75]. While nicotine-replacement therapy has been strongly supported for adults generally, there was only a trend toward greater abstinence in pregnancy with this method. It is not known if nicotine-replacement therapy has adverse effects on an unborn infant. 'Stages of change' advice strategies were not found to be effective on the basis of a meta-analysis of seven studies[75].

Postnatal exposure to tobacco smoke

It is difficult to separate the effects of postnatal environmental tobacco smoke exposure from earlier effects of smoking in pregnancy, as parental smoking behaviours during and after pregnancy are highly correlated[11,17,23]. Measurements of risk for paternal smoking where the mother is a non-smoker have estimated a risk of 1.5 times (summary odds ratio of 1.47),[79] which is considerably less for maternal smoking, although this still supports a small independent effect of paternal smoking[79]. An independent effect of postnatal exposure to tobacco smoke has been found in a number of studies as well as a dose response for the number of household smokers, people smoking in the same room as the infant, number of cigarettes smoked, and daily hours the infant is exposed to a smoke-filled environment[11,17,23,73,82,83]. Composite population attributable risk attributed to smoking by mother, father, or both has been estimated at 62 percent in the United Kingdom[82]. This data suggests that keeping the infant free of environmental tobacco smoke may further reduce the risk of SIDS.

The risk of maternal smoking appears to be mainly limited to SIDS deaths that occur at night, suggesting either an effect upon infant diurnal physiology or an effect on night-time responsiveness by mothers who smoke[19,84–85]. Several studies have also confirmed the significant interaction, with a 10-fold increase in risk, between parental smoking and infants sharing the parental bed, which is commonly a night-time practice[23,86–87]. Room-sharing however has been demonstrated to be protective and is recommended for all infants, although the room where baby sleeps should be kept smoke free[11].

The 2001 National Drug Strategy Household Survey reported that 19.7 percent of Australian households with dependent children allowed smoking in the home[83]. There is no safe level of passive smoke exposure, with brief exposures harmful[73]. The elimination of smoking in indoor spaces is the only way to fully protect children from exposure to second hand smoke. Primary sources of infants' and children's passive smoke exposure are the home and vehicle. A single cigarette smoked in a room with poor ventilation generates much higher concentrations of toxic substances in the air than normal everyday activities in a city, while nicotine from second hand smoke is deposited on household surfaces and in dust[73]. Environmental tobacco smoke permeates the entire house and lingers long after the cigarette has been extinguished, so smoking in certain rooms, at certain times, or by a window, fan or door is not safe[73].

Implementation of laws that restrict smoking outside the home motivates some people to quit smoking and encourages some families to implement smoke-free home rules[88–89].

Implications for practice

The following guidelines for clinical practice and parent education support the implementation of Minimum Standard 4:

All expectant and new parents should be made aware of the strong association between smoking and the increased risk of sudden infant death and be supported and referred to smoking cessation or reduction programs as appropriate.

- Interventions should aim to provide a smoke-free zone around pregnant women, infants and children to avoid exposure of babies to tobacco smoke before and after birth.
- Set up a smoke-free display and ensure smoking cessation resources are available in practice areas (eg. antenatal and maternity outpatient clinics, postnatal wards, neonatal units).
- Assessment of smoking behaviour for expectant and new parents should be routinely incorporated into antenatal and postnatal contacts using evidence-based approaches that increase smoking disclosure and support clients to stop or reduce smoking,[75] eg. the 5A's approach (Ask, Advise, Assess, Assist, Arrange) phrases questions about smoking status in a way that increases smoking disclosure[81].

