OBJECTIVES

- To outline safe and effective supportive therapeutic positioning for infants in Alberta Health Services (AHS) Neonatal Intensive Care Units.

- To outline expectations regarding transition to safe infant sleep prior to discharge.

APPLICABILITY

Compliance with this document is required by all Alberta Health Services employees, members of the medical and midwifery staffs, students, volunteers, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary).

ELEMENTS

1. General Recommendations for Positions for Infants Not Yet in Transition to Safe Infant Sleep

   1.1 Each specific position shall meet general and additional recommendations. Refer to Appendix A: Educational Notes for Infant Positioning in Neonatal Intensive Care Units for additional information.

   1.2 Individuality and stability shall be the deciding factors when designing an adaptive positioning arrangement.

   1.3 Regardless of desired final position, linen rolls and gentle boundaries should be used to build a nest to provide containment and promote tactile stimulation.
a) The narrow boundaries of a nest should be one inch above the level of the infant, and close enough to maintain flexion and allow contact supporting gentle movements.

b) Knees should be slightly flexed with feet inside the boundaries for self-regulatory foot bracing and normal circulation development.

**Note:** Containment shall not be used as a *restraint*. The infant shall be able to move while contained.

1.4 Position of the infant should be symmetrical flexion towards the midline with:

a) general body flexion;

b) neutral alignment of the head and neck;

c) slight flexion of neck (less than 30 degrees);

d) adduction of shoulders;

e) rounded lower back with hips flexed and in neutral rotation;

f) flexion of limbs; and

g) hands close to the face.

1.5 The infant’s head may be supported on a hospital grade gel pillow with the lower edge of the pillow at the level of the nipple line. A gel pillow may:

a) be pre-warmed to prevent conductive heat loss;

b) maintain proper body alignment; and

c) minimize head flattening.

**Note:** Neck rolls are not recommended as they are often oversized.

1.6 The *health care professional* shall monitor the infant for signs of postural intolerance (e.g., arching, crying, and physiological signs of distress) and if necessary, the position shall be modified.

1.7 If the infant is swaddled or bundled, intravenous or intra-arterial catheter(s) insertion site shall remain visible to the *health care provider* at all times.

a) Swaddling with a *facilitated tuck* may assist with pain management.

1.8 Ventilator tubing shall be positioned down along the body for neutral neck position. The bed shall be elevated 15–30 degrees to help decrease ventilator assisted pneumonia.
1.9 Linen between specialized mattress (e.g., memory foam) and the infant shall be minimized.

2. **Additional Recommendations for Prone Position**

2.1 A support roll (also known as a **prone roll**) shall be placed under the torso from the chin extending to the umbilicus with the infant arms tucked along the sides. The prone roll should allow the shoulders to be rounded forward to prevent extension of the shoulders.

2.2 Stable external boundaries shall help maintain a secure, balanced, and flexed position on the prone roll. This is especially crucial if the infant is intubated.

2.3 Flexion should be encouraged by placing knees to chest, arms close to body, and a small roll under hips.

2.4 Hands shall be close to the mouth to promote hand to mouth orientation.

2.5 Head position shall be alternated to reduce lateral skull flattening and side preference.

2.6 Refer to Figure 1 below for an example of prone position.

![Figure 1: Prone Position](image)

3. **Additional Recommendations for Sidelying Position**

3.1 The infant’s top hip and shoulder shall be slightly forward of the weight-bearing hip and shoulder.

3.2 Ensure that the bottom arm is in a comfortable position underneath the body.

3.3 A long, thin blanket roll shall be placed behind the head, neck and back, between the legs (to promote abduction), and along the abdomen for tucking the arms...
3.4 Sides should be alternated to promote head shape symmetry and to limit head side preference.

3.5 Refer to Figure 2 below for an example of the sidelying position, and to Figure 3 below for an example of a sidelying position with a support roll.
4. **Additional Recommendations for Supine Position**

4.1 Nesting supports shall surround the infant under the shoulders and hips to promote slight neck flexion, shoulder adduction, pelvic elevation and hip and shoulder flexion.

4.2 A thin support shall be placed under the shoulders and humerus to prevent shoulder retraction, allowing the hands to come together and reach the mouth.

