NEWBORN CARES & PROCEDURES
Newborn Fellowship 2025

OBJECTIVES

- Describe newborn common cares and procedures prior to hospital discharge
- Discuss the benefits of delayed bathing
- Identify important concepts of the newborn hearing screen
- Recognize neonatal response to pain and interventions
- Describe critical infant safety measures

NEWBORN CARE & PROCEDURES OVERVIEW

- Newborn medications – 1-2 hours after birth
- Bath – ≥ 12-24 hours
- Hearing Screen – ≥ 12 hours
- Circumcision – >12 hours
- Newborn Screen – ≥ 24 hours
- Car seat study - ≥ 36 hours
- Congenital Heart Disease Screen – 36-48 hours
- Bilirubin – Day of d/c or sooner PRN
- Repeat weight – Day of d/c or sooner PRN

NEWBORN MEDICATIONS

- Hepatitis B Vaccine
- Erythromycin
- Vitamin K Injection

HEPATITIS B VACCINE (RECOMBIVAX HB, ENGERIX-B)

Action: induces protective antihepatitis B antibodies in 95-99% of healthy infants who receive 3 doses 95-99% of healthy infants who receive all 3 recommended doses (birth, 1-2 months, 6-18 months)

Indication: immunizing against infections caused by all known subtypes of HBV

Neonatal Dose: Recombivax HB 5 mcg/0.5 ml IM; Engerix-B 10 mcg/0.5 ml IM

- Administered within first 24 hours of life for medically stable infants with birth weight ≥2000 g
- Administer at 1 month of age or at hospital discharge, whichever comes first, for infants <2000 g

Adverse Reactions: rash, fever, erythema, swelling, and pain at injection site

Nursing Considerations: obtain consent; use nonpharmacologic measures to decrease pain

(LOWDERMILK ET AL., 2024)

HEPATITIS B IMMUNE GLOBULIN

Indication: infants born to mother with positive hepatitis B surface antigen (HBsAg) or with unknown HepB status

Neonatal Administration:

- **Infants born to HBsAg positive mothers**: administer HepB vaccine and HBIG in separate sites within 12 hours after birth, regardless of any previous antiviral therapy during pregnancy
- **Infants born to mothers with unknown HepB status and birth weight $\geq$ 2000 g**: administer HepB vaccine with 12 hours and HBIG if mother's HepB results are positive or remain unknown, by 7 days of age or by discharge (whichever comes first)
- **Infant born to mother with unknown HepB status and birth weight < 2000 g**: administer HepB vaccine within 12 hours after birth, unless the mother tests negative before that time

Nursing Considerations: test mother immediately after admission to birthing facility; administer HepB and HBIG in separate sites (one in each vastus lateralis); use nonpharmacologic measures to decrease newborn's pain response during administration

(LOWDERMILK ET AL., 2024)

ERYTHROMYCIN OPHTHALMIC OINTMENT 0.5%

Action: bacteriostatic and bactericidal for N. gonorrhoeae

Indication: eye prophylaxis to prevent ophthalmia neonatorum in newborns of mothers who are infected with N. gonorrheoeae; eye prophylaxis for opthalmia neonatorum is required by law in most U.S. states regardless of delivery mode; not effective in treating chlamydial conjunctivitis

Neonatal Dosage: apply 1 cm ribbon of ointment to the lower conjunctival sac of each eye

Adverse reactions: can cause chemical conjunctivitis that lasts 24-48 hours; vision can be temporarily blurred

Nursing Considerations: administer 1-2 hours after birth; may be delayed up to 2 hours until after first breastfeeding to facilitate eye contact and bonding; gently open eyelids and spread ointment from inner to outer canthus; gently massage closed eyelids to disperse ointment; after 1 min, excess may be wiped away; observe for irritation

(LOWDERMILK ET AL., 2024)

VITAMIN K: PHYTONADIONE (AQUAMEPHYTON, KONAKION)

Action: provides vitamin K because the newborn does not have the intestinal flora to produce this vitamin for approx. 1 week after birth; promotes formation of clotting factors II, VII, IX, X in the liver