- Educate expectant and new parents about the harmful effects of smoking during pregnancy and second-hand smoke, as education of parents has been shown to influence the behaviour of parents[90] especially around the time of pregnancy and birth.
- Provide pregnant women with evidence-based strategies to assist them to cease or reduce smoking.
- Cognitive-behavioural strategies are the most effective while reward programs with social support are supported by a limited number of studies[75].
- Ensure that parents are aware that bed-sharing or sharing a sleep surface with baby is *not* recommended if parents are smokers as baby is at a significantly increased risk of sudden infant death[38].
- Encourage parents to room-share with their infant while keeping the room smoke-free as this practice is protective and reduces the risk of sudden infant death.
- Provide parents with practical strategies to reduce their infant's exposure to cigarette smoke especially for parents who smoke:
  - keep the car and home a smoke-free zone
  - designate outside smoking areas away from dwelling windows and doors
  - smoke after feeding baby, not before or during
  - change clothing of smoker and baby often during the day to remove clothing contaminated by nicotine and toxins.
- Educational messages relating to smoking should also be targeted to secondary care providers including day care and child care providers, grandparents, foster parents and babysitters who come into contact with families.

Health professionals should support strategies for smoking control in the whole community to reduce the initiation of smoking by young people. These strategies include:

- prohibition of smoking in public places
- prevention of sales of tobacco to young people
- increases in tobacco taxation
- workplace smoking cessation programs
- bans on tobacco sponsorship of sporting and cultural events[75].

Minimum Standard 5

Parents and carers of infants should be presented with accurate information about sharing sleep surfaces with their baby including benefits, risks, and strategies to enhance the safety of this environment so that parents and carers can make informed decisions regarding sleeping arrangements for their baby.

Evidence

Definitions

Many parents bring their baby into bed with them at some time especially if the baby is breastfeeding. Various terms have been used in the literature to define shared sleep environments between infants and their carers, including co-sleeping, bed-sharing and room-sharing.

McKenna and colleagues[91] consider the infant's viewpoint and include both bed-sharing and room-sharing practices in a definition of co-sleeping:

> *"Co-sleeping may be defined as sleeping either in contact with another person (in someone's arms, passively touching while lying in bed) or close enough to access, respond to or exchange sensory stimuli such as sound, movement, touch, vision, gas and olfactory stimuli."*[91]

In developing guidelines for increasing the safety of shared sleep environments whilst supporting breastfeeding families, UNICEF[92] has differentiated between co-sleeping and bed-sharing. UNICEF[92] defines co-sleeping as a mother and/or her partner (or any other person) being asleep on the same sleep surface as the baby, while bed-sharing refers to bringing baby onto a sleep surface when co-sleeping is possible, whether intended or not.

For the purpose of this policy statement and guidelines the term 'sharing the same sleep surface' is used which includes the practices of *bed-sharing* and *co-sleeping on the same sleep surface*. This terminology, consistent with SIDS and Kids,[93] allows differentiation of the risks associated with solitary sleeping (baby sleeping in a separate room), room-sharing and environments in which the baby and caregiver share the same sleep surface.

Incidence

Co-sleeping is considered the social norm for approximately 90 percent of the world's population, with two thirds of the world's cultures habitually practicing mother-infant co-sleeping on the same bed or sleeping surface[94]. The proportion is much higher if the definition of co-sleeping is extended to include room-sharing[95–96].

Within our culturally diverse society the practice of sharing a sleep surface with a baby is a common child care practice which appears to be increasing in mainstream Australia. Recent reports suggest an incidence between 51–80 percent depending on infant age at time of measurement[28,30,32,97]. A small study conducted in South Australia demonstrated that around 40 percent of young babies spent some time sharing a bed for at least part of the night[97]. A larger Queensland infant care practice study (n=2,534) demonstrated that bed-sharing was common, and usual practice by 46 percent of parents when their infants were approximately three months of age. Although most infants (51 percent) were brought into bed for short periods (1–3 hours) during the night, almost a third (31 percent) bed-shared greater than or equal to 6 hours/night[32–33]. Of mothers who met the criteria for routine bed-sharing 25 percent were smokers.

