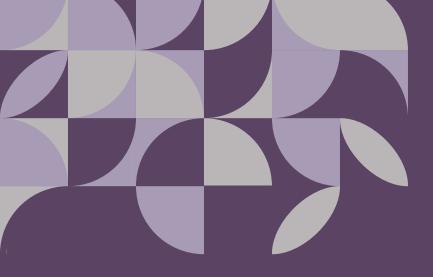


## Safer Infant Sleep

Practice Resource for Health-Care Providers

March 2022







#### Safer Infant Sleep Practice Resource for Health-Care Providers

Copyright ©2022 Perinatal Services BC, Provincial Health Services Authority

Suggested Citation: Perinatal Services BC. 'Safer Infant Sleep Practice Resource for Health-Care Providers' 2022 February, Vancouver, BC.

No part of the content of this document may be reproduced in any form, or by any means, including electronic storage, reproduction, execution, or transmission without the prior written permission of Perinatal Services BC.

Perinatal Services BC #260-1770 W 7th Ave, Vancouver, BC V6J 4Y6 P: (604) 877-2121

psbc@phsa.ca

www.perinatalservicesbc.ca

## **Table of Contents**

Introduction Keymessages Keyterms	2
Sudden, Unexpected Infant Death During Sleep in British Columbia	8
Assessing Risk of Sudden, Unexpected Infant Death During Sleep	10
Safer Sleep Principles: Safer Sleep for Every Sleep, Day or Night Sleep Environment Sleep Position Sleep Surface	12 12 14 15
Bedsharing	18
Breastfeeding as a Protective Factor for Sudden, Unexpected Infant Death During Sleep Breastfeeding and Bedsharing	<b>20</b> 21
Emerging Evidence Pacifier Use Routine Immunizations Upper Respiratory Tract Infection	22 22 23 23
Alternative Safe Sleep Surfaces	24
Daytime Sleeping Slings, Carriers and Wraps Moss Bags aAnd Cradleboards Infant Swings and Bouncers	25 25 27 27
Products not Recommended for Safe Sleep Car Seats, Strollers and Car Beds Playpens, Hammocks and Baby Nests/Pods Home Monitoring Products	27 27 27 28
Multiples	28
Swaddling Blankets and Sleep Sacks	<b>28</b>
Considerations for Indigenous Families	30
Healthy Sleep Development for Infants	31
Infant Sleep Discussion Guide Commercial Sleep-Training Programs Additional Resources for Health-Care Providers	<b>32</b> 34 35
Resources to Share with Parents/Caregivers	36
Appendix A: Safe Sleep Surface Decision Aid for Health-Care Providers	37
Contributors	38
References	40

## INTRODUCTION

## PERINATAL SERVICES BC'S COMMITMENT TO INDIGENOUS RECONCILIATION

As a commitment to Indigenous reconciliation, Perinatal Services BC (PSBC) wishes to honour the historical cultural strength and beauty of Indigenous Peoples' practices, beliefs and values. We also acknowledge the colonial racism and discrimination Indigenous Peoples have experienced in the past, and which continues today. PSBC resolves to work toward adopting and supporting culturally safe, humble and trauma-informed practice and care to improve perinatal health outcomes and to honour the resilience of Indigenous Peoples. This practice resource is one expression of our commitment to Indigenous reconciliation.



## A NOTE ON GENDER INCLUSION AND THE LANGUAGE OF THIS DOCUMENT

Providing gender inclusive and gender affirming perinatal health-care is integral to providing patient centered, trauma informed and culturally safe care for all those who experience pregnancy, birth and infant feeding. This document refers to women and/or pregnant individuals and parents/caregivers to respectfully demonstrate PSBC's commitment to gender inclusive and gender affirming care for Two-Spirit, transgender and non-binary individuals. This approach to language and health-care is intended to support excellence in perinatal care for women and all individuals who experience pregnancy, birth and infant feeding.

We acknowledge that this document refers to breast-feeding. Breastfeeding is traditionally understood to involve an individual of the female sex and gender identity who also identifies as a woman and mother. However, it is important to recognize that there are individuals in a parenting and human-milk-feeding relationship with a child who may not self-identify as such and who may prefer to use the term "chestfeeding" rather than breastfeeding. Health-care providers are advised to partner with patients to explore gender affirming language and to use that language accordingly.

#### **PURPOSE OF THIS PRACTICE RESOURCE**

This practice resource is for health-care providers who provide clinical care and/or counselling to women and pregnant individuals, as well as parents/caregivers and their families in hospital and community settings. The purpose of this resource is to provide health-care providers with current, evidence-based information and key messages on infant safe sleep practices with the intent of reducing the rate of sudden, unexpected infant death during sleep\* in British Columbia (BC). This may include reducing rates of sudden infant death syndrome (SIDS), sudden, unexpected death in infancy (SUDI), sudden, unexpected infant death (SUID) and accidental deaths. This resource was created to align with the safer infant sleep resource created by the BC Ministry of Health for parents/caregivers, "Safer Sleep for My Baby," and was developed in collaboration with a variety of key stakeholders, including physicians, midwives, nurses and lactation consultants.

This resource pertains to safer sleep practices of infants with a postnatal age of 0 to 12 months. It takes into consideration that there are two distinct populations of infants that may require specific safer infant sleep advice: healthy term infants and infants at an increased risk for sudden, unexpected infant death during sleep<sup>1</sup>. Conversations regarding infant safe sleep practices are recommended to occur during the prenatal period and the postpartum period (this includes before the infant is discharged from hospital). Health-care providers are encouraged to use a harm-reduction approach that is person and family

centred, trauma informed and culturally safe when discussing infant sleep practices with pregnant women and individuals, parents/caregivers and their families. It is important that the information in this resource be discussed with all individuals who provide care to the infant. This may include birth parents, intended parents, foster parents, grandparents and babysitters.

#### \*NOTE ON CHANGE IN TERMINOLOGY

In 2009, the BC Coroners Service along with the Canadian Medical Examiners and Chief Coroners across the country shifted the language of what was previously described as SIDS/SUDI/SUID to being classified as deaths that are "undetermined."<sup>(1)</sup>

According to the BC Coroner's Service this change in terminology is due to the limitations of the term SIDS/SUDI/SUID in understanding, classifying and preventing infant sleeping deaths. SIDS/SUDI/SUID is not useful in understanding the risk factors and preventative measures associated with infant sleeping deaths; rather, they are categories of exclusion in the absence of another explanation and, ultimately, are not helpful in understanding infant deaths. This disconnect impacts parents who have suffered an apparent sudden, unexpected infant death but who do not receive SIDS/SUDI/SUID as the classification in the final coroner's report. For the purposes of this document, the term "sudden, unexpected infant death during sleep" will be used throughout.

<sup>1</sup> Risk factors may include the following: male sex, infants with genetic risk factors, exposure to prenatal substance use (tobacco, illicit drugs, alcohol), preterm birth, low birth weight and/or being a multiple.

## KEY MESSAGES



- While there is no one sleep option that completely eliminates the risk of sudden, unexpected infant death during sleep, there are evidence based recommendations to share with families about safer sleep practices.
- Sudden, unexpected infant death during sleep in BC disproportionally impacts individuals or families experiencing vulnerabilities. Safe sleep messaging is recommended to be introduced in a context that recognizes the impact of the social determinants of health on infants' overall health.<sup>(2)</sup>
- The Triple Risk Model indicates that the intersection of the following factors may put infants at an increased risk for sudden, unexpected infant death during sleep: infants with pre-existing risk factors, infants in the critical development period (postnatal age of 0 to 12 months with a peak in risk from 2 to 4 months<sup>(3-5)</sup>) and infants experiencing exogenous stressors (e.g., prone or side sleeping position, soft bedding or mattress, covered face, exposure to tobacco smoke<sup>2</sup>, etc.). (2)
- Conversations regarding infant sleep practices and normal infant sleep biology are recommended to occur throughout the perinatal period with all women, pregnant individuals and parents/caregivers to gain an understanding of their knowledge, values and beliefs of safe sleep practices and to provide anticipatory guidance to help support them in making informed choices regarding their infant's sleep practices.
- Conversations about infant sleep are encouraged to occur using a harm-reduction approach that is person and family centred, trauma informed and culturally safe to reduce risk of harm and promote evidence-informed safer sleep practices. The Canadian Pediatric Society suggests using the following 'ABC's when having conversations with parents/ caregivers<sup>(6)</sup>:
  - Ask questions
  - **B**uild on each family's relational strengths
  - Counsel with family-centred guidance
  - Develop plans for changing behaviours related to sleep or discipline, as needed, and
  - Educate about positive parenting strategies.

<sup>&</sup>lt;sup>2</sup> Tobacco exposure includes maternal use as well as second-hand smoke exposure.

## THERE ARE THREE MAIN CONSIDERATIONS WHEN DISCUSSING PRINCIPLES FOR SAFER SLEEP WITH PARENTS/CAREGIVERS:

#### SLEEP ENVIRONMENT<sup>(7)</sup>

- Be free of tobacco and substances during pregnancy, in the woman's or pregnant individual's environment as well as in the infant's environment.
- Keep temperature comfortable (no greater than 20°c).<sup>(8)</sup> Reduce risk of overheating by avoiding use of hats or heavy blankets (including weighted blankets).<sup>(9)</sup>
- Share a room with the infant for the first six months.

#### SLEEP POSITION<sup>(7)</sup>

- When an infant is placed down to sleep, the safest position for an infant is to sleep on their back for every sleep (daytime or nighttime) from birth until infants are at least six months old.
- When an infant is carried in an appropriate wrap, sling or carrier for sleep, ensure that sleep positioning is optimized using the M positioning and the TICKS acronym (Refer to Figure 4 and Table 6).

#### SLEEP SURFACE(10)

- Infants at increased risk of sudden, unexpected infant death during sleep are recommended to sleep on a separate sleep surface for every sleep. Bedsharing is not advised.
- Evidence supports that healthy, term, breastfed infants that bedshare (i.e., breastsleep) are not at increased risk for sudden, unexpected infant death during sleep in the absence of pre-existing vulnerabilities and exogenous stressors, as described in the Triple Risk Model.
- ▶ Table 1 Main considerations when discussing principles for safer sleep with parents/caregivers
- Breastfeeding is a protective factor in reducing sudden, unexpected infant death during sleep, regardless of sleep arrangement. This includes human milk that is provided directly by breastfeeding or through expressed milk.<sup>(10)</sup> Health-care providers have a role to protect, promote and support breastfeeding.
- There is no evidence to recommend swaddling as a strategy to reduce sudden, unexpected infant death during sleep. (11) Swaddling is an unsafe sleep practice that may increase the risk of overheating and may increase the risk of sudden, unexpected infant death during sleep. (11) Health-care providers are encouraged to have open, respectful discussions with women, pregnant individuals and parents/caregivers about swaddling to promote families to make informed decisions that meet their cultural preferences, values and needs.
- Promoting the wellbeing and mental health of parents/caregivers helps to support safer sleep practices for their infants. Share with parents/caregivers wellness strategies from the NEST-S program and connect families with community resources. Engage parents/caregivers to address substance use disorders if present.<sup>(6)</sup>

## KEY TERMS

#### Accidental death

Accidental death is defined as, "suffocation as a result of items in the bed, lying face down or the parent or another child rolling onto the baby."  $^{(12\,\mathrm{pl})}$ 

## **Bedsharing**

Bedsharing is defined as parents/caregivers sleeping on the same surface as their infants. This could include a mattress or an adult bed. Bedsharing in the context of safer sleep is distinct from sofa and/or recliner sharing. Sleeping with an infant on a couch or recliner is not a safe sleep arrangement. (2, 10)

## Breastsleeping

Breastsleeping is breastfeeding among bedsharing infants. (10) It is defined as a, "biologically based model of sustained contact between the mother and infant, starting immediately after birth, in which sleeping and breastfeeding are inextricably combined, assuming no hazardous risk factors."(10 p7)

## Co-sleeping

care providers and parents/caregivers; however, there is a lack of standardization in the literature on how to define this term. When discussing co-sleeping, it is important to ensure both health-care providers and parents/ caregivers have the same understanding of the term. Due to the lack of standardized definition, PSBC does not use this term in this resource. (10)

Co-sleeping is a common term used by health-

## Individuals or families experiencing vulnerabilities

Individuals or families experiencing vulnerabilities refers to, "those who experience a larger 'burden' of illness and distress than others due to a number of factors." (2 p33) These factors or social determinants of health may include low income, low education status, lack of social support networks, etc.

