

РЕКОМЕНДАЦІЇ ДЛЯ ВПРОВАДЖЕННЯ У ПРАКТИКУ ОХОРОНИ ЗДОРОВ'Я RECOMMENDATIONS FOR IMPLEMENTATION IN HEALTH CARE PRACTICE

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UKRAINIAN ACADEMY OF PEDIATRIC
SPECIALTIES (UAPS)
EUROPEAN SLEEP MEDICINE AND
NEUROPHYSIOLOGY ASSOCIATION
(ESMANA) STATEMENT OF THE ON SAFE
SLEEP AS A PRIORITY ISSUE IN THE
PREVENTION OF SUDDEN INFANT DEATH
SYNDROME

Summary

Sudden infant death syndrome (SIDS) remains a pressing issue worldwide, with a significant number of cases occurring within the first six months of life. Many of these tragedies can be prevented by adhering to safe sleep guidelines. The effectiveness of large-scale educational programs focusing on these guidelines has been well-documented in developed countries, resulting in the saving of thousands of children's lives.

In Ukraine, there are currently no national guidelines for the prevention of SIDS. To address this gap, we have compiled modern guidelines from other countries such as the USA, Great Britain, and Germany, along with the latest research data, to develop recommendations for safe sleep practices for children under one year of age. These recommendations cover various aspects, including the recommended sleep position (on the back), requirements for the sleeping surface and crib, suggestions for safe co-sleeping, and guidelines for maintaining an appropriate temperature. We also provide information on the beneficial effects of breastfeeding and vaccination in preventing SIDS, as well as the increased risks associated with overheating, the presence of soft objects near a sleeping child, and parental smoking and alcohol consumption.

These recommendations should be disseminated to both parents and healthcare professionals involved in infant care.

Keywords: *Safe sleep; Babies; Sudden Infant Death Syndrome; Sleeping on the Back; Co-sleeping.*

Sudden unexpected infant death is a significant danger, prevention of which receives great attention worldwide.

According to statistics, 95 % of cases of sudden unexpected infant death occur before the age of 6 months, with the highest frequency between 2-4 months. The leading cause of this condition is sudden infant death syndrome (SIDS), accounting for 37 % of cases, followed by cases with unknown causes (34.7 %), and accidental suffocation and strangulation in bed (27 %).

These tragic events are coded according to the International Statistical Classification of Diseases and Related Health Care Problems (ICD-10): sudden infant death syndrome with autopsy - R95.0, sudden infant death syndrome without autopsy - R95.9, sudden death without a known cause - R96.0, asphyxia - R09.01, traumatic - T71.9, accidental mechanical respiratory compromise - T71.191, and entrapment in bedding - T71.131.

In Ukraine, in 2019, out of 2.190 children who died under the age of 1, 70 babies had sudden infant death syndrome (SIDS) as the cause, and 57 experienced accidents related to breathing. SIDS accounted for 5.8 % of these cases.

Numerous studies indicate that several factors affecting the frequency of SIDS and other cases of sudden death during sleep are related to child

safety. Developed countries place great emphasis on educating medical workers and parents about ensuring the safety of children during sleep.

Since 1990, the American Academy of Pediatrics has been conducting an educational program for children and specialists on the prevention of SIDS. The "Back-to-Sleep" national campaign, which promoted putting babies to sleep on their backs, successfully halved the rate of sudden infant mortality by the year 2000. Similar results were observed in other countries, such as Germany, where information campaigns reduced the frequency of SIDS by 93 %, or, in absolute numbers, down from 1.285 sudden unexpected infant deaths in 1991 to 84 in 2020.

52 countries have national guidelines or recommendations for the prevention of sudden infant death syndrome and safe sleep for babies. The leadership of the American Academy of Pediatrics (AAP) and the British National Institute of Health (NICE) are recognized as the most authoritative in the world. On July 7, 2022, a new version of the institution of the AWMF (Association of Scientific Medical Societies) DGSM (German Society for Research and Sleep Medicine) Pediatric Working Group on the topic "Prevention of Sudden Infant Death Syndrome" was approved by consensus. These guidelines were taken by us on the basis of the preparation of these recommendations.

Below are the recommendations that should be followed for all babies before reaching the age of 1 year.