Benefits and risks

Sharing the same sleep surface with a baby is a complex issue that encompasses many factors. Bed-sharing is associated with enhanced maternal-infant bonding and maternal responsiveness[94,98–100], improved settling with reduced crying[99], improved maternal and infant sleep and increased arousals[99,101–102], increased duration of breastfeeding[94,103] and reduced formula supplementation[104]. Breastfeeding and sharing a sleep surface constitute an integrated care system which is mutually reinforcing. Breastfeeding promotes shared sleep which increases breastfeeding frequency and extends duration of breastfeeding in months[94]. Breastfeeding mothers who share sleep surfaces have been observed to adapt sleep environments to the baby. This occurs with mother facing the baby, often in contact with the infant, her upper arm above the baby's head, her knees drawn up under baby's feet forming a C-shape[99,105]. This positioning facilitates breastfeeding while protecting the baby from being rolled onto or moving up or down the bed. These behaviours are not observed in mothers who artificially feed their infants[99,104–105]. Further, longitudinal studies have suggested that those who shared the parental bed as babies become adults with higher self esteem, with better social skills, and emotional outcomes[94,106–107].

However, studies have demonstrated an increased risk of sudden infant death and fatal sleeping accidents associated with sharing a sleep surface with a baby under some circumstances.

The risk of sudden infant death associated with shared sleep surface environments is significantly increased by other known risk factors for sudden infant death and include antenatal and postnatal exposure to tobacco smoking, prone sleep position, parental drug and alcohol use, soft sleep surfaces (ie. beanbags, waterbeds), multiple bed-sharers, maternal sedation and obesity[9,11–12]. Sleeping on a sofa with a baby is associated with a significantly higher risk of sudden infant death and fatal sleeping accidents. This should be avoided[108]. Babies at most risk of sudden infant death whilst sharing a sleep surface are those born preterm, small for gestational age, and babies less than four months of age[11–12].

Most studies have demonstrated that deaths associated with sharing a sleep surface are predominantly amongst babies whose parents' smoke[11–12,108]. The few controlled studies and case series that have adjusted for maternal tobacco and alcohol use have found little or no independent association between bed-sharing and SIDS[109–110]. Further to these findings, ethnic groups where co-sleeping is traditional practice and smoking rates are low, report low rates of sudden infant death and infant mortality[94,110].

While some studies have shown that mothers who were younger, indigenous, single, smoked during pregnancy and delivered preterm infants were significantly more likely to bed-share,[1,32,108] bed-sharing has also been significantly associated with childcare practices including supine infant sleep position, breastfeeding and not using a pacifier[32,94]. These findings indicate that differences in characteristics may exist between bed-sharing groups that impact risk[32,100,111–112]. For example, non-smoking mothers who choose to bed-share as part of an attachment parenting approach and to facilitate breastfeeding will have a lower risk of sudden infant death compared to young, unsupported mothers living in poor socioeconomic conditions, where bed-sharing occurs in the presence of multiple risk factors (eg. premature baby, mother is a smoker).

Room-sharing reduces the risk of sudden infant death[1,11–12,108,113]. SIDS and Kids therefore recommends sleeping with a baby in a cot next to the parents' bed for the first six to twelve months of life[38]. An evaluation of factors associated with day-time deaths demonstrated that the adverse effect of unsupervised sleep recognised for night-time practice was also significant for day time sleeps, and was particularly associated with side sleeping and head covering[19]. Room-sharing facilitates rapid response to a baby's needs, more convenient settling and comforting of babies than compared to sleeping in a separate room, and closer mother-infant contact and communication[94]. As room-sharing reduces the risk of sudden infant death and babies of smokers are at an increased risk, current advice is that parents who are smokers are encouraged to room-share (but *not* share the same sleep surface), as long as the room that baby sleeps in is kept smoke-free.

In summary, evidence suggests many benefits of parents sharing a sleep surface with baby, particularly as a strategy to support breastfeeding and facilitate maternal contact and responsiveness. However, research also clearly shows that sharing a sleep surface with a baby increases the risk of SIDS and fatal sleeping accidents in some circumstances. There is currently insufficient evidence to issue a blanket statement either for or against this practice. No environment is risk free. McKenna and McDade[94] suggest that bed-sharing outcomes are best conceptualised on a benefits-risk continuum with outcomes being determined by the presence or absence of known adverse or protective factors.