## Informed shared decision making

Care based on informed shared decision making is defined as, "decisions that are shared by a health-care provider and patient and informed by best evidence, not only about risks and benefits, but also patient-specific characteristics and values. It occurs in a partnership that rests on explicitly acknowledged rights and duties, and an expectation of benefit to both." (13 p766) With informed shared decision making, patients are partners in their own health care.

### **Room sharing**

Room sharing is defined as parents/caregivers sleeping in the same room as their infant, but sleeping on a separate sleep surface, such as a crib, cradle or bassinet.<sup>(2,10)</sup>

### Solitary sleep

Solitary sleep is defined as parents/caregivers sleeping in a different room than their infant. (10)

## Sudden infant death syndrome (SIDS)

Sudden infant death syndrome is defined as, "the death of an infant under one year of age, which is sudden and unexpected without a clear cause. It is not a diagnosis." For the purposes of this document, the term "sudden, unexpected infant death during sleep" will replace the terminology of SIDS; however, it has been included based on historical use.

## Sudden, unexpected death in infancy (SUDI) / Sudden, unexpected infant death (SUID)

Sudden, unexpected death in infancy or sudden, unexpected infant death is defined as, "the death of an infant under one year of age which is sudden, unexpected and unexplained, where external risk factors are present and may or may not contribute to the death. It is not a diagnosis." (2 p33) For the purposes of this document, the term "sudden, unexpected infant death during sleep" will replace the terminology of SUDI; however, it has been included based on historical use.

## Sudden, unexpected infant death during sleep

Sudden, unexpected infant death during sleep is an umbrella term used by the British Columbia Coroner's Service to refer to all unexpected infant deaths that occur during sleep as the result of undetermined causes (formerly referred to as SIDS, SUDI, or SUID), accidental causes, and natural causes. This term will be used throughout the document.

# SUDDEN, UNEXPECTED INFANT DEATH DURING SLEEP IN BRITISH COLUMBIA

Sudden, unexpected infant death during sleep is one of the leading causes of postnatal death among infants under one year of age in Canada. (14, 15)



Sudden, unexpected infant deaths during sleep are classified as undetermined as there is no diagnosis for the cause of death. (2) Between Jan. 1, 2013 and Dec. 31. 2018, the British Columbia Coroners Service (BCCS) convened a death panel review and found that 141 infants died suddenly and unexpectedly during sleep in BC. With approximately 44,000 infants born each year, this is a rate of 5.3 deaths per 10,000 live births. (2) Specifically, this panel found that deaths were disproportionally found among infants with risk factors or individuals or families experiencing vulnerabilities such as lack of access to prenatal care, limited knowledge of safe sleep practices, lack of social support networks and/or poor conditions of daily living that make following safer sleep recommendations difficult to achieve (e.g., lack of a separate sleep surface). (16, 17) Among these deaths, 81 per cent of infants who died during sleep were found to have unsafe sleep practices and 89 per

cent of deaths occurred in the first six months after birth. (2)

An infant's death is an inconceivable loss to parents/ caregivers, extended families and communities. Parents/caregivers who have experienced a sudden, unexpected infant death during sleep may suffer from personal guilt, psychological and mental health issues, and may experience relationship issues with other family members. (6) Parental grief after the loss of an infant can have a profound effect causing long-lasting physical, behavioural, cognitive and emotional issues for families, which may be prevented with education and awareness on how to reduce the risk of sudden, unexpected infant death during sleep. (18) For parents/ caregivers and families who have experienced a sudden, unexpected infant death during sleep, ask if there are cultural practices they use when a family

member passes on, and if they would like to share these practices in order to help the family to properly grieve. Provide parents/caregivers with information on support groups, such as <a href="Empty Cradle">Empty Cradle</a>, which can provide grief counselling, support and referrals. For more information on how to discuss infant loss with parents/caregivers, refer to the Public Health Agency of Canada's, <a href="Family-Centered Maternity">Family-Centered Maternity</a> and <a href="Newborn Care">Newborn Care</a>: <a href="National Guidelines">National Guidelines</a>.

There is a lack of guidelines for clinical practice when working with individuals or families experiencing vulnerabilities, and there is a need for information and support to be provided throughout the continuum of care by health-care providers. (2) Health-care providers can increase parents'/caregivers' awareness of sudden, unexpected infant death during sleep by facilitating open conversations with all women, pregnant individuals and parents/caregivers involved with caring for the infant, starting in the prenatal period and continuing into the postpartum period. (7) It is recommended that healthcare providers encourage women, pregnant individuals and parents/caregivers to receive prenatal care early in the pregnancy to provide them with education and risk-reduction strategies to reduce the risk of sudden, unexpected infant death during sleep. (7) By providing evidence-based information on infant sleep and endorsing and modelling safer infant sleep practices,

informed shared decision making with parents/caregivers, and help them to make decisions that meet their family's and infant's needs. (7, 19) As a health-care provider, it is important to acknowledge parents'/caregivers' perspectives and provide the opportunity for open discussion about different sleep practices. If a parent/caregiver discusses their intent to engage in a sleep practice, it is suggested that health-care providers remain respectful, thank them for sharing their perspectives and acknowledge that it took courage for them to discuss this topic. (20) If a parent/caregiver shares an unsafe sleep practice, provide them with the safer sleep messaging using a trauma-informed and culturally safe approach, and work with them to determine options for safer alternatives that align with their values and preferences.(20)

health-care providers can help facilitate the process of

## ASSESSING RISK OF SUDDEN, UNEXPECTED INFANT DEATH DURING SLEEP

One theory that may explain the development of sudden, unexpected infant death during sleep is the Triple Risk Model. <sup>(3, 21)</sup> This model explains sudden, unexpected infant death during sleep as being the result of the intersection of three overlapping factors during infancy: pre-existing vulnerabilities, critical development period and exogenous stressors (see Figure 1).

## **Triple Risk Model**

## PRE-EXISTING VULNERABILITIES

- Male<sup>(2, 18)</sup>
- Genetic risk factors<sup>(2)</sup>
- Prenatal substance use exposure<sup>(2)</sup> (tobacco<sup>(22)</sup>, alcohol<sup>(7)</sup>, illicit drug<sup>(7)</sup>)
- Preterm birth(2, 22)
- Low birth weight(22)
- Birth of multiples<sup>(22)</sup>

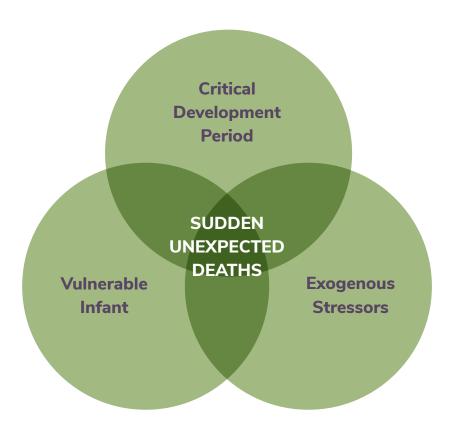
## CRITICAL DEVELOPMENT PERIOD

Infants who have a postnatal age between 0 and 12 months (with a peak in risk between 2 and 4 months)<sup>(3-5)</sup>

## **EXOGENOUS STRESSORS**

- Prone or side-sleeping position<sup>(2, 3)</sup>
- Soft bedding<sup>(3)</sup> or soft mattress<sup>(2)</sup>
- Face covered<sup>(2, 3)</sup>
- Bedsharing with a parent/caregiver who is using a substance<sup>(2)</sup>
- Over-bundling<sup>(2, 3)</sup>
- Swaddling<sup>(2)</sup>
- Upper respiratory tract infection<sup>(2)</sup>
- Tobacco smoke exposure<sup>(7)</sup>

▶ Table 2 Triple Risk Model, Filiano and Kinney 1994 (Adapted)



▶ Figure 1
Triple Risk Model,
Filiano & Kinney, 1994.

- During the prenatal and postpartum period, health-care providers are encouraged to facilitate conversations with women, pregnant individuals and parent/caregivers using the Triple Risk Model and the principles for safer sleep. These conversations are critical to ensuring parents/caregivers can make informed decisions about their infant's sleep practices.
  - During the prenatal period, facilitate conversations with the woman or pregnant individual and anticipated parents/caregivers to assess pre-existing risk exposures that may put their infant at increased risk. This may include discussing an individual's current substance use and plans for reduction or cessation during the pregnancy. Health-care providers are recommended to provide harm-reduction advice that is trauma informed and culturally safe on how to reduce or stop use. For more information on how to discuss substance use during pregnancy, refer to the resource from the <a href="Centre of Excellence for Women's Health">Centre of Excellence for Women's Health</a>. As well, discuss access to adequate nutrition, stress management and reduction, support systems and other areas important for a healthy pregnancy. Health-care providers are also encouraged to initiate conversations on infant sleep plans and safer sleep recommendations early in the prenatal period, and to cultivate respectful, reciprocal relationships with families.
  - During the postpartum period, facilitate conversations with parents/caregivers to assess an infant's pre-existing risk exposure, determine where they are in the critical development period and identify any exogenous stressors. This may include creating an infant sleep plan with parents/caregivers, and discussing their plans for using substances after the infant is born. Engage in collaborative discussions with parents/caregivers on the safer sleep principles to reduce the risk of developing sudden, unexpected infant death during sleep.

## **SAFER SLEEP PRINCIPLES:**

## SAFER SLEEP FOR EVERY SLEEP,

## **DAY OR NIGHT**

There are three main considerations when discussing the principles for safer sleep with women, pregnant individuals and parents/caregivers: sleep environment, sleep position and sleep surface.



#### **SLEEP ENVIRONMENT**

■ Be free of tobacco smoke during pregnancy, in the woman's or pregnant individual's environment and in the infant's environment

Maternal tobacco use and tobacco smoke exposure (including second-hand smoke) during the prenatal and postnatal period can increase the risk of sudden, unexpected infant death during sleep.<sup>(11)</sup> It has been found that infants of individuals who use tobacco are at a five to six fold increase risk of sudden, unexpected infant death during sleep.<sup>(23)</sup> There is currently a lack of research on the significance of third-hand smoke<sup>4</sup> and its association with sudden, unexpected infant death during sleep. Therefore, it is recommended to reduce use when possible.<sup>(7)</sup> Provide parents/caregivers who are smoking tobacco during the perinatal period harm-reduction strategies (e.g., smoking outside of the infant's environments, changing clothes before entering the house, etc.) and/or referrals to smoking cessation programs to reduce risk.<sup>(10)</sup>

<sup>4</sup> Third-hand smoke refers to indoor surfaces, clothing and hair that may be contaminated by residual nicotine or other chemicals.