4.3 A thin roll shall be placed under the legs to promote flexion and against the lateral aspects of the thighs to prevent external rotation and hip abduction.

4.4 The endotracheal tube shall be secured at the level of the mid-oral cavity to minimize endotracheal tube contact with the palate.

4.5 Ventilator tubing shall be positioned to avoid pulling the head to one side.

4.6 Refer to Figure 4 below for an example of supine position with no rolls, and to Figure 5 for an example of supine position with side rolls to prevent external rotation.

![Figure 4: Supine Position with No Rolls](image-url)
5. **Transition from Hospital to Home**

5.1 Starting at 32–34 weeks gestation, the goal is to begin to position infants on their backs to sleep. Transition and progression to complete safe infant sleep shall be based on infant **physiological stability**. The following sequence of events supports transition to safe infant sleep:

a) position the infant supine as soon as physiological stability has been attained;

b) moving the infant from having very secure boundaries to looser positioning support;

c) swaddling without positioning aids;

d) covering the clothed infant with a blanket tucked under a firm, flat mattress free from clutter, reaching only to the infant’s chest;

e) the infant’s feet will be positioned at the foot of the crib;

f) decrease the head elevation until the infant lies flat, unless medically contraindicated;

g) vary the direction of the head turn to prevent plagiocephaly; and

h) teach guardians to place the head in the midline position with lateral head/trunk supports (e.g., child safety seats, swings, etc.).

5.2 When an infant in the Neonatal Intensive Care Unit has transitioned to exclusive supine sleep, the health care professional shall follow the AHS *Safe Infant Sleep* Policy to promote safe infant sleep.
6. **Back to Sleep**

6.1 One of the independent risk factors for **Sudden Infant Death Syndrome (SIDS)** is preterm birth and/or low birthweight (refer to Section 1 of the AHS Safe Infant Sleep Policy for information about additional risk factors). Due to the increased risk between SIDS and prone sleep position, all infants under one (1) year of age shall be placed on their backs to sleep including preterm infants unless determined to be medically contraindicated (refer to *SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment [American Academy of Pediatrics]*).

6.2 Transition to supine sleep shall be based on infant cues and developmental age. AHS neonatology supports 32–34 weeks gestation as a starting point for placing infants on their back to sleep, while at 36 weeks, exclusive back to sleep positioning is a priority. Any infant approaching discharge should be placed exclusively on their back to sleep for as long possible prior to going home unless medically contraindicated. If medically contraindicated, detailed instructions and support shall be provided for the guardians.

6.3 Health care professionals play a vital role in communicating and role modelling safe sleep messages and practices. Guardians are more likely to follow health recommendations if they understand the rationale behind them.

   a) Health care professionals shall model safe infant sleep strategies before the infant’s discharge.

   (i) A bedside reminder card or sign may be posted on the crib to identify that the infant has ‘back to sleep’ strategies initiated.

   (ii) Discharge teaching should include the importance of frequent and consistent tummy time while guardians are attending and supervising, to avoid preventable developmental delays. The health care professional shall support the messages of “tummy to play, back to sleep” and “back to sleep, every sleep”.

   (iii) Refer to the AHS Safe Infant Sleep Policy for additional supports for delivering safe infant sleep key message in AHS facilities and the community.

   b) Health care professionals shall encourage guardians to place their infant in a supine sleep position to reduce the risk of SIDS.

7. **Guardian Education About Safe Infant Sleep**

7.1 For guardian education about safe infant sleep, the health care professional shall:

   a) refer to AHS Safe Infant Sleep Policy; and
b) refer to the AHS Safe Sleep for Baby’s First Year (Healthy Parents, Healthy Children).

8. Documentation

8.1 For documentation guidance, refer to the AHS Safe Infant Sleep Policy.

DEFINITIONS

Clinical record means the collection of all health records documenting health services provided and tracking the interactions with and communications between health care providers and the individual receiving health services.

Containment means to provide gentle boundaries to limit movement with supports or cupping of body with hands.

Facilitated tuck means holding the infant’s extremities flexed and contained close to the trunk.