In consideration of the many documented benefits of shared sleeping, the need to promote and support breastfeeding, the high prevalence of shared sleep environments in Queensland, and the right of parents to make informed choices about their baby's care, Queensland Health supports the recommendation that parents should be provided with information that includes benefits, risks and strategies to reduce the risk and increase safety associated with shared sleep environments, should parents decide to share a sleep surface with their baby[21,96,99,108].

This recommendation is consistent with, and supported by, recommendations for health professional practice proposed by UNICEF,[92,114] the Royal College of Midwives[115] and SIDS and Kids[38]. UNICEF[92] has proposed a sample policy to support health professionals in developing evidence based guidelines for clinical areas that are designed to allow mothers and babies to derive the benefits of bed-sharing in hospital and at home, whilst promoting infant safety. This resource clearly addresses the specific circumstances in which shared sleeping may pose a significant risk to the infant and should be avoided[92].

In order to provide parents with information to allow informed choices about safe sleeping practices relating to shared sleep environments, parent education should include the following information:

It is *not* safe to share a sleep surface with a baby if:

- either parent is a smoker
- either parent is under the influence of alcohol or illicit drugs
- either parent is under the influence of medication that causes sedation, is overly tired, or obese.

If parents choose to share a sleeping surface with their baby, the following strategies have been demonstrated to reduce the risk of sudden infant death and fatal sleeping accidents[38,93]:

- **Sleep baby on the back** from birth – never on the tummy or side.
- If baby lies on his or her side to breastfeed, baby should be returned to the supine (back) position for sleep.
- Make sure the mattress is firm and flat.

- Make sure that bedding cannot cover baby's face or overheat baby (use lightweight blankets and remove pillows, doonas and other soft items from the environment that could cover baby).
- Sleep baby beside one parent only rather than between two parents in order to reduce the likelihood of baby becoming covered by adult bedding.
- Ensure partner knows baby is in the bed.
- As an alternative to bedding, an infant sleeping bag may be used so that the baby does not share the adult bedding.
- Do not *wrap* baby if sharing a sleep surface as this restricts arm and leg movement.
- Make sure baby cannot fall off the bed. A safer alternative is to place the mattress on the floor (be aware of potential situations where baby can become trapped).
- Pushing the bed up against the wall can be hazardous. Babies have died after being trapped between the bed and the wall.
- Never place a baby to sleep in a bed with other children or pets (see SIDS and Kids Frequently Asked Questions for specific advice about the safest way to sleep twins).
- **Babies must never be left alone on an adult bed or put to sleep on a sofa, bean bag, waterbed or soft, sagging mattress.**
- Three sided-cots (a cot with one side down) may be available for purchase that can be attached to the side of the bed at the same level so that the baby has a separate environment but is still in contact with a parent during sleep.

Implications for practice

The following guidelines for clinical practice and parent education support the implementation of Minimum Standard 5:

Parents and carers of infants should be presented with accurate information about sharing sleep surfaces with their baby including benefits, risks and strategies to enhance the safety of this environment so that parents and carers can make informed decisions regarding sleeping arrangements for their baby.

- Compliance with safe sleeping recommendations is reliant on the ability of health professionals to engage parents, identify individual sleeping environments and provide evidence-based advice to parents that aim to reduce risk associated with all sleeping environments, particularly in circumstances where parent-infant shared sleep on the same sleep surface is likely to occur.
- Shared sleep environments should be discussed with all women antenatally by 36 weeks gestation. Refer parents to Queensland Health's Child Health Information Fact Sheet entitled *Safe Sleeping for babies: Reducing the risk of sudden infant death* which addresses strategies to reduce risk associated with shared sleep environments.