1. Put babies to sleep on their backs, both for night and daytime sleep.

It has been proven that children who sleep on their backs are less likely to die from SIDS compared to those who sleep on their stomachs or sides. The disadvantage of sleeping on the side is instability: the child can easily turn over onto their stomach. Some people believe that babies can suffocate during vomiting when sleeping on their backs, but the anatomy of the respiratory tract and the gag reflex prevent aspiration. Studies confirm that the risk of aspiration is higher in the prone position. Therefore,

even babies with gastroesophageal reflux (GERD) should sleep on their backs, as it is the safest position to prevent aspiration (Fig. 1).

When the baby lies on their back, the trachea is located above the esophagus, which leads to the stomach (Fig. 1). Anything the baby could potentially regurgitate must overcome gravity to reach the trachea and cause choking. In contrast, when the baby sleeps on their stomach, the liquid from the esophagus during vomiting can freely enter the respiratory tract, leading to potentially harmful consequences. Fortunately, cases of regurgitation causing choking in healthy babies are very rare, but when they do occur, the baby is often sleeping on their stomach.



Fig. 1. Anatomical features of the location of the respiratory tract (trachea) relative to the gastrointestinal tract (esophagus) in the position of the child on his back and stomach

Newborns should be placed skin-to-skin next to the mother as soon as possible after birth, ideally within the first hour. They can be placed on the mother's chest in a semi-raised position for convenience. During the first two hours of skin-to-skin contact, both the mother and medical staff should focus their attention on the baby. A midwife should monitor the newborn's condition during this time in the delivery room. If any disturbances in the newborn's condition are observed, the midwife should inform the doctor since there have been reported cases of sudden unexpected postnatal collapse during skin-to-skin contact. Although these cases are rare, they should be kept in mind.

After the skin-to-skin contact period or if the mother needs to rest, or if contact is not possible, the newborn should be transferred to a crib and placed on their back.

Premature babies may spend some time in the prone position during their stay in the intensive care unit due to breathing problems while connected to vital signs monitors (pulse oximetry and saturation). However, once the situation stabilizes, it is important to transition them to sleeping on their back before returning home.

As babies grow older, they learn to turn over onto their stomachs. If a child can change their body position on their own, there is no need to turn them

onto their back. Nevertheless, it is important to ensure a safe sleeping environment, which will be discussed later in this document. This includes using a firm mattress, avoiding soft sides, toys, pillows, and blankets in the crib, among other precautions.

Some parents place their babies on their stomachs to alleviate potential tummy discomfort and facilitate gas passage. WHO recommends providing babies with tummy time during the day, for at least half an hour, to promote optimal physical development while they are awake. However, it is crucial that babies sleep only on their backs.

If babies fall asleep in a car seat, stroller, or chaise longue, they should be moved to a hard, flat surface to sleep on their back as soon as possible. However, when traveling by car, a child can only be safe in a car seat. Currently, there is no published evidence indicating the exact duration an infant can remain in a car seat while traveling. Nonetheless, there is a guideline known as the "two-hour rule," which recommends that a baby up to one year old should spend no more than two hours in a car seat continuously. This precaution is due to the risk of obstructing the respiratory tract by tilting the head forward. Long journeys in a car seat with newborns should be avoided, particularly for premature babies born before the 37th week of gestation.

When babies fall asleep in a sling, it is important

to ensure that their airways remain unobstructed. There is no consensus on the recommended duration of sleep in a sling, but according to WHO recommendations for physical activity, continuous use of a sling should not exceed one hour. While preference should be given to sleeping on the back in a horizontal position, sleeping in a sling is permissible for safety reasons if it is comfortable for the mother.

2. Use a relatively hard surface for sleeping.

A cot, bassinet, portable cot, or playpen with a flat horizontal surface that meets safety standards can be used for a baby's sleep. The crib should have a tightly fitting mattress that snugly fits the edges, along with an air-permeable sheet on an elastic band or one that is tightly tucked in behind the edges. From a safety perspective, the crib should contain nothing except the baby.

It is important for a baby to sleep on a relatively hard surface, such as an even firm mattress in a baby cot. Adult beds and sofas are not safe for newborns to sleep on, primarily because they are relatively soft. A "soft surface" refers to any surface where the baby's head bends more than 1 inch (about 2.5 cm). On such surfaces, the risk of sudden infant death syndrome (SIDS) can increase more than fivefold.

