Positioning refers to a way of aligning the neonate’s body with external supports in order to optimize skeletal development and biomechanical alignment, support posture and movement, enhance normal sensorimotor experiences, support medical conditions, and avoid maladaptive stereotypic movements.

Positioning and handling are used to improve neuromuscular development and promote self-regulatory behaviors of infants by using the following guidelines:

- Symmetrical, physiologic flexion towards midline – neck in slight flexion (<30°); scapular abduction with arm support; posterior pelvic tilt (rounded low back) with hip flexion and neutral rotation; flexion of limbs; balance between flexion and extension; symmetrical postures; midline orientation enhancement; and hands near face.
- Provide gentle containment – enhancement of comfort and decreased stress
- Alternate areas of weight bearing to minimize skin breakdown and develop rounded heads and active head rotation.
- Facilitate smooth antigravity limb movement.

Premature and/or sick infants have difficulty countering the extensor effects of gravity that encourage extension and flattened postures because of their decreased muscle mass, energy depletion, or use of sedation / muscle relaxants. Mobility is also necessary for normal development. Premature babies are relatively hypotonic because of the decreased exposure to the flexed position in utero and decreased flexor muscle tone. A balance of flexion and extension is needed for motor stabilization. Without this balance, normal motor development is blocked and postural and skeletal deformities may be iatrogenic complications of neonatal care. In response to noxious stimuli, premature infants will develop disorganized and maladaptive behaviors e.g. flailing of limbs because they can not control movements or hyperextension and arching of neck with suctioning. Therapeutic positioning can promote normal structural alignment and the neuromotor control necessary for optimal development. Failure to position carefully may result in neck hyperextension – particularly for infants with assisted ventilation; preferential head turning to the right, deformational plagiocephaly; grooved palate; persistent W position of the arms inhibiting hand to mouth, hand to hand, and arm weight bearing; hip adduction causing delayed crawling and walking; and delays in fine and gross motor skills impairing activities necessary for optimal cognitive development.
Applicability  All Covenant Health Neonatal Nursery staff.

Procedure  General Positioning Guidelines for Neonates not yet in Transition to Safe Infant Sleep

- The goal of supported positioning is to encourage a balance between flexion and extension using linen rolls and boundaries.
- An effective nest must have high enough boundaries to make contact with the infant to promote flexion and flexible containment.
- Infant individuality and stability must be the deciding factor in designing adaptive positioning arrangements.
- Swaddling and facilitated tucking (using hands to hold the infant in a tucked position) may assist with pain management.
- Knees should be slightly flexed with feet inside the boundaries for self-regulatory foot bracing and normal circulation development.
- The best posture is symmetrical flexion towards the midline with:
  a. general flexion of body
  b. neutral alignment of the head and neck
  c. neck in slight flexion (<30°),
  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 in midline.

- The infant’s head may be supported on a gel pillow with the lower edge of the pillow placed at 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.

- Containment is not restraint; the infant must be able to move for musculoskeletal development.
- If the infant is swaddled or bundled, peripheral intravenous line insertion sites must remain visible to the health care provider.
- Minimize linen between Memory Foam Mattress and infants.
- Elevate the bed by 15-30° to help decrease ventilator associated pneumonia.
- Ventilator tubing is positioned down along the body to promote neck in neutral position.
- Monitor for signs of postural intolerance such as arching, crying, and physiological signs of distress, and modify the infant’s position when identified.
- Swaddling with a facilitated tuck may assist with pain management.
Procedure

Additional Recommendations for Prone Position

1.1 Tuck the infant's arms along the sides of a “prone roll” placed under the torso from the top of the head to the umbilicus to avoid shoulder retraction and facilitate shoulder rounding. Prone rolls elevate the upper body to promote flexion of the extremities without placing excessive pressure on the fragile skin of the knees and elbows.

1.2 Stable external boundaries (e.g. swaddling, bunting) are needed to help maintain a secure, balanced, and flexed position on the prone roll. This is especially crucial if the infant is intubated.

1.3 Flexion can be encouraged by placing knees to chest, arms close to the body, and a small roll under the hips. Hands are to be close to the mouth to promote hand to mouth orientation.

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

1.5 Alternate head position to reduce lateral skull flattening and side preference.
Additional Recommendations for Side lying Position

2.1 Position the infant’s top hip and shoulder slightly forward of the weight bearing hip and shoulder.
2.2 Ensure that the infant’s bottom arm is not in an uncomfortable position underneath the body.
2.3 A long, thin blanket roll is placed under the neck, behind the back, between the legs (to promote abduction), and along the abdomen for tucking the arms around (promotes forward tucking with gently rounded shoulders and allows hands to reach the mouth).
2.4 Knees should be slightly flexed with feet inside the boundary for foot bracing.
2.5 Base of the boundaries for the nest MUST be of sufficient height to provide flexible containment.
2.6 If bundling, ensure that chest expansion is not compromised by wrapping the infant too tightly.
2.7 Sides should be alternated to ensure head shape symmetry and limit head side preference.
2.8 For infants with unilateral lung disease, positioning of the “good lung” up may improve oxygenation.
Procedure

Additional Recommendations for Supine Position

This position is the least desirable because of the difficulty promoting flexion and countering the effects of gravity. Supine may be necessary in certain circumstances such as situations where complete visualization and access to the infant is required.