## ■ Be free of substances during pregnancy, in the postpartum period and in the infant's environment

Prenatal and postnatal maternal alcohol use has been associated with an increased risk of sudden, unexpected infant death during sleep, independent of other substance exposures. (24, 25) Prenatal exposure to opiates (heroin, methadone) has also been associated with increased risk of sudden, unexpected infant death during sleep. (7) Alcohol and other substances may also increase the risk of unintended injuries in infants. (26) There is not sufficient evidence to provide recommendations on infant sleep with regards to vaping, e-cigarettes (27) or cannabis use. (28) Using a precautionary approach, it is suggested to avoid the use of all substances during the prenatal and postnatal period to reduce the risk of sudden, unexpected infant death during sleep. Offer parents/caregivers who are using substances during the perinatal period harm reduction strategies to reduce use and/or referrals to alcohol and drug treatment programs to reduce risk. (10)

### **■** Keep temperature comfortable

Lightly dressing infants during sleep reduces the risks of overheating. This includes using light clothing (e.g., a one-piece sleeper) and leaving their head uncovered. Discuss with parents/caregivers that the risk of sudden, unexpected infant death during sleep increases when an infant is overdressed, and when the room temperature is greater than  $20^{\circ}$ C. Swaddling is an unsafe sleep practice, as there is no evidence to recommend swaddling as a strategy to reduce sudden, unexpected infant death during sleep, and it may increase the risk of overheating. If parents/caregivers plan to swaddle their infant, see page 28 to discuss with parents/caregivers how to swaddle as safely as possible.

#### ■ Share room with infant

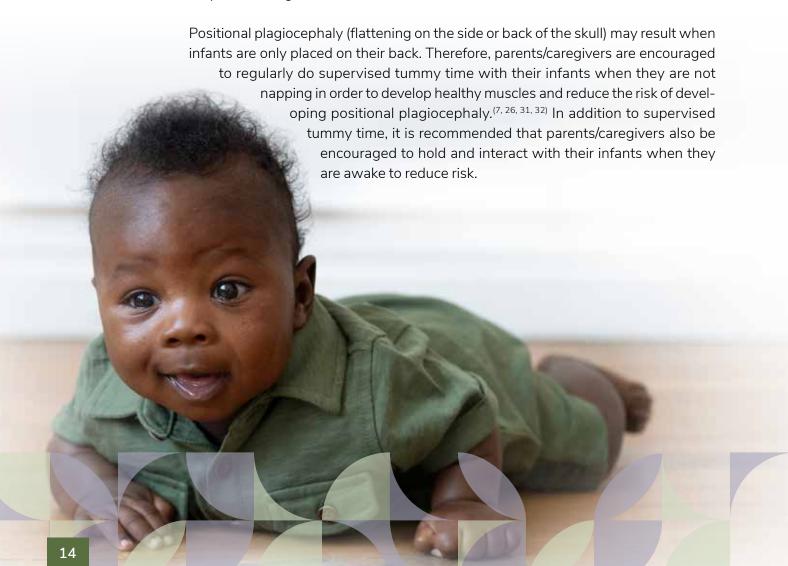
Health Canada, the Public Health Agency of Canada and the Canadian Paediatric Society recommend sharing your room with your infant for the first six months. (29, 30) Room sharing during the first six months of age decreases the risk of sudden, unexpected infant death during sleep by 50 per cent, (11) and reduces the risk of accidental deaths such as strangulation, entrapment or suffocation. (7) Room sharing also increases breast-feeding success, which is a protective factor for sudden, unexpected infant death during sleep. (10)

#### **SLEEP POSITION**

### ■ Place infant on their back (supine) for every sleep

It is recommended that all parents/caregivers place infants on their back for every sleep right from birth and at all times (day or night) until infants are one year of age. (7. 29, 30) The prone (stomach) sleeping position is associated with an increased risk of sudden, unexpected infant death during sleep compared to infants who are placed supine. (11) However, if an infant is able to roll over and rolls onto their stomach, it is not necessary to wake them up and flip them onto their back. Side sleeping is also not recommended, as infants are more likely to roll over into the prone position than from the supine position. (11)

Preterm infants should be placed supine for sleep as soon as the clinical status has stabilized. Swaddling and the use of developmental positioning aids should be discussed with parents and discontinued for all healthy preterm infants who are ready for discharge, as the association with sudden, unexpected infant death during sleep may be even higher than for term infants.<sup>(7)</sup>



#### **SLEEP SURFACE**

Discuss the sleep surface options that are safe for all infants with parents/caregivers. It is also important to discuss the specific sleep surface options that are available for infants at increased risk as well as for healthy, term, breastfed infants. If parents/caregivers have made an informed choice on their infant's sleep surface, discuss their motivation for choosing the sleep surface and the safety of the surface based on their infant. Refer to Appendix A on page 37 for a safe sleep surface decision aid for health-care providers.

## Safe sleep surface recommendations for ALL INFANTS

Place infant on a firm mattress free of hazards with a fitted sheet.

To reduce the risk of suffocation, it is recommended to place infants on a firm mattress with a tight-fitted sheet, no positioning devices (e.g., remove bumper pads and pillows) and no heavy blankets or toys/stuffed animals in the sleep space. (29) Cribs should be free of blinds, cords and wires to reduce risk of accidental death. Having loose bedding or toys/stuffed animals in the crib increases the risk that the infant's head is covered, which can impair their arousal (ability to wake). (11) Memory foam mattresses or soft mattresses are not recommended, as they may increase the risk of suffocation if the infant rolls over or is placed in the prone position. (11, 29)

- Never place infants alone on an adult bed. (10)
- Never place infants alone or with a sleeping parent/caregiver on a sofa or a recliner. (10)

Sofa sharing has been associated with a 23-fold pooled risk for sudden, unexpected infant death.<sup>(34)</sup>

■ Health Canada does not recommend in bed infant positioning commercial products or the use of wedges. (35, 36)

## Safe sleep surface recommendations for INFANTS AT INCREASED RISK ONLY

■ The safest place for an infant at increased risk to sleep is on their back in a Health Canada approved crib or bassinet. (29, 30)

If parents/caregivers do not have access to a crib or bassinet, see page 24 for a list of alternative safe sleep surfaces.

## Safe sleep surface recommendations for HEALTHY, TERM, BREASTFED INFANTS ONLY

It is safe to either...

16

- A) Place infant on separate sleep surface
- B) Bedshare with infant if there are no risk factors present

### A) Separate sleep surface

- If using a separate sleep surface, place infant to sleep on their back in a Health Canada approved crib or bassinet. (29, 30)
- If parents/caregivers do not have access to a crib or bassinet, see page 24 for a list of alternative safe sleep surfaces.

## B) Bedshare

## Factors that Significantly Increase the Bedsharing Risk for Healthy, Term, Breastfed Infants

If bedsharing with healthy, term, breastfed infants in home settings, it is safest to bedshare when parents/caregivers/infants **DO NOT HAVE ANY** of the following risk factors: (10)

- Parent/caregiver sleeping with an infant while impaired by alcohol(OR 1.6-89.7)<sup>(7)</sup> or drugs that impact awareness and arousal
- Infant who was exposed to tobacco smoke antenatally
- Infant who is sleeping with a parent/caregiver who smokes tobacco(OR 2.3-21.6) (7)
- Infant sleeping in the prone or side-lying position
- Parent/caregiver never initiating breastfeeding
- ▶ Table 3 Factors that Significantly Increase the Bedsharing Risk for Healthy Term Breastfed Infants

If parents/caregivers currently have one of these risk factors, it is recommended to suggest other sleep surface options and discuss how to reduce their risk. Provide parents/caregivers with the <u>Safer Sleep for My Baby</u> resource from the BC Ministry of Health.

**NOTE:** Bedsharing is not recommended for infants who were born preterm, exposed to tobacco during the antenatal period and/or have parents/caregivers who consume alcohol or drugs.

Although male infants are at an overall increased risk of sudden, unexpected infant death during sleep, bedsharing does not increase this risk for healthy term male infants as compared to healthy term female infants.<sup>(37)</sup> Health-care providers are recommended to provide parents/caregivers with this information in order to help them make an informed decision about their infant's sleep position.

## **BEDSHARING**

Bedsharing is a complex issue that may occur intentionally or unintentionally.



Baby Sleep Information Source | Photographer: Rob Mank

Unintentional bedsharing may be a modifiable risk factor in which health-care providers can provide safer sleep options; however, intentional bedsharing may involve parents' cultural beliefs and values and, therefore, is not a simple modifiable risk factor.<sup>(10)</sup>

In 2015/2016, it was found that of Canadian women (ages 15-55) who had recently given birth (in the last five years), 33 per cent reported frequently bedsharing with their infant, 27 per cent occasionally shared a bed and 40 per cent had never bedshared. This finding indicates that the majority of Canadian women may be likely to bedshare at some point and therefore information on how to bedshare safely is critical to provide to parents/ caregivers. Some of the most commonly cited reasons that families bedshare include: facilitates breastfeeding, increases comfort, improves sleep, follows tradition, etc. Recent public health safe sleep messaging has adopted a harm-reduction approach to help support the increased number of families choosing to bedshare as the rate of bedsharing is on the rise. One of the key aims of this harm-reduction messaging is to avoid unintended consequences from the universal messaging that parents/caregivers should not bedshare. For example, one survey found that 55 per cent of mothers fed their infants at night on chairs, recliners or sofas in order to avoid bedsharing, and 25 per cent of this sample fell asleep with their infants in these locations. It is important for health-care providers to discuss bedsharing with all families starting in pregnancy and continuing throughout the perinatal period in order to reduce the risks associated with intentional and unintentional bedsharing.



Baby Sleep Information Source | Photographer: Kathryn O'Donnell

Figure 2 When bedsharing, discuss with parents/caregivers the C-position ("cuddle curl"): parent/caregiver facing their infant with their knees drawn up under the infant's feet and arm above the infant's head.

disclosing to health-care providers their infant sleep choices and behaviours.<sup>(42)</sup> Health-care providers are recommended to be respectful and take a trauma-informed, non-judgmental approach, using open-ended questions when determining parents'/caregivers' motivations for choosing to bedshare, and address the safety of bedsharing based on their individual circumstances.<sup>(33)</sup> This will enable a tailored approach to messaging and will build a trusting patient-provider relationship.<sup>(10)</sup>

## **Safety Information for Bedsharing**

Share with all families the following bedsharing information, in conjunction with the safe sleep principles, to support a safer sleep environment and protect the breastfeeding relationship. In order of importance<sup>(10)</sup>:

- Bedsharing should never occur on a sofa, armchair, pillow or other unsafe sleep surface.
- Bedsharing should never occur if a parent/ caregiver has used substances that have caused drowsiness.
- When bedsharing, the infant is placed supine for sleep.
- Bedsharing should never occur with a parent/ caregiver who regularly smokes tobacco and/ or has clothing or items that smell of tobacco smoke.
- When bedsharing, ensure the mattress is firm and is on the floor to reduce the risk of falls, and the infant is far away from any pillows and duvets/blankets.
  - Memory foam mattresses, air mattresses and pillow-top mattresses are not recommended, as they may increase the potential for suffocation. (43)

- When bedsharing, ensure there is space around the bed so the infant cannot get trapped between the mattress and the wall.
- When bedsharing, never place an infant to sleep alone in an adult bed.
- When bedsharing, it is strongly encouraged to breastfeed. (18)
- There is a lack of evidence to recommend whether there should be multiple bedsharers (including children or pets) and how the infant should be placed in the bed in the absence of risk factors. Health-care providers should consider families' cultural preferences when providing advice.
- When bedsharing, parents/caregivers who are not breastfeeding the infant should be aware that the infant is in the bed, and should be comfortable with this decision.

