# Information Statement Safe Sleep



# Slings, Baby Carriers and Backpacks

Red Nose recommends six key steps to reduce the risk of sudden unexpected deaths in infancy (SUDI) including SIDS and fatal sleeping accidents:

- Always **place baby on their back to sleep**, not on the tummy or side
- Keep baby's face and head uncovered
- Keep baby smoke free before birth and after
- Provide a safe sleeping environment night and day
- Sleep baby in their own safe cot in the same room as their parent/adult caregiver for the first 6-12 months
- Breastfeed baby

#### Introduction

Baby slings, carriers and backpacks are products that allow a caregiver to 'wear' a baby. Babywearing has been practised for centuries around the world. In industrialised societies, carrying a baby in a baby sling or carrier has increased in popularity in recent decades with growing evidence of the benefits of close mother-baby interaction which are associated with optimal infant development <sup>1-5</sup>.

### Caregivers should follow the T.I.C.K.S. Principles for the safe use of baby slings and carriers at all times.

- A recent Australian infant care practice study demonstrated babywearing with a young infant is a common practice with over a third of parents reporting their baby had slept in a baby sling or carrier in the first 3-4 months of life<sup>6</sup>.
- Benefits of babywearing include: convenience during daily activities<sup>7</sup>, soothing and calming baby<sup>8</sup>, timely recognition of early feeding cues, improved maternal-infant bonding and attachment <sup>2,3,7,8,9,10,11</sup>, increased maternal responsiveness to infant behavioural cues <sup>12,13</sup>, optimal breastfeeding outcomes <sup>12,14</sup>, and positive neck muscle development <sup>4</sup>.
- The use of baby slings and carriers have been associated with adverse outcomes when not used correctly,

- including: infant hip dysplasia <sup>(15)</sup>, falls, and infant death related to suffocation <sup>1, 10, 16, 17, 18, 19, 20.</sup>
- Babies younger than four months, born premature or low birth weight, or who have breathing difficulties are at a higher risk of injury and/or adverse outcomes when in a baby sling or carrier if not used correctly <sup>1,16,21</sup>.
- Framed baby carriers are not recommended for babies less than four-months old due to their limited head control which may impair their ability to protect their airway <sup>1,16</sup>.
- Babies are preferential nose breathers. Baby's face should never be covered by the sling or your body.
   Ensure you can see your baby's face, including their nose and mouth at all times <sup>1,16,17.</sup>

Always refer to the T.I.C.K.S principles when choosing a carrier or sling for babywearing.

# The T.I.C.K.S. Rule for Safe Babywearing Keep your baby close and keep your baby safe. When you're wearing a sling or a carrier, don't forget the T.I.C.K.S.

# TICKS Principles for the Safe Use of Baby Slings and Carriers:

- ✓ **Tight** sling should be tight with baby positioned high and upright with head support. Loose fabric will cause baby to slump which restricts breathing.
- In view at all times should be able to see baby's face at all times by simply looking down. Ensure baby's face, nose and mouth remain uncovered by sling and/or the wearer's body.
- Close enough to kiss baby should be close enough to wearer's chin so you can easily kiss baby on the top of their head.
- Keep chin off the chest ensure baby's chin is up and away from their body. Baby's body should not be curled or slumped (C-position) so that baby's chin is forced to baby's chest as this may restrict breathing. Babies can be in distress without making noise or movement.
- Supported back baby's back should be in a natural position with tummy and chest against you. When bending over, support baby with one hand behind baby's back and bend at your knees, not your waist to protect your own back.

Baby Sling Safety UK 2012<sup>22</sup>

# Different Types of Baby Slings, Carriers and Backpacks

Adult-worn baby slings and carriers are products generally made from fabric which allow an adult to carry an infant on their body. Baby slings and strap-on carriers are becoming increasingly popular in Western countries due to the advantages associated with their use <sup>2,22</sup>.

Usually worn on the adult's torso, other designs may support babywearing on the hip or back, dependent on the sling

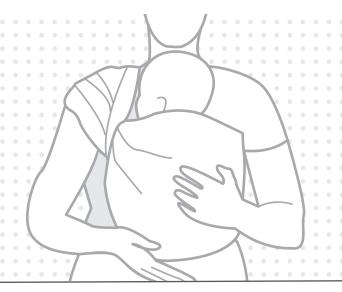
design, wearer's experience and cultural practices<sup>1</sup>. Baby backpacks usually have rigid frames for carrying the child on the caregiver's back and are suitable for older babies and toddlers who can hold up their own heads for periods of time<sup>1,16</sup>. See Table 1.