Guardian means, where applicable:

For a minor: a guardian as defined by the Family Law Act (Alberta), a divorced parent with custody of the minor, or a person appointed pursuant to a will, personal directive, court order, agreement or by authorization of legislation (e.g., Child, Youth and Family Enhancement Act [Alberta]).

For an adult: an individual appointed by the Court in accordance with the Adult Guardianship and Trusteeship Act (Alberta) to make decisions on behalf of the adult patient when the adult patient lacks capacity.

Health care professional means an individual who is a member of a regulated health discipline, as defined by the Health Disciplines Act (Alberta) or the Health Professions Act (Alberta), and who practises within scope and role.

Health care provider means any person who provides goods or services to a patient, inclusive of health care professionals, staff, students, volunteers and other persons acting on behalf of or in conjunction with Alberta Health Services.

Nest means a containment structure developed with positioning aids and linen that provides three dimensional boundaries that maintain flexion and allow movement within narrow boundaries. The goal is to simulate the benefits of intrauterine positioning.

Physiological stability means an infant with stable baseline vital signs and oxygen requirements without frequent or prolonged apneic and/or bradycardic events within the past 24 hours. If an infant needs oxygen therapy or has tachypnea, the infant is able to nipple feed without increased distress.

Prone roll means a support roll placed under the torso from the top of the head to the umbilicus to promote shoulder adduction and allow for hip flexion.
Restraint means any measure used to limit the activity or control the behaviour of a patient or a portion of their body.

Sudden Infant Death Syndrome (SIDS) means the sudden death of an infant less than one (1) year of age, which remains unexplained after investigation, autopsy, examination of the death scene, and a review of clinical history.

Therapeutic positioning means a way of aligning the infant’s body with external supports to optimize skeletal development and biochemical alignment, support posture and movement, enhance normal sensorimotor experiences, support medical conditions, and avoid maladaptive stereotypic movements.

REFERENCES

- Appendix A: Educational Notes for Infant Positioning in Neonatal Intensive Care Units
- Alberta Health Services Governance Documents:
  - Safe Infant Sleep Policy (#PS-27)
- Alberta Health Services Resources:
  - Key Safe Infant Sleep Messages for Parents from Alberta Health Services Healthy Parents, Healthy Children Safe Sleep for the Baby’s First Year (Print and Online Resources, Printable, Safe Sleep Tool, How to Safely Swaddle Your Baby Video)
  - Safe Infant Sleep (AHS External Webpage)
  - Safe Infant Sleep Bookmark (AHS External Webpage)
  - Safe Infant Sleep Learning Module (MyLearningLink and Primary Health Care Education Portal)
- Non-Alberta Health Services Documents:
  - Joint Statement on Safe Sleep Preventing Sudden Infant Deaths in Canada (Public Health Agency of Canada)
  - Perinatal Health Indicators for Canada. A Report from the Canadian Perinatal Surveillance System (Public Health Agency of Canada)
  - SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment (American Academy of Pediatrics)

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Educational Notes for Infant Positioning in Neonatal Intensive Care Units

1. Because of immobility, decreased muscle mass, prolonged weight bearing, energy depletion and use of sedation/muscle relaxants, a preterm or sick infant has difficulty countering the undesirable effects of gravity that promotes abnormal extension and flattened postures.

2. A premature or sick infant may exhibit disorganized and maladaptive neuromotor control behaviours in response to noxious stimuli.

3. Therapeutic positioning and an effective nest with gentle containment balances flexion and extension necessary for neuromotor control and development of normal neonatal structural alignment.

4. Effective therapeutic positioning optimizes neuromuscular structural development, promote self-regulatory behaviours while preventing skin breakdown and maladaptive postures.

5. Although supine is the least desirable position for a premature infant because of the difficulty promoting flexion and countering the effects of gravity, it may be necessary when complete visualization and access to the infant are required. Transition to supine sleep is part of developmental care and discharge planning.

Premature infants are at increased risk of SIDS. Implementation of key messages for safe infant sleep practices and environments of the AHS Safe Infant Sleep Policy can reduce the risk of SIDS and prevent other sleep-related injuries and deaths in infants.