## BREASTFEEDING AS A PROTECTIVE FACTOR FOR SUDDEN, UNEXPECTED

**INFANT DEATH DURING SLEEP** 

Breastfeeding is a protective factor for sudden, unexpected infant death during sleep regardless of sleep arrangement.



This includes human milk that is provided directly by breastfeeding or through expressed milk. (11) Breastfeeding offers a protective effect for any duration of time that increases with exclusivity. (44, 45) Breastfeeding helps reduce health inequities, and leads to numerous short and long-term health benefits in the form of reduced risk of chronic illness for both the breastfeeding individual and child. (46) In addition, human milk offers protection from infectious diseases related to sudden, unexpected infant death during sleep. (44)

Newborns should be placed skin-to-skin with the mother/caregiver as soon after birth as possible (at least the first hour), often and without interruption during the first few months. Skin-to-skin contact is safest when the parent, caregiver or support person is awake and alert. Therefore, when this is not possible, it is safest for infants to be placed down on their backs to sleep; this may include a separate (e.g., bassinet) or shared sleep surface, depending on whether there are risk factors present.<sup>(7)</sup>



#### BREASTFEEDING AND BEDSHARING

The literature is mixed regarding the risk of sudden, unexpected infant death during sleep for breastfeeding infants who bedshare. Some research reports an overall risk reduction or no increased risk to the breastfed infant when there is an absence of other risk factors. (47) Other studies suggest an increased risk. However, in contrast, the risk of sudden, unexpected infant death during sleep is increased in the absence of breastfeeding. Recent evidence supports that there is no increased risk for sudden, unexpected infant death during sleep among healthy breastfeeding infants that bedshare in the absence of known risk factors (i.e., breastsleeping (10)). Refer to page 17 for risk factors for bedsharing.

Breastfeeding is a critical factor for safer sleep in the circumstances of bedsharing, likely due to increased

arousability and attunement of the breastfeeding dyad. (10, 49) The increased maternal hormones (primarily prolactin and oxytocin) that are stimulated by the infant's sucking appear to provide a biological basis for the concept of mother's intuition. (10,50) There is also a strong relationship between breastfeeding duration and bedsharing. (51-53) Another protective factor may be related to the position in which most breastfeeding parents/caregivers naturally sleep; facing their infant with their knees drawn up under the infant's feet, and arm above the infant's head (the "C" position). (10,54) This protective position may prevent the infant from moving down under the covers or up under the pillow, protecting from both airway covering and overheating. (10) If the parent/caregiver has never breastfed, it is safer for the infant to sleep on their own sleep surface in the parent's/caregiver's room than to bedshare.

## **EMERGING EVIDENCE**

#### **PACIFIER USE**

Pacifier use was found to be potentially protective against sudden, unexpected infant death during sleep.<sup>(2,30)</sup> However, the physiological reasoning as to why pacifier use is protective is still unknown.<sup>(11)</sup> If a breastfeeding parent/caregiver is considering pacifier use, it is important that the parent/caregiver makes an informed decision by being provided information on the potential benefits and risks. As pacifier use may have negative effects on breastfeeding (e.g., reduced motivation to breastfeed and an association with early weaning),<sup>(7,55)</sup> it is recommended that parents/caregivers only initiate use after breastfeeding is well established (usually around six to eight weeks). It is important to assess breastfeeding effectiveness and ensure adequate support is provided in the early postpartum period. Health-care professionals are encouraged to support parents/caregivers' ability to make informed decisions by having conversations on how to select and safely use pacifiers.





#### **ROUTINE IMMUNIZATIONS**

It is recommended that all infants receive routine immunizations.<sup>(56)</sup> Routine immunizations were found to potentially have a protective effect against sudden, unexpected infant death during sleep, <sup>(7, 11, 16, 57)</sup> but there is a lack of sufficient evidence to suggest a causal relationship.<sup>(7)</sup>

#### **UPPER RESPIRATORY TRACT INFECTION**

There may be a causal relationship between upper respiratory tract infections and the development of sudden, unexpected infant death during sleep.<sup>(11)</sup> However, it is unknown whether sudden, unexpected infant death during sleep is directly caused by infections, or if having upper respiratory tract infections is an exogenous stressor that may affect a vulnerable infant during the critical period of development.<sup>(11)</sup>

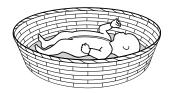
## ALTERNATIVE SAFE SLEEP SURFACES

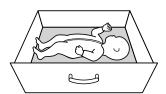
Parents/caregivers may choose to use multiple types of sleeping arrangements for their infants.

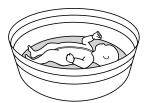


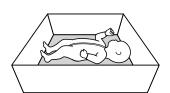
If parents/caregivers decide to use an alternative sleep surface, ensure that the surface is firm, flat and placed on the ground with minimal padding.

A light blanket may be wrapped around a sturdy piece of cardboard to use as a mattress. Health-care providers are advised to ensure surfaces align with safer sleep principles. See Figure 3 for examples of safe alternative sleep surfaces.









#### ▲ Figure 3

Examples of alternative safe sleep surfaces include baskets/bassinets, drawers, washtubs and boxes.

## **DAYTIME SLEEPING**

Infants are safest sleeping near a parent/caregiver in the same room, whether for naps during the day or at night until they are at least six months old. (58) According to one study, sudden, unexpected infant deaths during sleep that occurred during the day were more likely to occur when infants were placed on their side to sleep or were not in the same room as their parent/caregivers. (59) It is suggested that health-care providers have a conversation about sleep principles with parents/caregivers when discussing options for daytime sleep surfaces.

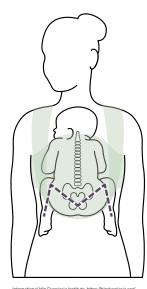
### **SLINGS, CARRIERS AND WRAPS**

There are many benefits of using an infant sling, carrier or wrap: parents/caregivers being able to be hands-free while carrying their infant, parents/caregivers being able to respond to infant's needs quicker, increased breast milk production and infants potentially being able to sleep better due to the closeness with their parent/caregiver. However, slings, carriers and wraps can be harmful to an infant if used incorrectly. Therefore, it is important to provide parents/caregivers with guidance on how to use them as safely as possible. Parents/caregivers should never sleep with infants when they are in a sling, carrier or wrap.

When choosing an infant carrier, it is recommended that health-care providers advise parents/caregivers to choose a carrier that promotes healthy hip positioning. See Figure 4 for the "M" position.

#### Figure 4 ▶

It is recommended that infants, especially those less than six months, be placed in the "M" position: hips and knees bent and spread out naturally to the side with the thighs supported to promote free hip movement.<sup>(59)</sup>



## Safety Information for Slings, Carriers, and Wraps

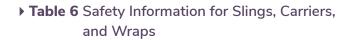
If parents/caregivers decide to use a sling, carrier or wrap during the day, it is recommended to provide them with the TICKS acronym to guide parents/caregivers on how to safely use them<sup>(60, 62)</sup>:

- T tight and close to parent's/ caregiver's body
- I infant's face should be in view at all times with no fabric on their face or head
- close enough to kiss
- K keep infant's chin off their chest

**S** supported back

In addition to TICKS, provide parents/caregivers with the following safety tips if they decide to use slings, carriers, and wraps<sup>(63)</sup>:

- Infants should never be left unattended in a sling, carrier or a wrap.
- Check for wear and tear on the sling, carrier, and wrap prior to use.
- Do not zip up your jacket when using an infant sling, carrier, or wrap, as it may cause infants to overheat.
- Be careful when putting infants in and removing them from slings, carriers, and wraps.
- Be cautious when using infant slings, carriers, or wraps for infants under four months of age.
- Make sure when choosing an infant sling, carrier, or wrap that the infant's face can be seen at all times and that the infant sling or carrier properly fits the parent/ caregiver.





#### MOSS BAGS AND CRADLEBOARDS

Moss bags and cradleboards have been used in Indigenous communities for many generations as a safe surface for infant sleep. <sup>(20)</sup> Infants are placed in moss bags for both warmth and safety and then are securely attached to a cradleboard (board made of cedar or pine bound with leather). <sup>(68)</sup> Cradleboards can be laid flat on a surface, be worn on the back by a parent/caregiver or carried in a parent's/caregiver's arms. <sup>(69)</sup> Cradleboards are used when parents/caregivers are busy with day-to-day chores in order to keep the infant in close sight and hearing distance. Oral tradition (storytelling) shares that when infants were placed in cradleboards, they were cared for and monitored by family members 24 hours per day, whereas today, infants may be more often left alone. If parents/caregivers decide to use a cradleboard, advise them never to leave the infant alone in a cradleboard, to place the cradleboard flat on the ground away from heaters and to avoid leaning it against walls or bookshelves.



#### **INFANT SWINGS AND BOUNCERS**

If parents/caregivers decide to use swings and/or infant bouncers, it is advised to only use them during the day, with a parent/caregiver who remains in the same room for the duration of the nap in order to supervise the infant. (70) It is recommended to use caution for infants under four months of age, as they may have an increased risk of upper airway obstruction and oxygen desaturation in this position. (71) Always follow the manufacturer's recommendations on how to secure the infant.

## PRODUCTS NOT RECOMMENDED FOR SAFE SLEEP

#### CAR SEATS, STROLLERS AND CAR BEDS

It is recommended that infants do not stay in car seats and strollers for extended periods of time or for routine sleep,<sup>(7)</sup> as they may increase risk of airway obstruction and oxygen desaturation.<sup>(64-67)</sup> Once parents/caregivers reach their destination, it is recommended that the infant be transferred onto a safe sleep surface such as a crib or bassinet.<sup>(7,30)</sup> Always follow the manufacturer's recommendations on how to secure the infant. There is currently no evidence on whether car beds are a safe sleep surface for infants. Car beds are child-restraint systems, specifically for small or premature infants, in which infants are laid flat rather than in a semi-reclined position. However, if car beds are used, it is suggested to ensure that the car bed complies with safer sleep recommendations (i.e., infant on their back, no pillows and no heavy blankets or toys/stuffed animals in the sleep space).

#### PLAYPENS, HAMMOCKS AND BABY NESTS/PODS

Playpens are not a safe sleep surface for infants as there are risks of entrapment or the playpen collapsing. <sup>(29)</sup> If parents/caregivers use playpens as a temporary sleep surface (e.g. when travelling), it is recommended to follow manufacturer's instructions, remove any soft bedding, toys, or extra padding, and ensure the sleep environment by the play pen has no strangulation risks (e.g. corded window coverings or electrical cords). <sup>(7)</sup> Hammocks are not a safe sleep surface for infants, as there are risks of strangling, entrapment or falling, which may cause serious or fatal injuries. <sup>(30)</sup> Baby nests/pods are not recommended and have been recalled by Health Canada due to suffocation risks. <sup>(72)</sup>

#### **HOMEMONITORING PRODUCTS**

The use of home monitors to check infant's breathing, heart rate, and movement does not reduce the risk of sudden, unexpected infant death syndrome. Instead, it is recommended to follow the safe sleep principles and avoid any exogenous stressors to reduce the risk of sudden, unexpected infant death during sleep.<sup>(7)</sup>

## **MULTIPLES**

Multiples are at an increased risk for sudden, unexpected infant death during sleep as they are likely to have low birth weights and be born premature, which are risk factors for sudden, unexpected infant death during sleep. <sup>(58)</sup> It is safest that multiples have separate cribs/cots for the first six months, if possible, to reduce risks of suffocation. <sup>(7, 26)</sup> If separate sleep surfaces are not possible, place infants side to side or head to head. <sup>(73)</sup> Advise parents/caregivers to avoid co-bedding in a small bassinet or basket. <sup>(58)</sup> When one infant is able to roll over, separate cribs/cots are recommended. <sup>(26)</sup> See Figure 5 for safe sleep positions for multiples.