Currently, most factory beds have quality certificates that meet modern recommendations for safe sleep. Here are some points to think over:

- The distance between the bars in the crib should not exceed 6-7 cm to prevent the baby from getting their head stuck.
- The mattress should fit snugly into the crib, leaving no gaps on any side. If you can fit two or more fingers between the mattress and the crib, it is dangerous as the baby can get stuck.
- Check the crib structures weekly, as an active baby may shake them, posing a danger.
- Once the baby learns to get on their hands and knees, secure the crib in a static position if it has a pendulum mechanism, and adjust the bottom to the lowest position in advance.
- Ensure that the sheet in the crib is tightly fastened to prevent the baby from accidentally getting tangled or covered.
- If the mattress has a film cover, remove it before the first use.
- Avoid hanging various objects, especially toys, over the sleeping area where the baby lies alone.
- Remove all soft objects from the crib, including pillows, soft toys, sides, blankets, etc.

3. Put the child to sleep in the same room as you.

Sleeping in the same room as the parents for at least the first 6 months, and ideally the entire first year, can reduce the risk of sudden infant death syndrome (SIDS) by 50%, according to research. Place the baby crib, bassinet, mobile crib, or playpen next to your bed. This will make it easier to feed, comfort, and care for your baby.

Regarding sleeping together

Shared sleep (SS) is a common practice worldwide, and international recommendations take this into account. SS, just like separated sleep, carries potential risks, so organizing it safely and conducting further research is important. The potential risks of SS for SIDS are actively being

studied, but a clear cause-and-effect relationship has not yet been established.

It should be noted that SS contributes to establishing breastfeeding, maintaining the desired duration of breastfeeding for the family, and promoting optimal weight gain for the child, which is beneficial for both the baby and the breastfeeding mother. Breastfeeding has been proven to reduce the risk of SIDS.

However, parents should be informed about the possible risks to make an informed decision regarding co-sleeping or separate sleeping.

Condemnation of SS by doctors leads to parents who choose this sleep arrangement hiding this fact and not paying enough attention to safe SS organization.

There are two types of SS: bed-sharing, where the baby sleeps in the same bed as the parents, and co-sleeping, where the baby sleeps on a separate surface or in an attached bed next to the parents.

The American Academy of Pediatrics emphasizes that the safest place for a baby to sleep is a separate crib that complies with safety standards. However, they acknowledge that many mothers fall asleep during night feeds. Research data shows that it is safer for a baby to fall asleep in the same bed with their parents than in an armchair or sofa. Create a safe sleep environment in your own bed when bringing your baby there for feeding or soothing. If you are likely to fall asleep, ensure there are no pillows, blankets, or other soft objects in your bed that could cover your baby's face. As soon as you wake up, transfer the baby to their own crib.

The American Academy of Breastfeeding Medicine has a separate protocol for organizing SS in one bed. They use the term "breast-sleeping" to describe a biologically complex model of interaction between mother and baby, where breastfeeding and sleep are integrated, driven by the physiological necessity for sufficient lactation. Co-sleeping facilitates frequent and regular breastfeeding, which can prolong the duration of breastfeeding. Additionally, some mothers who practice SS find it easier to care for their children and fall asleep more easily.

However, the American Academy of Breastfeeding Protocol emphasizes safety issues. "If you consciously choose to sleep in one bed, make sure that your mattress is firm enough and does not sag under your weight, and that there are no pillows, blankets, or other soft objects in the child's area that he can put his face into. Check and make sure that the child cannot fall off the bed or fall into any gap between the bed and the wall or furniture while sleeping. Lie down with your baby in the C-position (your arm on which you lie stretched out on the bed, legs bent at the knees). After breastfeeding, put the baby on their back. Do not cover the baby with your blanket.

It should be noted that co-sleeping can be particularly dangerous in certain situations. You should not sleep with the baby on the same surface if:

- The baby was born prematurely or with a low body weight.
- Any adult in the bed with the baby is a smoker, even if it is not the mother.
- The child's mother smoked during pregnancy.