- Inpatient facilities should have room-sharing and shared sleep surface (bed-sharing/co-sleeping) policies, including postnatal, residential care facilities and paediatric tertiary facilities where families and young infants are cared for. (Refer to UNICEF[92] publication '*Babies sharing their mothers' bed while in hospital – a sample policy*').
- Risk assessment of mothers and babies in hospital, which considers the clinical condition of both mother and baby and the safety of the physical environment, should occur prior to mother taking baby into bed for feeding and/or settling to identify level of supervision required until baby is returned to their cot. This assessment should identify risks and specifically address circumstances where co-sleeping is not recommended.
- Discharge planning for families with a young infant and in particular from postnatal or neonatal care units should include educating parents about:
  - benefits and risks associated with shared sleep environments
  - circumstances in which co-sleeping is *not* recommended, ie. sofa sharing, where either parent is a smoker or is under the influence of alcohol, drugs or any sedating medication, excessively tired or obese
  - strategies to reduce risk of shared sleep environments
  - safe sleeping information that includes messages such as:
    - provide a safe sleeping environment night and day: safe cot, safe mattress, safe bedding and safe sleeping place
    - sleep baby in their own cot or bassinette in the same room as the parents for the first 6–12 months. Room-sharing reduces the risk of sudden infant death
    - room-sharing is still recommended if a parent is a smoker, as long as the baby sleeps in a room that is kept smoke-free
    - baby should *not be wrapped* if parents are sharing a sleep surface with baby
    - co-sleeping on a sofa or couch is extremely hazardous and is not recommended.
  - optimal sleeping position of mothers who choose to share a bed with their baby to sleep.
- Community home visits should include, where possible, an assessment of the infant's home sleep environment to provide an opportunity for discussion and implementation of risk reduction measures associated with shared sleep environments.
- Consider cultural, social and family circumstances which may impact on the caregiver's choice of infant sleep location and provide appropriate education and information relating to these environments to facilitate informed decision-making by parents.

- Refer parents and caregivers to further resources relating to shared sleeping environments as required:
  - Queensland Health's Child Health Information Fact sheet entitled *Safe Sleeping for babies: Reducing the risk of sudden infant death* is available for distribution to parents and staff at www.health.qld.gov.au/publications/childhealth which addresses strategies to reduce risk associated with shared sleep environments
  - SIDS and Kids (2007) Information statement: *Sleeping with a baby*. September, 2007. Melbourne: SIDS and Kids. http://www.sidsandkids.org
  - SIDS and Kids (2008) Information statement: *Room-sharing*. September, 2008. Melbourne: SIDS and Kids. http://www.sidsandkids.org
  - UNICEF Leaflet 'Sharing a bed with your baby' (June 2005) available at www.babyfriendly.org.uk/pdfs/sharingbedleaflet.pdf.

Minimum Standard 6

Parent advice and support provided by staff should consider the culturally specific needs and the circumstances of each family and their baby to ensure safe infant care and sleeping practices are implemented in home environments.

Evidence

Australia's families are becoming increasingly diverse. This brings new challenges in providing health care and parenting advice for families with young infants and children.

English is spoken not very well or not at all by approximately 5 percent of the Queensland population aged 15 years and over[116]. This has implications for health professionals when conveying important public health messages to families with young infants. A basic principle in working with culturally and linguistically diverse (CALD) families is inclusion based on understanding, meaningful communication and mutual respect[117].

Epidemiological observations in eastern and western Asian communities have consistently reported low rates of SUDI even when crowded housing and poorer socioeconomic conditions would predict a relatively higher incidence[118]. Studies conducted in Australia have demonstrated ethnic differences in the incidence of sudden unexpected infant death that were not explained by social and perinatal risk factors, with infants of Australian born mothers at a higher risk of sudden infant death compared to babies born of mothers from southern Europe and Asia[119–120]. The lower rates of infant mortality observed in these ethnic groups have been attributed to lower rates of maternal smoking[121] and cultural differences in infant care practices characterised by close family contact both day and night[122]. Further studies have demonstrated that within some ethnic groups, the risk of post-neonatal mortality increases with the period of residence, suggesting that the adoption of western behaviours and infant care practices may play a role in placing some infants at an increased risk of SUDI[123].