#### ▲ Figure 5

It is safest that multiples have separate cribs/cots. If separate sleep surfaces are not possible, place infants side to side or head to head.

## **SWADDLING**

Despite previous understanding that swaddling is useful for encouraging the use of the supine position, there is currently no evidence to suggest that swaddling reduces the risk of sudden, unexpected infant death during sleep. Swaddling may increase the risk of overheating, which may put the infant at higher risk for sudden, unexpected infant death during sleep, (7) chest infections and development/exacerbation of hip dysplasia. (74, 75) Routine swaddling in the early hours and days after birth can lead to less breastfeeding, which is associated with greater weight loss, more

jaundice and delay in milk production.<sup>(76,77)</sup> Some populations, such as preterm and substance-exposed newborns, may require swaddling as part of developmentally appropriate care.<sup>(78-81)</sup> However, the practice of swaddling is recommended to be discontinued prior to hospital discharge, due to the increased association with a higher risk of sudden, unexpected infant death during sleep. Health-care providers are encouraged to have open discussions with parents/caregivers about swaddling their infants to empower families to make informed decisions that meet their cultural preferences, values and needs.

## Safety Information for Swaddling

For families who have made the informed decision to swaddle, for cultural or other reasons, offer them the following information on how to practice "safe swaddling":

- Swaddle your infant from the shoulder down not over the face, and ensure hands and arms are free. (82)
- Swaddle so that you can fit two fingers between the blanket and your infant's chest. (82)
- If swaddling, use a light blanket and monitor for sweating. If infant is sweating they may be overheated and it is suggested to remove the swaddle. (26,82)
- Ensure your infant can still move their legs. (26,82)
- Stop swaddling after two to three months or once your infant shows signs of rolling over or is able to move the blanket themselves. (7, 26,82) Swaddle only when a parent/caregiver is watching an infant to protect them from rolling over.
- Avoid swaddling your infant if they resist. (26)
- Unbundle your infant during feedings, as swaddling prevents an infant from shifting their position as conditions change. (83)



Illustration based on image from: International Hip Dysplasia Institute

#### **BLANKETS AND SLEEP SACKS**

Infants do not need blankets when they sleep. Blankets can cause them to overheat or suffocate. When using commercial sleeping products (e.g., sleep sacks or pyjamas), ensure the infant's head remains uncovered, all fasteners are secure to avoid risk of entrapment and blankets are not used. (84) If using a sleep sack choose a light weight one that is appropriately sized for the infant's weight and fits properly around the neck and armholes. If the sleep sack is too large or loose, it could strangle or suffocate the infant. (11) Choose a lightweight sleep sack to reduce the risk of overheating. (84) If a sleep sack is used, a blanket is not needed. (7)

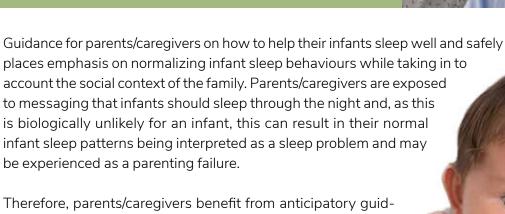
## CONSIDERATIONS FOR INDIGENOUS FAMILIES

Indigenous infants are disproportionately impacted by sudden, unexpected infant death during sleep. Between 2013 and 2018, 31 per cent of infants who died suddenly and unexpectedly in their sleep in BC were Indigenous. (30) The reason for this high percentage of cases may be due to structural inequities faced by Indigenous communities, such as poverty and lack of access to prenatal care, as well as higher rates of commercial tobacco use among women and pregnant individuals. (20) In addition, the historical context of Indigenous Peoples and the trauma and loss they have experienced may explain why Indigenous infants account for a large proportion of sudden, unexpected infant death during sleep cases. (85) However, Indigenous Peoples are strong and resilient and, therefore, health-care providers should focus on their strengths to promote positive health outcomes among Indigenous infants. This may include asking about their traditional values, beliefs and practices, and taking a culturally safe and trauma-informed approach to discussing how to incorporate them, while still aligning with the safer sleep principles. For example, in Indigenous culture, parents/caregivers traditionally attempt to mimic the feeling of being in the mother's womb for the infant by engaging in specific infant sleep practices that provide the infant comfort, such as the use of cradleboards, carriers and swaddling. Currently, there is a lack of research that takes a Two-Eyed Seeing Approach in regards to these cultural practices. The concept of Two-Eyed seeing was introduced by Mi'kmaq Elder Albert Marshall which means, "To see from one eye with the strengths of Indigenous ways of knowing, and to see from the other eye with the strengths of Western ways of knowing, and to use both of these eyes together." Two-Eyed seeing combines the Western evidence-based approach of best practices with the Indigenous knowledge and experience of wise practices. (86) Discuss these practices with Indigenous Peoples and provide support on how to continue to use these practices while following the safer sleep principles.

- "As Indigenous people, the babies are everything to us. It's our hope for the future." (87 p1)
- Laurie Jacobs,
   Aboriginal Midwife
- "Aboriginal people have had multiple losses, which still have an effect on the health of our communities. The effects of these losses of land, culture, community and spirituality have been seen and felt down through the generations. The effects of these losses help us understand why Aboriginal babies may be exposed to more of the "risk factors" for sudden infant death." (20 p2)
- First Nations Health Authority

## HEALTHY SLEEP DEVELOPMENT FOR INFANTS

Sleep is a critical part of infants' growth and development, including their physical health and emotional well-being, and is embedded in a system of behavioural, familial and cultural contexts.



Therefore, parents/caregivers benefit from anticipatory grance in the prenatal period on infant sleep. Without appropriate information and support, infant night wakening may negatively affect the health and well-being of parents/caregivers, including maternal stress and symptoms of depression, <sup>(68)</sup> poorer self-reported health <sup>(68)</sup> and poorer paternal health and symptoms of depression. <sup>(69)</sup> Refer to the infant sleep discussion guide on page 32 on how to have discussions with parents/caregivers on infant sleep.



## INFANT SLEEP DISCUSSION GUIDE

## Support for discussing infant sleep practices with parents/caregivers:

- Build relationships to create opportunities for open and non-judgmental conversations about infant sleep practices with parents/caregivers.
- Ask parents/caregivers if their infant will have any other caregivers, and encourage them to invite alternate caregivers to join the conversation.
- Begin the conversation by asking parents/caregivers about their parental goals, daily schedules, cultural experiences and family background. Then, ask them what they know about infant sleep.<sup>(88)</sup>
  - Where will your infant sleep?
  - What have you heard about keeping your infant safe while they sleep?
  - What would you like to know about keeping your infant safe while they sleep?
  - Do you have family/extended family or friends who can support you?
- Respect and acknowledge parents'/caregivers' goals and influences, and help facilitate a connection between infant's needs and parent/caregiver goals. (88)
- Engage parents/caregivers in a balanced conversation about the risks and benefits of different infant sleep practices while acknowledging their social and cultural context in order for them to make an informed decision.
- Help parents/caregivers to set realistic expectations and focus on the positive aspects of infant sleep (e.g., infant falling asleep, bonding and attachment, infant soothing) rather than negative aspects. (88)
- Work collaboratively with parents/caregivers to create a tailored infant sleep plan that is age appropriate and meets their family's needs in order to increase their confidence and self-efficacy.

When discussing safer infant sleep and healthy sleep development with parents/caregivers, consider providing them with information on infant sleep behaviours in the first year and strategies to increase parents'/caregivers' mental health and well-being.

## Information on infant sleep behaviours in the first year

- Infant sleep is fairly evenly distributed between day and night, and occurs in two to three hour sleep cycles. (89)
- The infant circadian rhythm develops over the first four to five months of life, and sleep gradually becomes concentrated.<sup>(90)</sup>
- Night wakings are a normal component of infant sleep and a response to their need to feed frequently. (88) It is important for parents/ caregivers not to worry if their infant is not getting deep sleeps (i.e., when an infant is not easily aroused) as this is considered part of the normal evolving sleep cycle for infants. Infants who are conditioned to sleep for long periods of time have reduced frequency of breastfeeding and may be associated with being at increased risk for sudden, unexpected infant death during sleep due to their inability to be aroused. (91) Infants cannot differentiate between day sleeping and night sleeping as they lack a mature circadian rhythm. Therefore, recommend that parents/caregivers respond to wakings consistently to help reduce infants' fear and stress responses.(88)
- Conditioning infants not to cry when falling asleep may make breastfeeding more difficult and early weaning more likely to occur, (51) and may cause their cortisol levels to remain high. (92)
- The ability to go to sleep and return to sleep depends on an infant's ability to regulate and self-soothe, which takes time to develop. Therefore, they may need parents'/caregivers' help when they are young to comfort them and calm them down.<sup>(93)</sup>

- In many instances, infants do not sleep all night and every night until they are at least one year old. (94)
- The type of infant feeding method does not have an effect on an infant's total sleep duration. (95)

## Strategies to improve parents'/ caregivers' health and well-being (NEST-S)

- Nutrition: Eat healthy food and drink enough fluids. (96, 97)
- Exercise: Engage in physical activity. (26, 97)
- Sleep and rest: Sleep when your infant sleeps. (96, 97)
- Time for yourself: Take breaks for yourself, such as reading, walking and practicing mindfulness techniques. (26,97)
- Support: Reach out to a social support network for help (e.g., partner, family, friends). (26,97)

## For parents /caregivers expressing a need for additional support related to their infant's sleep (infants over six months old) the following suggestions could be shared:

- Make the room quiet and dark when putting the infant to sleep. (98, 99)
- Place the infant on a safe sleep surface when they are drowsy, not sleeping. (98)
- Hold the infant's hand while they lie down and slowly, over time, reduce contact. (98)
- Try breastfeeding/feeding the infant at the start of the bedtime routine. (98)
- Be consistent with bedtime routine; this include naps and at night. Parents/caregivers may want to use the following routine: bath, book, bed.<sup>(99)</sup>
- Comfort the infant by stroking their forehead if they start to cry. (99)

#### COMMERCIAL SLEEP-TRAINING PROGRAMS

Health-care providers are encouraged to discuss healthy sleep development with parents/caregivers who are considering using commercial sleep-training programs. It is important for health-care providers to consider the age of the infant when discussing the risks and benefits of sleep-training programs. Engage parents/caregivers in the informed shared decision-making process by providing them with the following information if they are considering using a commercial sleep-training program.

### General information on sleep training:

- Sleep training aims to increase the length of time infants sleep through the night without disturbance. (100)
- Sleep-training methods can either be preventative or therapeutic (i.e., to remedy existing sleep problems). (100)
- Examples of sleep-training methods include controlled crying, cry it out, gradual withdrawal and scheduled awakening. (100)
- There are no endorsed or regulated sleeptraining programs, and there is no regulation or licensing process to become a sleep trainer.
- Crying is a normal attachment-seeking behaviour; infants who are trained to be quiet may realize that crying will not elicit a response, and, therefore, will not provide a signal when they are in pain or need attention. (101)

#### For infants less than six months of age:

- There is no evidence that sleep-training programs are safe for infants less than six months of age.
- Commercial sleep-training programs try to create schedules for crying, sleep, being awake and feeding, which often does not align with the biological norms of infant sleep behaviour for infants less than six months of age.
- Commercial sleep-training programs often go against the safer sleep recommendation to room share before six months, and instead advocate for solitary sleep for infants.<sup>(7)</sup>
- Deep sleep during the first six months may affect feeding, as it reduces frequency of breastfeeding. (100)

## For infants more than six months of age:

- There may be a role for sleep training in infants that are more than six months of age; however, there is currently a lack of research to determine if the benefits outweigh the risks.
- The majority of sleep-training studies for infants six months or older report altering infants' behaviour and yielding positive outcomes such as increased infant sleep, increased maternal sleep, decreased infant night awakenings, etc.<sup>(100)</sup>
- There are few studies that have investigated the long-term effects of sleep training on infants' and children's sleep.<sup>(100)</sup>
- Parental attention and synchrony of care has shown to be positive for children's physical and emotional development<sup>(102)</sup> and sleep training may affect this connection.