3.1 The use of nesting supports involves creating an arrangement that surrounds the infant under the neck, shoulders, and hips to promote slight neck flexion, shoulder adduction, pelvic elevation, and hip and knee flexion.

3.2 A thin support is placed under the shoulder and humerus to prevent shoulder retraction and allowing the hands to come together and reach the mouth.

3.3 Thin rolls are placed under the legs (to promote flexion), and against the lateral aspect of the thighs (to prevent external rotation and hip abduction).

3.4 Feet should be inside boundaries, otherwise there can be problems with circulation. As well, the infant needs to be able to use foot bracing as a self regulatory strategy.

3.5 The ET tubing must be secured at the level of the mid oral cavity to minimize ETT contact on the palate.

3.6 Ventilator tubing is positioned to avoid pulling the head to one side.
Procedure

Transition from Hospital to Home

Starting at 32-34 weeks gestation the goal is to begin to position neonates on their backs to sleep. Transition and progression to complete safe infant sleep will be based on physiological stability. The following sequence of events supports transition to safe infant sleep:

a. position the neonate 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 baby’s chest:

e. the baby’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 parents to place the head in the midline position with lateral head/trunk supports in child safety seats, swings, etc.

Follow the elements of the Alberta Health Services Safe Infant Sleep Policy PS-27 http://insite.albertahealthservices.ca/9537.asp to promote safe infant sleep

Discharge teaching should include the importance of frequent and consistent prone play while parent are attending and supervising, to avoid preventable development delay. Support the messages of “tummy to play, back to sleep” and “back to sleep, every sleep”

Back to Sleep

One of the independent risk factors for Sudden Infant Death Syndrome (SIDS) is preterm birth and/or low birth weight. The American Academy of Pediatrics has removed the preterm infant as an exception from the supine sleeping position, because of the increased risk of SIDS.

Albert Health Services Neonatology support 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 as possible prior to going home unless medically contraindicated. If medically contraindicated detailed instructions and support shall be provided for the parents.

Health care professionals shall model safe infant sleep strategies before the infant’s discharge. A bedside reminder card or sign may be posted on the crib to identify that the infant has “back to sleep” strategies initiated.

Health care professionals shall encourage parents to place their infant in a supine sleep position to reduce their risk of sudden infant death syndrome (SIDS).
Parent Education About Safe Infant Sleep

Discharge information on the “Back to Sleep” program is made available to parents so that they are aware that their baby should sleep supine and alone in an approved crib with an approved mattress. No additional blankets, pillows, toys, bumper pads, etc. should be placed in the crib. Over wrapping and over heating should be avoided. Co-sharing of sleeping surfaces including chairs, beds, etc. is discouraged. Infants should not be exposed to smoke from cigarettes, candles, incense or wood-burning stoves. Discharge teaching should include the importance of frequent and consistent prone play to avoid preventable developmental delays. “Tummy to play; back to sleep”. Parents should be aware of the need for periodic “play” prone positioning to promote the development of upper body muscles. Parents should be advised to supervise their baby during these “tummy” sessions.

DEFINITIONS

Abduction – Draw away from a position near or parallel to the median axis of the body.
Adduction – Draw toward or past the median axis of the body; to bring together decreasing the angle between the limbs and/or body.
Containment – Providing gentle boundaries to limit movement with supports or cupping of body with hands.
Extension – Unbending movement around joint that increases the angle between “ends”.
Facilitated Tuck – Using hands to hold the infant in a tucked position.
Flexion – Decreasing the angle between the limbs and/or body. Extremities bending toward trunk, head coming forward, trunk curves forward.
Nest – Containment structure developed with supports to maintain flexion and limit movement within narrow boundaries. The goal is to simulate the benefits of intrauterine positioning.
Physiologically stable 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 – Support roll placed under the torso from the top of the head to the umbilicus to promote shoulder adduction and allow for hip flexion.
Retraction – Shoulders go back, usually with flexed arms, fisted hands.
SIDS or Sudden Infant Death Syndrome means the sudden death of an infant under one (1) year of age, which remains unexplained after a thorough investigation, including the performance of a complete autopsy, an examination of the death scene, and a review of the clinical history.

Supporting Policies

Cue-Based Care
Developmental Care
Lighting
Skin-to-Skin
Sound Recommendations
References


March 2012

Revisions

August 2001

October 2012

November 2015
Signing

Original signed

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