- The mother is taking medications or drugs that may make it difficult to wake up.
- The mother consumed more than 2 units of alcohol***.
- The adult caregiver is not the child's biological mother/father.
- The sleeping surface is soft or contains soft bedding, pillows, and blankets.
- There are other children or pets in the bed in addition to the baby.
- The child sleeps between two adults.

In the situations described above, an alternative co-sleeping option is recommended, which involves sleeping next to parents on a separate surface or using an attached crib. This approach provides a safer sleeping arrangement while still maintaining the positive effect on breastfeeding.

4. Remove all soft objects from the child's sleeping area.

All soft objects should be removed from the child's sleeping area. In the crib of a child up to one year old, only a tightly fitted sheet on an elastic band or tucked under the mattress should be present. Soft objects such as pillows, blankets, toys, bumpers, soft protective sides, and hanging sheets pose a risk of suffocation and can obstruct the baby's respiratory tract, limiting oxygen access. Even for babies who are not yet able to move independently, the presence of soft objects in the crib increases the concentration of carbon dioxide in exhaled air, which can lead to respiratory issues.

It is important to avoid placing babies on feeding pillows or resting pillows as they can cause the baby to roll over onto their side or stomach, potentially pressing their head against a soft surface. Sleeping on inclined surfaces like pillows, chaise lounges, or car seats can cause the baby's head to tilt forward excessively, compressing and blocking the airways. Sleeping on couches, sofas, or chairs is also unsafe.

It is advisable to refrain from using ribbons or ropes that could hang in the crib. Avoid attaching pacifiers, medallions, or any other objects to the child's body or the crib. Additionally, it is important not to have chains, ribbons, or necklaces around the baby's neck or dress them in clothing with ties.

5. Do not overheat the child.

Studies have indicated an increased risk of SIDS associated with overheating, although the definition of "overheating" varies across these studies. The recommended temperature range for a baby's bedroom is typically 16-22 degrees Celsius, but in spring and summer, this temperature may be higher. Consequently, it is challenging to provide specific recommendations regarding room temperature to prevent overheating. It is advisable to rely on subjective observations, prioritizing the child's condition rather than focusing solely on numerical values. Symptoms of overheating include sweating and hot skin to the touch.

Babies should be dressed according to the ambient temperature with no more than one additional layer compared to what adults find comfortable in that environment. Since babies in their first year of life sleep without blankets, and the room may be relatively cool, special sleeping garments such as overalls or sleeping bags can be used. It is important to avoid

covering the baby's head, as it acts as a regulator of body temperature and can contribute to overheating. If the room temperature is above 18 degrees Celsius, the baby is full-term and has a normal body weight, there is no need for a cap.

Babies can be swaddled loosely during the first few months, as it can help them calm down and fall asleep more easily. To prevent hip joint dysplasia when swaddling, the legs should be left free to move, while only the arms can be gently secured. A baby in a diaper should be placed on their back. Once the baby begins to roll over, swaddling should be discontinued.

6. Breastfeed your baby if possible.

Breast milk is considered the optimal source of nutrition for infants. Research has demonstrated that breastfed babies have a reduced risk of SIDS. It is recommended by the World Health Organization (WHO) to exclusively breastfeed for the first 6 months. Following the introduction of complementary foods (solid food), it is advised to continue breastfeeding for a minimum of 12 months and up to two years or more, based on personal preference.

7. Regarding the use of a pacifier.

While some research suggests that non-food sucking on a pacifier may potentially reduce the risk of SIDS, there is currently insufficient evidence to firmly support this recommendation.

In the case of a breastfed child, it is generally advised to avoid introducing a pacifier until lactation is fully established. The decision to use a pacifier and the appropriate age for its introduction should be made on an individual basis, taking into consideration factors such as the baby's needs, breastfeeding dynamics, and family preferences. It is worth emphasizing that breastfeeding plays a more significant role in reducing the risks of SIDS compared to the use of a pacifier. Therefore, if possible, prioritizing breastfeeding is recommended.

For formula-fed babies, offering a pacifier at any time is acceptable, as bottle feeding may not provide sufficient duration for the baby's sucking needs. However, it is important to note that not all babies may enjoy using a pacifier. In such cases, offering the pacifier multiple times is reasonable, but if the child consistently refuses, there is no need to insist. If the pacifier falls out after the baby has fallen asleep, there is no need to put it back into the baby's mouth.