While remaining open to parents'/caregivers' choices and cultures, health-care providers could suggest alternative solutions to commercial sleep training programs which may include the following: creating routines, asking family or friends to watch over their infant if they feel overwhelmed and/or are not getting enough rest, mindfulness exercises and deep-breathing techniques. (97, 103) This is especially important for parents/caregivers with mental-health concerns, as they may have increased difficulties adapting to their infant's sleep patterns, and may require extra support to alleviate their distress. If parents/caregivers make the informed choice to use a commercial sleep-training program, it is suggested to follow up with parents/caregivers at each visit to assess how the infant is progressing through the program, and continue to provide suggestions for making the infant's sleep as safe as possible.

### **ADDITIONAL RESOURCES FOR HEALTH-CARE PROVIDERS**

BC Women's Hospital and Health Centre: Reproductive Mental Health <a href="https://reproductivementalhealth.ca/">https://reproductivementalhealth.ca/</a>

Canadian Paediatric Society: Relationships matter: How clinicians can support positive parenting in the early years

https://www.cps.ca/en/documents/position/positive-parenting

Canadian Paediatric Society: Safe sleep for babies <a href="https://www.caringforkids.cps.ca/handouts/safe\_sleep\_for\_babies">https://www.caringforkids.cps.ca/handouts/safe\_sleep\_for\_babies</a>

First Nations Health Authority: Honouring our Babies Toolkit: Safe Sleep <a href="https://www.fnha.ca/WellnessSite/WellnessDocuments/FNHA-Honouring-Our-Babies-Summary.pdf">https://www.fnha.ca/WellnessSite/WellnessDocuments/FNHA-Honouring-Our-Babies-Summary.pdf</a>

Perinatal Services BC: Honouring Indigenous Women's and Families' Pregnancy Journeys <a href="http://www.perinatalservicesbc.ca/Documents/Resources/Honouring\_Indigenous\_Womens\_and\_Families\_Pregnancy\_Journeys.pdf">http://www.perinatalservicesbc.ca/Documents/Resources/Honouring\_Indigenous\_Womens\_and\_Families\_Pregnancy\_Journeys.pdf</a>

Public Health Agency of Canada: Joint Statement on Safe Sleep <a href="https://www.canada.ca/en/public-health/services/health-promotion/childhood-adolescence/stages-childhood/infancy-birth-two-years/safe-sleep/joint-statement-on-safe-sleep.html">https://www.canada.ca/en/public-health/services/health-promotion/childhood-adolescence/stages-childhood/infancy-birth-two-years/safe-sleep/joint-statement-on-safe-sleep.html</a>

# RESOURCES TO SHARE WITH PARENTS/ CAREGIVERS

First Nations Health Authority: Honouring our Babies Toolkit: Safe Sleep

 $\underline{\text{https://www.fnha.ca/WellnessSite/WellnessDocuments/FNHA-Honouring-Our-Babies-Summary.pdf}}$ 

HealthLink BC: Managing Postpartum Depression

https://www.healthlinkbc.ca/pregnancy-parenting/parenting-babies-0-12-months/new-parents/depression-managing-postpartum

HealthLink BC: Baby's Best Chance

https://www.healthlinkbc.ca/pregnancy-parenting/babys-best-chance

HealthLink BC: Postpartum Depression

https://www.healthlinkbc.ca/pregnancy-parenting/labour-and-birth/after-labour-and-care-new-moms/postpartum-depression

HealthLink BC: Safer Sleep for My Baby

 $\frac{\text{https://www.healthlinkbc.ca/pregnancy-parenting/parenting-babies-0-12-months/baby-safety/safer-sleep-my-baby}{}$ 

National Center on Shaken Baby Syndrome: The Period of Purple Crying

http://www.purplecrying.info/

Pacific Post Partum Support Society

http://postpartum.org/

Public Health Agency of Canada: Safe Sleep for Your Baby

https://www.canada.ca/content/dam/phac-aspc/documents/services/health-promotion/childhood-adolescence/stages-childhood/infancy-birth-two-years/safe-sleep/safe-sleep-your-baby-brochure/safe-sleep.pdf

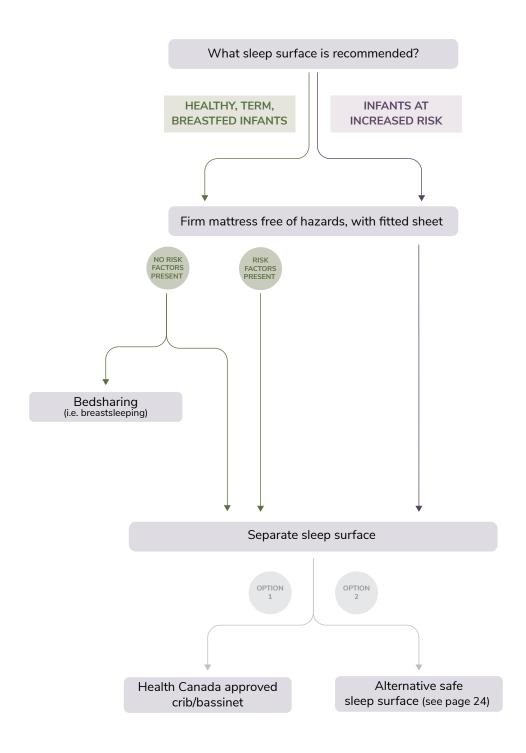
The BC Reproductive Mental Health Program: Coping with anxiety during pregnancy and following the birth

https://reproductivementalhealth.ca/sites/default/files/uploads/resources/files/bcrmh\_anxietyguide\_final\_whole\_document.pdf

# **APPENDIX A:**

### SAFE SLEEP SURFACE DECISION AID FOR HEALTH-CARE PROVIDERS

Health-care providers are encouraged to use the safe sleep decision aid in conjunction with the safer sleep principles to engage parents/caregivers in shared informed decision making regarding their infant's sleep surface.



# **CONTRIBUTORS**

### The work of this resource was led by

Christina Tonella, Provincial Director, Prevention and Primary Care

Kristina Kattapuram, Project Coordinator, Prevention and Primary Care

Lea Geiger, Provincial Coordinator, Baby-Friendly Initiative

Lisa Sutherland, Midwifery Lead

Lucy Barney, Provincial Indigenous Lead

# Perinatal Services BC is grateful to the project team who reviewed this work:

Ann Pederson, Interim Executive Director

Dr. Ellen Giesbrecht, Interim Provincial Medical Director

Jola Berkman, Neonatal Care Coordinator

Robert Finch. Executive Director

Taslin Janmohamed-Velani, Knowledge Translation Coordinator

Perinatal Services BC is also grateful to the following individuals who contributed to the development of this practice resource:

### **BC CORONERS SERVICE**

Dean Campbell, Coroner/Specialized Investigations and Death Review Unit

### BC CHILDREN'S HOSPITAL

Dr. Gilbert Lam. Pediatrician

Dr. Kishore Mulpuri, Pediatric Orthopedic Surgeon

### **BC WOMEN'S HOSPITAL**

Dr. Michael Castaldo, Neonatologist

# BRITISH COLUMBIA LACTATION CONSULTANTS ASSOCIATION

Tina Revai. Director

### **BC MINISTRY OF HEALTH**

Chandra Berkan Hozempa, Policy Analyst, Women's, Maternal and Early Childhood Health

Erin Price, Manager, Women and Maternal Health



### **HEALTH AUTHORITIES**

### **First Nations Health Authority**

Barbara Webster, Clinical Nurse Specialist, Maternal Child/Early Childhood

### **Fraser Health Authority**

Melinda Dominak, Baby Friendly Initiative Project Lead

Michelle Urbina-Beggs, Clinical Nurse Specialist, Population and Public Health

### **Interior Health Authority**

Joanne Smrek, Program Specialist, Healthy Start

Rhonda Tomaszewski, Program Specialist, Healthy Start

Tanya Momtazian, Registered Midwife

### **Northern Health Authority**

Martina Irvine, Regional Clinical Nurse Educator-NICU

Randi Parsons, Regional Nursing Lead: Maternal Infant

# Providence Health Care and Vancouver Coastal Health

Dr. Brenda Wagner, Program Medical Director, Maternity

### **Vancouver Coastal Health**

Meagan Coman, Regional Practice Initiatives Lead, Prevention Services, Public Health

### **Vancouver Island Health Authority**

Dr. Teresa Wilson, Family Physician, Comox

## REFERENCES

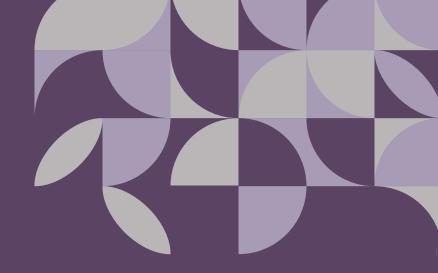
- 1. Perinatal Service BC. Safer Infant Sleep Practice Resource Feedback. Vancouver BC: Perinatal Services BC; 2021.
- 2. British Columbia Coroners Service. Sleeping Safely: A BC Coroners Service Death Review Panel report examining death among infants (2013-2018). British Columbia: Government of BC; 2019. 39 p.
- 3. Trachtenberg FL, Haas EA, Kinney HC, Stanley C, Krous HF. Risk Factor Changes for Sudden Infant Death Syndrome After Initiation of Back-to-Sleep Campaign. Pediatrics. 2012;129(4):630-8.
- 4. Fleming PJ, Blair PS, Pease A. Sudden unexpected death in infancy: aetiology, pathophysiology, epidemiology and prevention in 2015. Arch Dis Child. 2015;100(10):984-8.
- 5. Baby Sleep Info Source [Internet]. Durham, UK: Baby Sleep Info Source; 2020. The Triple Risk Model; 2020 [cited 2020 Dec 4]; [SIDS and Safety]. Available from: <a href="https://www.basisonline.org.uk/hcp-the-triple-risk-model/">https://www.basisonline.org.uk/hcp-the-triple-risk-model/</a>
- 6. Williams RC, Biscaro A, Clinton J. Relationships matter: how clinicians can support positive parenting in the early years. Pead Child Health. 2019;24(5):340-7.
- 7. Moon RY. SIDS and Other Sleep-Related Infant Deaths: Evidence Base for 2016 Updated Recommendations for a Safe Infant Sleeping Environment. Pediatrics. 2016;138(5).
- 8. Perinatal Services BC. Health Promotion Guideline 1: Safe Sleep Environment Guideline for Infants 0 to 12 Months of Age. Vancouver, BC: Perinatal Services BC; 2011.
- 9. Government of Canada. Joint Statement on Safe Sleep: Reducing Sudden Infant Deaths in Canada. Canada: 2021. 12p.
- 10. Blair PS, Ball HL, McKenna JJ, Feldman-Winter L, Marinelli KA, Bartick CB, et al.. Bedsharing and Breastfeeding: The Academy of Breastfeeding Medicine Protocol #6, Revision 2019. Breastfeed Med. 2020;15(1):5-16.
- 11. Moon RY. Infant Safe Sleep: A Pocket Guide for Clinicians. Springer; 2020.
- 12. Ministry of Health BC. Safer Sleep for My Baby. Vancouver, BC: Ministry of Health BC; 2020.
- 13. Towle A, Greenhalgh T, Gambrill J, Godolphin WJB. Framework for teaching and learning informed shared decision making Commentary: Competencies for informed shared decision making Commentary: Proposals based on too many assumptions. BMJ. 1999;319(7212):766-71.
- 14. Statistics Canada [Internet] Ottawa, Ontario: Statistics Canada; 2020 Nov 26. Table 13-10-0395-01 Leading causes of death, infants; 2021 July 7 [2021 July 7]; [Data]. Available from: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310039501
- 15. Statistics Canada. Circumstances surrounding sudden and unexpected sleep-related infant deaths, 2015-2020. Canada: 2021. 7p.
- 16. Registered Nurses' Association of Ontario. Working with Families to Promote Safe Sleep for Infants 0-12 Months of Age. Toronto, Ontario: Registered Nurses' Association of Ontario; 2014.
- 17. Public Health Agency of Canada. Key Health Inequalities in Canada: A National Portrait. Ottawa: Public Health Agency of Canada; 2018
- 18. Duncan JR, Byard RW. SIDS Sudden infant and early childhood death: The past, the present and the future. Adelaide: University of Adelaide Press; 2018. 830 p.
- 19. Newberry JA. Creating a Safe Sleep Environment for the Infant: What the Pediatric Nurse Needs to Know. J of Ped Nurs. 2019;44:119-22.
- 20. First Nations Health Authority. Honouring our Babies-Safe Sleep Cards. Vancouver, BC:First Nations Health Authority; 2013.
- 21. Filiano JJ, Kinney HC. A perspective on neuropathologic findings in victims of the sudden infant death syndrome: the triple-risk model. Biol Neonate. 1994;65(3-4):194-7.
- 22. Friedmann I, Dahdouh EM, Kugler P, Mimran G, Balayla J.Maternal and obstetrical predictors of sudden infant death syndrome (SIDS). J Matern Fetal Neonatal Med. 2017;30(19):2315-23.