Recent studies have reported poor knowledge of sudden infant death risk reduction strategies in overseas born women living in Australia[124–125]. Specific education programs on sudden infant death risk factors conducted by a health professional have been successful in increasing compliance with safe sleeping recommendations including the supine infant sleep position in high risk ethnic minority groups in the United States[60,126].

Infant mortality is high among Aboriginal and Torres Strait Islander people, with this population not experiencing the same relative reduction in sudden infant death rates since the 1991 and 1997 SIDS risk reduction campaigns. Most recent reports of perinatal and infant mortality rates for Indigenous people are around twice those of the general population in Queensland[127] (CCYPCG 2007b), while deaths specifically attributed to sudden unexpected infant death are approximately five times the rate of non-Indigenous infants[2].

Studies of infant care practices, several of which were conducted in Queensland, have shown that the prevalence of risk factors associated with an increased risk of sudden infant death is higher in Aboriginal and Torres Strait Islander families[27–28,32]. Aboriginal or Torres Strait Islander babies were more likely to be placed on the side or prone position to sleep, exposed to environmental tobacco smoke in utero, have smokers in the home environment after birth, and bed-share with a smoker[27–28,32].

Several small studies conducted in northern Queensland reported that maternal awareness of risk factors for SIDS was significantly lower in a group of Indigenous mothers compared to a group of Caucasian mothers and suggested that differences may be due to information not being presented to Indigenous parents in a culturally appropriate form[27–28]. Culturally appropriate and accessible services are required to reduce the high mortality rates among Aboriginal and Torres Strait Islander infants, in both rural and urban settings.

Evidence from these studies indicates that health professionals need to take into account both medical knowledge and cultural practices of the community in which they are working. For example sharing a sleep surface with a baby is the cultural norm in many ethnic and Indigenous communities, as bed-sharing is believed to protect the baby. Some of these groups demonstrate low infant mortality such as southern Europe and Asian communities living in Australia, while others experience high infant mortality, such as Aboriginal and Torres Strait Islander communities, where other risk factors are present. Raising awareness of the risks of smoking and strategies to reduce the risk of shared sleep environments when promoting safe infant sleeping recommendations may be more useful and culturally respectful than advising all parents not to bed-share, particularly when breastfeeding is encouraged for all babies[21,28,99,128]. Negativity over all bed-sharing circumstances may alienate parents and risk their rejection of all safe sleeping messages.

Although families may share particular cultural practices, values and beliefs on the basis of common ethnic origins, all families have individual features and characteristics which are not defined primarily by their race or ethnicity[117]. Poor awareness of risk factors for sudden infant death does not directly translate to suboptimal infant care practices. However, raising parental awareness of safe sleeping recommendations by health professionals will assist in reducing the risk of sudden infant death for all Queensland infants. The safety and development of children is fostered when their individual families are supported and their culture is respected.

Implications for practice

The following guidelines for clinical practice and parent education support the implementation of Minimum Standard 6:

Parent advice and support provided by staff should consider the culturally specific needs and the circumstances of each family and their baby to ensure safe infant care and sleeping practices are implemented in home environments.

- Consider cultural, social and family circumstances which may impact on the caregiver's choice of infant sleep location and environment, and provide appropriate education and information relating to these environments to facilitate informed decision-making by parents.
- Health professionals working with vulnerable pregnant women and young families should give particular consideration to overseas-born clients' knowledge of sudden infant death risk reduction strategies. Identify and use culturally appropriate resources and services for these groups as required, for example if available provide safe infant sleeping information in the client's first language if understanding of English is poor *(See SIDS and Kids website for Safe Infant sleeping brochure available in several languages: www.sidsandkids.org)* or utilise interpreter services as required.
- Health professionals working with Aboriginal and Torres Strait Islander families should be aware of culturally appropriate safe infant sleeping resources developed by, and in consultation with, members of the community through collaboration between Queensland Health and SIDS and Kids Queensland. *(Contact Maternity, Child Health and Safety Branch for resources: 'Keeping Bubba Safe' Flip Chart, 'Information on safe sleeping for Bubba' Pamphlet and 'Keep Bubba Safe' Poster).*
- Parent education about safe infant sleeping is relevant to, and should be reinforced at each point on the care continuum for all Queensland families from the first antenatal contact to the end of infancy.
- Specifically discuss safe infant sleeping and proposed sleeping arrangements with parents where home visiting occurs or is possible, particularly in culturally and linguistically diverse and Aboriginal and Torres Strait Islander communities.
- Observe the infant sleeping arrangement and provide parent education and support to facilitate uptake of safe sleeping recommendations in the home environment.