Indication: to prevent hemorrhagic disease of the newborn

Neonatal Dosage: 0.5 mg (0.25 ml) to newborns $\leq$ 1500 g; 1 mg (0.5 ml) to newborns > 1500 g IM; maybe be administered orally - has not shown to be as effective for prevention of late hemorrhagic disease

Adverse Reactions: edema, erythema, and pain at the injection site occur rarely; hemolysis, jaundice, and hyperbilirubinemia have been reported, particularly in preterm infants

Nursing Considerations: administer shortly after birth; administration may be delayed until after initial breastfeeding

(LOWDERMILK ET AL., 2020)

BATHING

- Initial bath is performed when thermal and cardiorespiratory stability has been achieved
- Delayed a minimum of 6 hours, ideally 12-24 hours
  - MHS newborn nursery: 12 hours
  - MWH NICU: 24 hours
- Newborns of mothers with communicable diseases such as HIV+, Hepatitis B+ or Herpes Simplex virus

(AWHONN, 2018; LOWDERMILK ET AL., 2020)

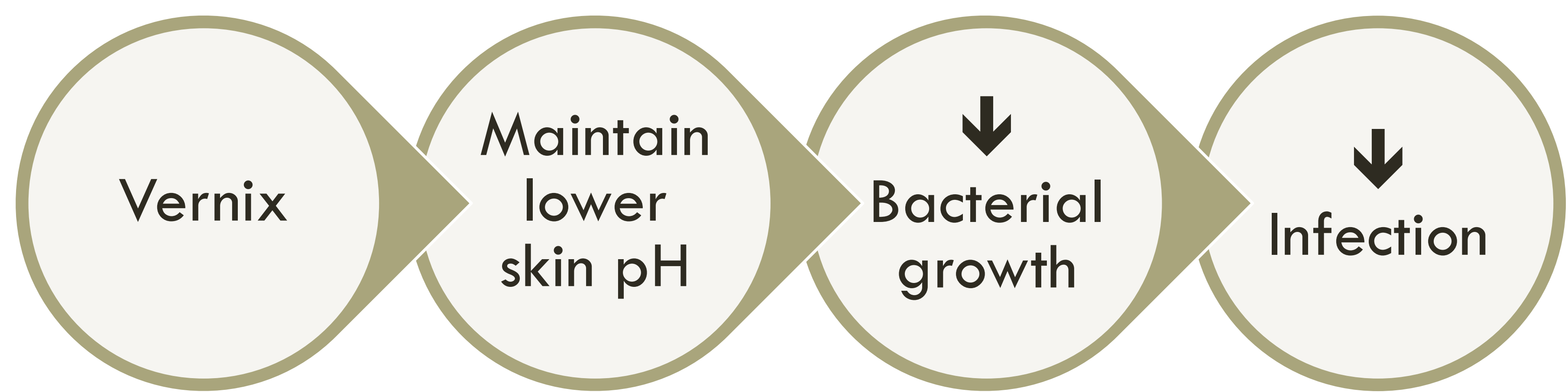
VERNIX

- Vernix acts as a natural barrier on the newborns skin after birth and provides many benefits to the newborn:
  - Body temperature maintenance
  - Decrease skin permeability protecting from infections
  - Help establish development of pH
  - Promote wound healing
  - Increased maternal infant bonding
  - Establishment of breastfeeding in the first 24 hours

(AWHONN, 2018)

VERNIX – LET IT BE!