- 23. Mitchell EA, Thompson JM, Zuccollo J, MacFarlane M, Taylor B, Elder D, et al. The combination of bedsharing and maternal smoking leads to a greatly increased risk of sudden unexpected death in infancy: the New Zealand Nationwide SUDI case control study. NZ Med J. 2017;130(1456):52-64.
- 24. Strandberg-Larsen K, Grønbæk M, Andersen A-MN, Andersen PK, Olsen J. Alcohol drinking pattern during pregnancy and risk of infant mortality. Epidemiology. 2009;20(6):884-91.
- 25. O'Leary CM, Jacoby PJ, Bartu A, D'Antoine H, Bower C. Maternal alcohol use and sudden infant death syndrome and infant mortality excluding SIDS. Pediatrics. 2013;131(3):e770-e8.
- 26. Best Start. Sleep Well, Sleep Safe. Ontario: Health Nexus; 2019.
- 27. Lee SY, Sirieix CM, Nattie E, Li A. Pre-and early postnatal nicotine exposure exacerbates autoresuscitation failure in serotonin-deficient rat neonates. J Physiol. 2018;596(23):5977-91.
- 28. Yafai SJ. The Case for Cannabis: Is There a Future for Cannabis Use in Pregnancy? Emergency Medicine News. 2020;42(3A).
- 29. Caring For Kids [Internet] Ottawa, Ont: Canadian Pediatric Society; 2016. Safe Sleep for Babies Caring for Kids; 2016 [cited 2021 June 10]; [Pregnancy and Babies]. Available from: <a href="https://www.caringforkids.cps.ca/handouts/safe\_sleep\_for\_babies">https://www.caringforkids.cps.ca/handouts/safe\_sleep\_for\_babies</a>.
- 30. Canadian Paediatric Society, Canadian Foundation for the Study of Infant Dealths, Canadian Institute of Child Health, Health Canada, Public Health Agency of Canada. Joint Statement on Safe Sleep: Preventing Sudden Infant Deaths in Canada. [Internet] Government of Canada; 2018 [cited 2020 Oct 12]. Available from: <a href="https://www.canada.ca/content/dam/phac-aspc/migration/phac-aspc/hp-ps/dca-dea/stages-etapes/childhood-enfance\_0-2/sids/pdf/jsss-ecss2011-eng.pdf">https://www.canada.ca/content/dam/phac-aspc/migration/phac-aspc/hp-ps/dca-dea/stages-etapes/childhood-enfance\_0-2/sids/pdf/jsss-ecss2011-eng.pdf</a>
- 31. International Childbirth Education Association. Safe Infant Sleep. North Carolina, U.S: International Childbirth Education Association; 2020. 10 p.
- 32. Cummings C, Canadian Paediatric Society, Community Paediatrics Committee. Positional plagiocephaly. Paed Child Health. 2011;16(8):493-4.
- 33. Ward TCS. Reasons for mother–infant bed-sharing: A systematic narrative synthesis of the literature and implications for future research. Matern Child Health J. 2015;19(3):675-90.
- 34. Fleming PJ, Vennemann MJ, Moon RY, Kiechl-Kohlendorfer U, Hauck FR, Byard RW, et al. Sofa-sharing: A meta-analysis. International Conference on Stillbirth, SIDS and Infant Survival; 4-7 October; Baltimore, Maryland. 2012.
- 35. Government of Canada. Is Your Child Safe? Sleep Time. Ottawa, Ontario: Government of Canada; 2012.
- 36. Wanna-Nakamura S. Infant Sleep Positioning Products and Wedges. Bethesda MD: US Consumer Product Safety Commission; 2009
- 37. Blair PS, Sidebotham P, Pease A, Fleming PJ. Bed-sharing in the absence of hazardous circumstances: is there a risk of sudden infant death syndrome? An analysis from two case-control studies conducted in the UK. PLoS One. 2014;9(9):e107799.
- 38. Gilmour H, Ramage-Morin PL, Wong SL. Infant bed sharing in Canada. Health Reports 82-003-X. 2019;30(7):13-9.
- 39. Critch JN, Canadian Paediatric Society, Nutrition and Gastroenterology Committee. Nutrition for healthy term infants, six to 24 months: An overview. Paed Child Health. 2014;19(10):547.
- 40. Kendall–Tackett K, Cong Z, Hale TW. Mother–Infant Sleep Locations and Nighttime Feeding Behavior: US Data from the Survey of Mothers' Sleep and Fatigue. Clinical Lactation. 2010;1(1):27-31.
- 41. Unicef UK Baby Friendly Initiative, The Lullaby Trust, Public Health England, Baby Sleep Info Source. Safer Sleep: saving babies lives a guide for professionals. Baby Sleep Info Source: Durham, UK; 2019.
- 42. Bartick M, Smith LJ. Speaking out on safe sleep: evidence-based infant sleep recommendations. Breastfeed Med. 2014;9(9):417-22.
- 43. Doering JJ, Salm Ward TC. The interface among poverty, air mattress industry trends, policy, and infant safety. Am J Public Health. 2017;107(6):945-9.

- 44. Thompson JMD, Tanabe K, Moon RY, Mitchell EA, McGarvey C, Tappin D, et al. Duration of breastfeeding and risk of SIDS: an individual participant data meta-analysis. Pediatrics. 2017;140(5):e20171324.
- 45. Stuebe A. The Risks of Not Breastfeeding for Mothers and Infants. Rev Obstet Gynecol. 2009;2(4):222.
- 46. Victora CG, Bahl R, Barros AJ, França GV, Horton S, Krasevec J, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. Lancet. 2016;387(10017):475-90.
- 47. Blair PS, Sidebotham P, Evason-Coombe C, Edmonds M, Heckstall-Smith EM, Fleming P. Hazardous cosleeping environments and risk factors amenable to change: case-control study of SIDS in south west England. BMJ. 2009;339:b3666.
- 48. Carpenter R, McGarvey C, Mitchell EA, Tappin DM, Vennemann MM, Smuk M, et al. Bed sharing when parents do not smoke: is there a risk of SIDS? An individual level analysis of five major case—control studies. BMJ. 2013;3(5):e002299.
- 49. Vennemann M, Bajanowski T, Brinkmann B, Jorch G, Yucesan K, Sauerland C, et al.Does breastfeeding reduce the risk of sudden infant death syndrome? Pediatrics. 2009;123(3):e406-e10.
- 50. Marinelli KA, Ball HL, McKenna JJ, Blair PS. An integrated analysis of maternal-infant sleep, breastfeeding, and sudden infant death syndrome research supporting a balanced discourse. J Hum Lact. 2019;35(3):510-20.
- 51. Ball HL. Breastfeeding, bed-sharing, and infant sleep. Jour Birth. 2003;30(3):181-8.
- 52. McKenna JJ, Mosko SS, Richard CA. Bedsharing promotes breastfeeding. Pediatrics. 1997;100(2):214-9.
- 53. Baddock SA, Galland BC, Bolton DP, Williams SM, Taylor BJ. Differences in infant and parent behaviors during routine bed sharing compared with cot sleeping in the home setting. Pediatrics. 2006;117(5):1599-607.
- 54. Ball H, Blair PS. Health Professionals' Guide to: 'Caring for your Baby at Night'. London, UK: Unicef UK; 2017. 12 p.
- 55. Ponti M, Canadian Paediatric Society, Community Paediatrics Committee. Recommendations for the use of pacifiers. Paediatr Child Health. 2003;8(8):515-9.
- 56. Caring for Kids [Internet]. Ottawa, ON: Canadian Paediatric Society; 2020. Vaccination and your child; 2020 [cited 2020 Oct 5]; [Immunization]. Available from: <a href="https://www.caringforkids.cps.ca/handouts/vaccination\_and\_your\_child#:~:text=Here%20is%20">https://www.caringforkids.cps.ca/handouts/vaccination\_and\_your\_child#:~:text=Here%20is%20</a> what%20the%20Canadian,%2C%20polio%2C%20and%20Hib%20disease.
- 57. Mayo Clinic[Internet]. Minnesota, USA: Mayo Clinic; 2020. Sudden Infant Death Syndrome (SIDS); 2020 [cited 2020 November 1]:[Diseases & Conditions]. Available from: <a href="https://www.mayoclinic.org/diseases-conditions/sudden-infant-death-syndrome/symptoms-causes/syc-20352800">https://www.mayoclinic.org/diseases-conditions/sudden-infant-death-syndrome/symptoms-causes/syc-20352800</a>.
- 58. Baby Sleep Info Source [Internet]. Durham, UK: Baby Sleep Info Source; 2020. How Twins Co-Bed; 2020 [cited 2020 Oct 14]; [Baby sleep info]. Available from: <a href="https://www.basisonline.org.uk/how-twins-co-bed/">https://www.basisonline.org.uk/how-twins-co-bed/</a>.
- 59. Blair PS, Platt MW, Smith IJ, Fleming PJ, CESDI SUDI Research Group. Sudden Infant Death Syndrome and the time of death: factors associated with night-time and day-time deaths. Internat J Epidem. 2006;35(6):1563-9.
- 60. Baby Sleep Info Source[Internet]. Durham, UK: Baby Sleep Info Source; 2020. Using a Sling for Daytime Sleep; 2020 [cited 2020 Nov 1]; [Baby sleep info]. Available from: <a href="https://www.basisonline.org.uk/using-a-sling-for-daytime-sleep/">https://www.basisonline.org.uk/using-a-sling-for-daytime-sleep/</a>.
- 61. International Hip Dysplasia Institute[Internet]. Floria, USA: International Hip Dysplasia; 2021. Baby Carriers and Other Equipment; 2021 [cited 2021 Mar 14]; [Baby Carriers and Other Equipment]. Available from: <a href="https://hipdysplasia.org/baby-carriers-other-equipment/">https://hipdysplasia.org/baby-carriers-other-equipment/</a>.
- 62. Queensland Government [Internet]. Queensland, Australia: Queensland Government; 2020. Baby Slings; 2020 Dec 2 [cited 2020 Dec 12]; [Baby products]. Available from: <a href="https://www.qld.gov.au/law/your-rights/consumer-rights-complaints-and-scams/product-safety-for-consumers/safety-advice-and-warnings/baby-products/baby-slings">https://www.qld.gov.au/law/your-rights/consumer-rights-complaints-and-scams/product-safety-for-consumers/safety-advice-and-warnings/baby-products/baby-slings</a>.
- 63. Government of Canada [Internet]. Ottawa, Ontario: Government of Canada; 2021. Baby sling and carrier safety; 2014 May 2 [cited 2020 Dec 1]; [Infant care]. Available from: <a href="https://www.canada.ca/en/health-canada/services/infant-care/baby-slings-carriers.html">https://www.canada.ca/en/health-canada/services/infant-care/baby-slings-carriers.html</a>.
- 64. Bass JL, Bull M. Oxygen desaturation in term infants in car safety seats. Jour Ped. 2002;110(2):401-2.
- 65. Kornhauser Cerar L, Scirica CV, Stucin Gantar I, Osredkar D, Neubauer D, Kinane TB. A comparison of respiratory patterns in healthy term infants placed in car safety seats and beds. Pediatrics. 2009;124(3):e396-402.
- 66. Côté A, Bairam A, Deschenes M, Hatzakis G. Sudden infant deaths in sitting devices. Arch Dis Child. 2008;93(5):384-9.