Always refer to the T.I.C.K.S principles when choosing a carrier or sling for babywearing.

Carefully consider baby's size and developmental age when choosing a sling or carrier.

Table 1. Type	Specific Considerations for Use
Wrap Sling: A single piece of fabric that is wrapped around the caregiver's body and fastened with knots, rings, clasps or buckles <sup>16</sup> .	Consider baby's size, developmental age and manufacturer's instructions in choosing a wrap sling for your baby <sup>1,2.</sup> Depending on baby's positioning and head support this sling may be suitable from birth.  Ensure baby's hips are supported as appropriate for their developmental age <sup>26</sup> Keep one arm around the baby when wearing a sling, while keeping baby's face visible at all times <sup>1,16.</sup> Keep baby's face, including the mouth and nose, clear of sling fabric or wearer's body at all times <sup>1,2.</sup>

**Pouch Sling:** A piece of fabric worn across one or both of the shoulders that creates a 'pouch' for the baby on the front of the caregiver's body.



Bag or pouch slings should be used with caution <sup>6.</sup> Follow the T.I.C.K.S. Principles.

These slings are usually more appropriate for older babies, originally designed to carry the child in an upright position over the carer's hip  $^{1,16}$ 

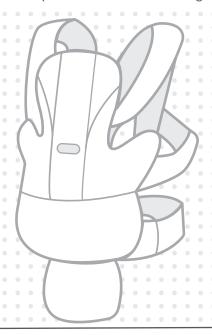
Horizontal positioning of a young baby in a pouch sling may cause a curved back with chin-to-chest positioning which increases this risk of airway obstruction and suffocation <sup>1,2,16,17,16</sup>

Ensure baby's hips are supported appropriate to their developmental age <sup>26.</sup>

Keep one arm around baby when wearing the sling, while keeping baby's face visible at all times <sup>1,16</sup>.

Keep baby's face including the mouth and nose clear of sling fabric and wearer's body at all times <sup>1, 2.</sup>

**Structured carrier:** A product similar to a backpack that is designed to usually be worn on the front of the caregiver's body. Usually made from soft fabric structured with clips and buckles for fastening.



Structured carriers are not recommended for babies under four months of age<sup>1,16</sup>.

Preterm or small babies require extra care and consideration. The use of newborn inserts for this type of carrier is often recommended to assist in keeping baby's airway supported and clear due to their limited head control<sup>2</sup>. Refer to manufacturer instructions

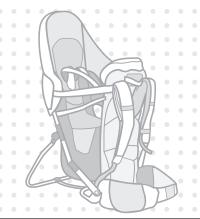
Ensure enough depth in the carrier to reduce a curve occurring in baby's back; this can cause a compromised airway and lead to suffocation if baby's chin rests on their chest <sup>1,16.</sup>

Check leg openings are small enough to prevent baby slipping down into the carrier creating an unsafe infant position and possibly falling through. Ensure baby's legs are not pinched or chafed from carrier<sup>16,21.</sup>

Straps should be adjustable with one hand (to maintain one hand around baby), and the straps should feel firm when worn  $^{1_{\circ}}$ 

Maintain one arm around baby when wearing the carrier, keeping baby's face visible and clear at all times<sup>1, 16.</sup>

**Framed carrier/ backpack:** Framed, rigid seat that is strapped to the caregiver's back (1).



Framed carriers/backpacks are NOT recommended for babies under 4-5 months of age.

Young babies have limited muscle and neck strength<sup>1,16</sup>: inappropriate use of a framed carrier/ backpack for a young infant may increase risk of airway occlusion and neck injuries.

Avoid carring baby on caregiver's back when baby is sleeping, as wearer is unable to visualise baby's head and face and ensure baby's airway remains clear<sup>16</sup>.

Always maintain good ergonomic posture when bending while your baby is in the backpack to reduce injury to yourself and your baby<sup>1,16</sup>.

Always maintain T.I.C.K.S. principles when using carrying devices.

#### What are the Risks of Using a Baby Sling, Carrier or Backpack and Can I Avoid Them?

Use of baby slings, carriers and backpacks have risks associated with injury and death that are often preventable through appropriate use and attention to safety measures<sup>23,24,25</sup>.

Choice of a sling or carrier appropriate for the child's developmental age and ability to protect their airway is an important factors in baby's safety<sup>23</sup>.