Glossary of Terms

Bed-sharing refers to bringing baby onto a sleep surface when co-sleeping is possible, whether intended or not[114].

Co-sleeping may be defined as a mother and/or her partner (or any other person) being asleep on the same sleep surface as the baby[114].

Environmental Tobacco Smoke (ETS) refers to smoke from the end of a lit cigarette or breathed out by a smoker[83].

Fatal Sleeping Accident is a death occurring during sleep, as a result of an accident, such as a fall, or suffocation, or mechanical asphyxiation[2]. Fatal sleeping accidents are explained deaths that meet SUDI criteria.

Gastroesophageal Reflux (GOR) is the involuntary passage of gastric contents into the oesophagus. Physiological GOR is defined as regurgitation of gastric contents without associated complications or systemic abnormalities. Brief episodes of physiologic reflux occur daily in both healthy infants and adults. In infants this is normal and should be considered physiologic, with symptoms resolving by 12 months of age[46].

Gastroesophageal Reflux Disease (GORD) is defined as regurgitation of gastric contents into the oesophagus with accompanying symptoms and complications. Persistent reflux with frequent vomiting leads to irritation of the esophagus. Reflux associated with weight loss or reflux that causes breathing difficulty is considered abnormal and is referred to as GORD[46].

Lateral means positioned lying on the side of the body.

Passive Smoking refers to breathing tobacco smoke in the environment[83].

Pierre Robin Syndrome is a condition present at birth in which an infant has a very small lower jaw, a tongue that tends to fall back and downward, and a soft cleft palate.

Plagiocephaly literally means oblique head. Positional plagiocephaly or non-synostotic plagiocephaly refers to an asymmetrical condition of the head which may occur in response to the exertion of gravity on the soft, rapidly growing infant skull lying on a firm surface, particularly in the presence of a favoured head position[53]. Non-synostotic brachycephaly is a wide head shape with symmetrical central posterior flattening,[53] and while not true 'plagiocephaly', can be prevented or managed in the same way as positional plagiocephaly.

Prone means positioned lying with front or stomach downward, with face positioned down or to the side.

Room-sharing refers to sleeping the baby in a cot or other separate sleeping surface in the same room as the parents[129].

Sharing the same sleep surface includes the practices of *bed-sharing* and *co-sleeping on the same sleep surface*. This terminology allows differentiation of the risks associated with solitary sleeping (baby sleeping in a separate room), room-sharing and environments in which the baby and caregiver share the same sleep surface[93].

Solitary sleeping refers to a baby sleeping in a room separate to the parents or caregiver[94].

Sudden Infant Death Syndrome (SIDS) is defined as "the sudden and unexpected death of an infant under one year of age, with onset of the lethal episode apparently occurring during sleep, that remains unexplained after a thorough investigation including performance of a complete autopsy and review of the circumstances of death and the clinical history"[2,4].

Sudden and Unexpected Death in Infancy (SUDI) is the sudden, unexpected death of an infant, usually occurring during sleep, in which a cause of death is not immediately obvious. SUDI is a research classification and does not correspond with any single medical definition or International Classification of Diseases (ICD) categorisation. In Queensland, a death is generally classified as a SUDI[2,3,4] if it concerns:

- an infant less than 12 months of age
- a death that was sudden in nature
- a death that was unexpected.

Unexpected indicates that the cause of death was not recognised before the event, as in cases of a pre-existing condition that had not previously been recognised[3].

Supine means positioned lying on the back with face upward.

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