- 67. Merchant JR, Worwa C, Porter S, Coleman JM, Deregnier R-AO. Respiratory instability of term and near-term healthy newborn infants in car safety seats. Pediatrics. 2001;108(3):647-52.
- 68. National Aboriginal Council of Midwives. Stories and teachings about infant care. Montreal, Quebec: National Aboriginal Council of Midwives; 2017.
- 69. Main M. Safer Sleep: An Overview of Bed-Sharing Alternatives[Internet] Washington: University of Washington School of Public Health; 2018[cited 2020 Nov 7]. Available from: <a href="https://depts.washington.edu/nwbfch/safer-sleep-bed-sharing">https://depts.washington.edu/nwbfch/safer-sleep-bed-sharing</a>.
- 70. Traditional Native Healing [Internet]. British Columbia, Canada: Word Press; 2015. Native American baby swing: greatest tradition ever; 2015 Dec 14 [cited 2020 Nov 1]; [Native American baby swing: greatest tradition ever]. Available from: <a href="https://traditionalnativehealing.com/native-american-baby-swing-greatest-tradition-ever">https://traditionalnativehealing.com/native-american-baby-swing-greatest-tradition-ever</a>.
- 71. Maged M, Rizzolo D. Preventing sudden infant death syndrome and other sleep-related infant deaths. JAAPA. 2018;31(11):25-30.
- 72. Government of Canada [Internet]. Ottawa, Ontario: Governemnt of Canada; 2020. Consumer Product Update: Health Canada warns Canadians of health and safety risks of baby nests; 2017 [cited 2020 Dec 12]; [Recalls & alerts]. Available from: <a href="https://healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2017/64318a-eng.php">https://healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2017/64318a-eng.php</a>.
- 73. Ball HL. Together or apart? A behavioural and physiological investigation of sleeping arrangements for twin babies. Midwifery. 2007;23(4):404-12.
- 74. Van Sleuwen BE, Engelberts AC, Boere-Boonekamp MM, Kuis W, Schulpen TW, L'Hoir MP. Swaddling: a systematic review. Pediatrics. 2007;120(4):e1097-e106.
- 75. Nelson AM. Risks and benefits of swaddling healthy infants: an integrative review. MCN Am J Matern Child Nurs. 2017;42(4):216-25.
- 76. Franco P, Seret N, Van Hees J-N, Scaillet S, Groswasser J, Kahn A. Influence of swaddling on sleep and arousal characteristics of healthy infants. Pediatrics. 2005;115(5):1307-11.
- 77. Moore ER, Anderson GC. Randomized controlled trial of very early mother–infant skin-to-skin contact and breastfeeding status. J Midwifery Womens Health. 2007;52(2):116-25.
- 78. White-Traut R, Studer T, Meleedy-Rey P, Murray P, Labovsky S, Kahn J. Pulse rate and behavioral state correlates after auditory, tactile, visual, and vestibular intervention in drug-exposed neonates. J Perinatol. 2002;22(4):291-9.
- 79. Velez M, Jansson LMJ. The opioid dependent mother and newborn dyad: non-pharmacologic care. J Addict Med. 2008;2(3):113.
- 80. Meek J, Huertas A. Cochrane review: non-nutritive sucking, kangaroo care and swaddling/facilitated tucking are observed to reduce procedural pain in infants and young children. BMJ. 2012;15(3):84-5.
- 81. Cirik VA, Efe E. The effect of expressed breast milk, swaddling and facilitated tucking methods in reducing the pain caused by orogastric tube insertion in preterm infants: A randomized controlled trial. Int J Nurs Stud. 2020;104:103532.
- 82. Health Link BC [Internet]. Vancouver, British Columbia: Government of British Columbia; 2020. Safer Sleep for My Baby; 2020 [cited 2020 Nov 1]; [Safer Sleep for My Baby]. Available from: https://www.healthlinkbc.ca/safer-sleep-baby.
- 83. La Leche League International. Safe Sleep for Breastfeeding Babies. Illionois, USA: La Leche League International; 2010.
- 84. McDonnell E, Moon RY. Infant deaths and injuries associated with wearable blankets, swaddle wraps, and swaddling. Pediatrics. 2014;164(5):1152-6.
- 85. Bartick M, Tomori C. Sudden infant death and social justice: A syndemics approach. Matern Child Nutr. 2019;15(1):e12652.
- 86. Perinatal Services BC. 'Honouring Indigenous Women's and Families' Pregnancy Journeys: A Practice Resource to Support Improved Perinatal Care Created by Aunties, Mothers, Grandmothers, Sisters, and Daughters' 2021 May, Vancouver, BC.
- 87. National Aboriginal Council of Midwives. Stories and Teachings about Infant Care. Montreal, Quebec: National Aboriginal Council of Midwives; 2017.
- 88. Middlemiss W. Understanding Infant Sleep: Translating Research to Supportive Approaches to Sleeping, Feedings, and Well Being. [Infant Sleep Lecture Pack]. GOLD Learning; 2020.
- 89. Gertner S, Greenbaum CW, Sadeh A, Dolfin Z, Sirota L, Ben-Nun Y. Sleep-wake patterns in preterm infants and 6 month's home environment: implications for early cognitive development. Early Hum Dev. 2002;68(2):93-102.

- 90. Yates J. PERSPECTIVE: The Long-Term Effects of Light Exposure on Establishment of Newborn Circadian Rhythm. J Clin Sleep Med. 2018;14(10):1829-30.
- 91. Baby Sleep Info Source [Internet]. Durham, UK: Baby Sleep Info Source; 2020. Things to Consider Potential Costs of Sleep Training; 2020 [cited 2020 Oct 27]; [Baby Sleep Info]. Available from: <a href="https://www.basisonline.org.uk/things-to-consider-potential-costs-of-sleep-training/">https://www.basisonline.org.uk/things-to-consider-potential-costs-of-sleep-training/</a>.
- 92. Middlemiss W, Granger DA, Goldberg WA, Nathans L. Asynchrony of mother–infant hypothalamic–pituitary–adrenal axis activity following extinction of infant crying responses induced during the transition to sleep. Early Hum Dev. 2012;88(4):227-32.
- 93. Gordon M. From Safe Sleep to Healthy Sleep: A Systemic Perspective on Sleep In the First Year [Internet]. Washington, USA: University of Washington School of Public Health; 2018 [cited 2020 Nov 4]. Available from: <a href="https://depts.washington.edu/nwbfch/infant-safe-sleep-development">https://depts.washington.edu/nwbfch/infant-safe-sleep-development</a>
- 94. Henderson JM, France KG, Owens JL, Blampied NM. Sleeping through the night: the consolidation of self-regulated sleep across the first year of life. Pediatrics. 2010;126(5):e1081-e7.
- 95. Rudzik AE, Robinson-Smith L, Ball HL. Discrepancies in maternal reports of infant sleep vs. actigraphy by mode of feeding. Sleep Med. 2018;49:90-8.
- 96. Together, for every baby [Internet]. London, UK: Tommy's; 2020. Coping with sleepless nights; 2019 [cited 2020 Oct 20]; [Pregnancy hub]. Available from: https://www.tommys.org/pregnancy-information/after-birth/coping-sleepless-nights.
- 97. BC Rreproductive Mental Health Program, BC Mental Health & Addiction Services. Coping with anxiety during pregnancy and following the birth-Module 4. Vancouver, British Columbia: BC Reproductive Mental Health Program; 2013.
- 98. Health Link BC [Internet]. Vancouver, British Columbia: Government of British Columbia; 2020. Time for Bed; 2020 [cited 2020 Oct 24]; [Services and Resources]. Available from: <a href="https://www.healthlinkbc.ca/healthlinkbc.files/bed-time">https://www.healthlinkbc.ca/healthlinkbc.files/bed-time</a>
- 99. Caring For Kids [Internet]. Ottawa, Ontario: Canadian Paediatric Society; 2021. Healthy sleep for your baby and child; 2017 [cited 2020 Nov 5]; [Pregnancy and Babies]. Available from: <a href="https://www.caringforkids.cps.ca/handouts/pregnancy-and-babies/healthy\_sleep\_for\_your\_baby\_and\_child">https://www.caringforkids.cps.ca/handouts/pregnancy-and-babies/healthy\_sleep\_for\_your\_baby\_and\_child</a>.
- 100. Baby Sleep Info Source. Sleep Training: Baby Sleep Info Source. Durham, UK: Baby Sleep Info Source; 2018. 2 p.
- 101. Blunden SL, Thompson KR, Dawson DJ. Behavioural sleep treatments and night time crying in infants: challenging the status quo. Sleep Med Rev. 2011;15(5):327-34.
- 102. Halberstadt AG, Lozada FT. Emotion development in infancy through the lens of culture. Emotion Review. 2011;3(2):158-68.
- 103. Baby Sleep Info Source [Internet]. Durham, UK: Baby Sleep Info Source; 2020. Sleep, Baby & You; 2020 [cited 2020 Dec 3]; [Resources]. Available from: <a href="https://www.basisonline.org.uk/sleepbabyyou/">https://www.basisonline.org.uk/sleepbabyyou/</a>.





Sudden, unexpected infant death during sleep is one of the leading causes of postnatal death among infants under one year of age in Canada.

The purpose of this resource is to provide health-care providers with current, evidence-based information and key messages on infant safe sleep practices with the intent of reducing the rate of sudden, unexpected infant death during sleep in BC.

### Safer Infant Sleep Practice Resource for Health-Care Providers

Copyright ©2022 Perinatal Services BC, Provincial Health Services Authority

Suggested Citation: Perinatal Services BC. 'Safer Infant Sleep Practice Resource for Health-Care Providers' 2022 February, Vancouver, BC.

No part of the content of this document may be reproduced in any form, or by any means, including electronic storage, reproduction, execution, or transmission without the prior written permission of Perinatal Services BC.

Perinatal Services BC #260-1770 W 7th Ave, Vancouver, BC V6J 4Y6 P: (604) 877-2121

psbc@phsa.ca

www.perinatalservicesbc.ca