8. Timely vaccination of children.

Recent evidence suggests that immunization may provide protection against SIDS, as infectious diseases are among the factors that increase the risk. It is important to ensure that children receive vaccinations on schedule. Additionally, vaccinating individuals in the baby's environment can strengthen the family's immune defenses and reduce the risk of the baby contracting infectious diseases.

9. Smoking and alcohol.

Smoking during pregnancy and after childbirth significantly increases the risk of SIDS. It is important to refrain from smoking in the car and inside the house where the child is present, and to avoid smoking near the child, even when outdoors.

Sharing a bed with an adult who smokes is strictly prohibited. If the mother smoked during pregnancy,

it is also advisable to avoid co-sleeping. Similarly, the use of alcohol or drugs by the person responsible for caring for the child should be avoided. Such substances can impair the ability to wake up during co-sleeping, making it crucial to place the child in their own crib and provide a safe sleep environment.

10. Be careful when buying sleep products.

Before purchasing a baby crib, changing table, or any other sleep-related products, ensure they meet safety requirements. Be cautious if a manufacturer claims that a product reduces the risk of SIDS, as it is typically not the case. According to the American Academy of Pediatrics, positioners, special mattresses, and other sleeping surfaces do not decrease the risk of SIDS. The same applies to home breathing monitors. Home breathing or heart rate monitors have not been proven to reduce the risk of SIDS and may even provide a false sense of security, leading parents to neglect safe sleep

recommendations.

While these recommendations cannot guarantee absolute safety for the baby, they effectively reduce the risk of potential tragedy and create the most favorable conditions for the child.

* – data from the US Centers for Disease Control (CDC, 2019) // <https://www.cdc.gov/sids/data.htm>

** – data of the State Statistics Committee of Ukraine, 2020

*** Alcohol content in units, according to NHS: <https://www.nhs.uk/live-well/alcohol-advice/calculating-alcohol-units/>:

A small shot of spirits (25 ml) - 1 unit.

A standard glass of wine (175 ml) – 2.1 units.

A large (250 ml) glass of wine - 3 units.

A pint of 4% beer (0.57 l) – 2.3 units.

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**УКРАЇНСЬКА АКАДЕМІЯ ПЕДІАТРИЧНИХ СПЕЦІАЛЬНОСТЕЙ (УАПС), ЄВРОПЕЙСЬКА АСОЦІАЦІЯ МЕДИЦИНИ СНУ ТА НЕЙЛОФІЗІОЛОГІЇ (ЄАМСН)
РЕКОМЕНДАЦІЇ ІЗ БЕЗПЕЧНОГО СНУ ЯК ПРІОРИТЕТНЕ ПИТАННЯ У ПРОФІЛАКТИЦІ СИНДРОМУ РАПТОВОЇ СМЕРТІ НЕМОВЛЯТ**

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Резюме.

Синдром раптової дитячої смерті (СРДС) залишається актуальним питанням в усьому світі. Найбільша частка цих трагічних випадків припадає на перше півріччя життя. Багато з цих трагедій можна попередити, якщо дотримуватись рекомендацій з безпечного сну. Приклад імплементації масштабних освітніх програм з цих питань в багатьох розвинених країнах задокументував їх високу ефективність, що дозволило врятувати тисячі дітей.

В Україні відсутні національні настанови з питань попередження СРДС, тому ми об'єднали сучасні керівництва інших країн світу (США, Великобританія, Німеччина) і дані останніх досліджень і розробили рекомендації з безпечного сну дітей до 1 року, які включають позицію дитини під час сну (на спині), вимоги до поверхні для сну і до ліжечка дитини. Надані пропозиції щодо безпечного спільного сну, температурного режиму. Наводяться дані про сприятливий ефект грудного вигодовування і вакцинації для попередження СРДС і підвищення ризику при перегріванні, наявності м'яких предметів біля сплячої дитини, курінні і вживанні алкоголю батьками.

Ці рекомендації мають поширюватись, як серед батьків, так і серед медичних працівників, які здійснюють догляд за немовлятами.

Ключові слова: безпечний сон; немовлята; синдром раптової дитячої смерті; сон на спині; спільний сон.

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