Ensure any sling or carrier that is purchased comes with clear and comprehensive instructions for use  $^{1,10,16,17,26}$ . An in-store demonstration provided by experienced product personnel may be beneficial, and if possible, take your baby with you to ensure that the product is a safe fit for you and for your baby  $^{1,17}$ .

The product manufacturer may also provide instructional videos online for you to watch while practising with a doll or teddy before attempting to use the sling or carrier with your baby.

Products which are described as womb or cocoon-like are NOT recommended, as these devices may place baby in a dangerous chin-to-chest position, which may compromise baby's airway and may cause slow or rapid suffocation<sup>26</sup>.

Particular care should be taken when using slings and carriers with a baby under four months of age, especially if born prematurely, of low birth weight, or if they have had breathing problems or are suffering from a respiratory illness<sup>1,16,27-30</sup>.

IMPORTANT POINT: Always ensure that you can see your baby's face at all times and that the baby's face (nose and mouth) is NEVER covered by the sling or your body.

#### **Suffocation and compression**

It is important to consider baby's gestational age and their size when babywearing, as devices which are not appropriate for the baby's development have contributed to injuries and deaths<sup>3,16,20,24,26,27,29,31,32</sup>.

Babies can have difficulty with their breathing without making a noise or any movement.

Injury or death as a result of suffocation can occur in three ways:

- Firstly, baby's face being pressed against fabric or the wearer's body may cause rapid suffocation, as babies under four months of age may lack the muscle strength to control or move their heads to keep their airway clear<sup>16,17,20,31,32</sup>.
- Secondly, when baby is curled into a position (described as the C-Curve position)<sup>33</sup> where baby's chin can touch their chest their airway may become occluded<sup>16,17,19,20,32,</sup> <sup>34</sup>. See Figue 2.
- Finally, if the fabric of the baby carrier or sling is too tight around the baby's torso, the baby may lose the ability to naturally move their chest to take effective breaths<sup>29</sup>.

If a mother breastfeeds while babywearing, 8,16 it is important that she carefully monitors her baby's ability to breathe by

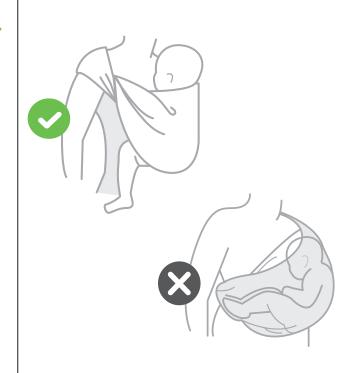
observing baby's face and colour at all times while feeding in the sling<sup>35.</sup> Once baby has finished feeding, repostion baby in the sling or carrier following the T.I.C.K.S. principles<sup>11, 16, 19</sup>.

When babywearing, regularly check baby's position, airway and breathing making sure the T.I.C.K.S principles are maintained<sup>16, 17, 19, 26, 28, 29, 32.</sup> See Figue 2 for examples of safe and unsafe baby positioning in a sling/carrier.

Careful consideration is needed for babies born preterm, low birth weight or who may be unwell. These babies may need extra support to maintain a clear airway.

#### What you need to know about Baby Slings

- · Regularly check your baby
- A baby can be in difficulty without making a noise or movement.
- Take baby out of the sling or pouch immediately if you observe any of these signs that baby's airway could be compromised:
  - face covered, chin-to-chest position, or head to side with body curled into a C-shaped position
  - grunting, wheezing, whistling breaths, laboured or rapid breathing
  - a dusky or 'blue' tinge on the baby's skin 'fussiness', restlessness or squirming.



**Figure 2.** Cited in RCN 2019 originally located in International Hip Dysplasia international<sup>26</sup>

#### Caring for baby's hips

Incorrect hip positioning in a baby sling or carrier may increase the risk of hip dysplasia or interfere with healthy hip development<sup>1,36</sup>. While the hip joint is likely to be loose in the first months of life, if the baby's hip is continually forced to stretch too far the hip socket is at risk of deforming (hip dysplasia) or even dislocating<sup>36</sup>. This is not necessarily painful for the baby, and may remain unnoticed until walking age<sup>25</sup>.



**Figure 3.** Infant hip positions when using slings and carriers (Cited in RCN 2019 originally located in International Hip Dysplasia international<sup>15</sup>)

#### Falls and other injuries

An Australian study of Queensland caregivers reported that many parents lack knowledge about safe sling use, while a considerable proportion disclosed that they had experienced an injury and/or experienced a close call with an injury or accident while using a baby sling or carrier<sup>11.</sup>

To avoid injury to your baby or yourself make sure your baby is always secured correctly in the sling or carrier by adhering to the manufacturer's instructions<sup>6, 10.</sup>

Check the product is in good working order, free from fabric tears, missing parts or damage<sup>16</sup>. The integrity of the product should be assessed before every use and if signs of damage are noted, the sling or carrier should NOT be used<sup>11, 16, 32</sup>.

If carrier straps are twisted, the clasps may slip. The product may also loosen with activity and require adjusting while in use<sup>6,11.</sup> It is strongly advised to hold baby with at least one arm at all times (ACCC 2014)<sup>16.</sup> Choosing a product that is appropriate for the baby's weight, and developmental age is vital to prevent an injury<sup>1,16,17,23.</sup>

Consideration of caregiver's activities while using a sling or carrier needs careful attention. **Babies have received injuries and burns while parents were preparing hot foods or drinks**<sup>1, 10, 36.</sup>

Caregivers also need to maintain good posture, bending from the knees instead of the waist. This reduces the risk of back injuries for the wearer and the likelihood of baby falling from the carrier or sling during use<sup>1,16.</sup>

Caregivers are advised to hold baby with at least one hand while getting baby in or out of the sling or carrier to reduce the likelihood of a fall or head injury to the baby during transfer<sup>16,17.</sup> If possible, assistance from another person can also help reduce any unnecessary risks.

# Sudden unexpected deaths in infancy associated with baby sling and carrier use

Case reports from Australia, France, Japan and the United States have highlighted the risk of injuries and infant deaths associated with the use of baby slings and carriers<sup>11,15</sup>.

Suffocation was proposed as the leading cause of death, attributed to direct occlusion of the infant's airway by material or the carer's body, or infant positioning in the sling that allowed chin-to-chest positioning<sup>11,15</sup>, Shimuno et al 2020, <sup>18</sup>. In some circumstances, infants were discovered nonresponsive by their caregivers and resuscitation was attempted.

Deaths associated with asphyxia in both slings and structured carriers were more likely to occur in babies less than 4-5 months of age however in the USA an infant death at 11 months of age was also reported. The majority of babies were born at term<sup>1, 19, 27, 31, 34</sup>.

As a result of infant deaths in baby carriers and slings, the US Consumer Product Safety Commission developed a mandatory standard for the manufacture and distribution of sling and carrier products<sup>27</sup>. All infant slings and carriers must have permanently attached warning labels and come with written instructions, including illustrated diagrams, to show the proper positioning of a child in the carrier or sling that will reduce the risk of adverse events.

Warning labels must include statements about:

- Suffocation hazards together with prevention stratergies;
- Fall hazards and prevention strategies;
- A reminder for caregivers to check the buckles, snaps, rings and other hardware to make sure no parts are broken.

The mandatory standard also requires sling carriers to:

- Be able to carry up to three times the manufacturer's maximum recommended weight.
- Be durable to avoid seam separations, fabric tears, breakage, etc.

 Be able to keep the child being carried from falling out of the sling during normal use.

Currently, there are no Australian standards for the manufacture of baby carriers or slings<sup>1,24</sup>. It is recommended that Australian parents and carers note the standards recommended in other countries and be aware that baby carriers and slings that adhere to these overseas standards are available for purchase in Australia<sup>1</sup>.

These products can be identified by product labels with either of the following information<sup>1:</sup>

European Standard: EN 13209-2:2005US Standard: ASTM F2236-08

#### **Conclusion**

Baby slings, carriers and backpacks are products that allow a caregiver to 'wear' a baby. Babywearing has been practised for centuries around the world. In industrialised societies, carrying a baby in a baby sling or carrier has increased in popularity in recent decades with growing evidence of the benefits of close mother-baby interaction which are associated with optimal infant development 1-5.

Caregivers should follow the T.I.C.K.S. Principles for the safe use of baby slings and carriers at all times.

#### **Further information**

For further information and a guide to infant and nursery products developed by the Australian Competition and Consumer Commission16: please refer to: https://www.productsafety.gov.au/

## Note about studies cited in this information statement

The term Sudden Unexpected Death in Infancy (SUDI) is now used to refers to all cases of sudden and unexpected death in infancy and includes deaths from the Sudden Infant Death Syndrome (SIDS) and fatal sleeping accidents. Safe sleeping recommendations target known risk factors associated with SUDI. Where studies specifically define the population as SIDS, this specific term will be used to describe the study findings.

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