- Vernix should remain on a newborn's skin and will come off during normal newborn cares
- Delaying the time of the scheduled bath ensures the vernix is able to provide support during the newborn's transition to extrauterine life



(AWHONN, 2018)

VERNIX

- Removal of vernix:
  - Eliminates the protective barrier on the infant's skin
  - Increases the risk of infection
  - Further increases the risk of hypothermia
  - Inhibits the natural physiologic bonding process between a mother and her infant

((AWHONN, 2018; LOWDERMILK ET AL., 2020)

BATHING

- Immersion or swaddled immersion ideal
  - Water is deep enough to cover the shoulders, but not head or neck
  - Shown to decrease heat loss and crying
  - Not shown to increase risk of bacterial colonization in the cord
- Expose only a portion of the body at a time
- Keep the bath quick < 10 minutes
- If choosing to sponge bathe, ensure only a portion of the body is exposed at one time and dry thoroughly
- Neutral thermal environment to minimize heat loss
  - Water temp – 100 - <104 degrees
  - Room temp – 79-81 degrees
  - Free of drafts
  - Pre-warmed towels for drying
  - Skin to skin immediately afterwards

(LOWDERMILK ET AL., 2020)

AGE SPECIFIC BATHING GUIDELINES

Preterm	Late Preterm	Term
• < 32 weeks: no soap, water only for first week of life • Evidence of skin breakdown, use warm sterile water • Avoid distractions • Provide timeout PRN • Provide opportunities for infant recovery	• Delayed as long as possible ◦ Ideally until 12–24 hours of age	• Bathe after axillary temperature is 98.2 °F or greater, on two consecutive measurements

(AWHONN, 2018)

BATHING – TIPS

- Wash top to bottom
- Wash hair last to minimize heat loss
- Avoid soap on the face
- Cleanse the eyes from the inner canthus to outer
- Do not scrub at the vernix
- Pre/post temps
- Bath every 2-3 days after discharge
- Ideally, parents should assist or perform an infant bath prior to discharge

(LOWDERMILK ET AL., 2020

UMBILICAL CORD CARE

- Goal – prevent or decrease risk for hemorrhage and infection
- Cord stump is a prime candidate for bacterial growth
- Follow facility protocol
- Clean the cord with water
  - During first bath and with routine bathing
  - If soiled, cleanse with plain water and dry thoroughly
  - Research does not support the routine use of antiseptic or antimicrobial preparations for cord care

(LOWDERMILK ET AL., 2020)

UMBILICAL CORD CARE

- Cord clamp is removed 24-48 hours after birth
- Kept clean, dry, open to air, or loosely covered with clothing
- Keep diaper folded away from cord
- Assess for redness, edema and purulent drainage
- Cord separation occurs 10-14 days after birth, but may take as long as 3 weeks
  - Varies based on cord care, type of birth, and other perinatal events
- Some dried blood and/or a few small drops of blood may be seen at separation
- Notify provider if active bleeding

(LOWDERMILK ET AL., 2020)

SKIN AND NAIL CARE

- Skin care:
  - Apply emollient at least once daily at the first sign of dryness, fissures, or cracking
  - Apply emollients to the scalp in newborns with cradle cap approximately 1 hour prior to shampooing
    - Gently brush the scalp and wash with a gentle baby shampoo
    - Consider consultation with a healthcare provider if no improvements are noted
- Nail care:
  - Do not cut immediately after birth (emery board may be used)
  - Once grown out, cut straight across
  - Ideal time is when the infant is sleeping

(AWHONN, 2018)

SKIN PRODUCT CONSIDERATIONS

- Products applied on infants should be limited to only those products that are necessary
- Use products that have been safety tested on infants (this may limit herbal therapy options)
- Be ware of terms such as natural and organic as they pertain to products

(AWHONN, 2018)

DIAPER DERMATITIS

- Prevention:
  - Check diaper often and change as soon as possible when wet/dirty
  - Cleanse skin with soft cloth and plain water, gentle cleanser, and/or disposable wipes (unscented and without alcohol)
  - Allow to dry completely before covering with clean diaper
- Treatment:
  - Apply topical, protective diaper cream
    - Protect injured skin with thick applications of barrier cream or paste, such as zinc oxide
    - Cover all skin that may be exposed to irritating agents
    - May cover barrier paste with petroleum jelly to avoid sticking to diaper
    - Gently cleanse the area and reapply barrier cream
    - Non healing diaper dermatitis may need to be referred to the primary pediatric care provider

(AWHONN, 2018; LOWDERMILK ET AL., 2020)

GENITAL CARE

- Girls:
  - Gently separate labia
  - Gently wash from pubic area to anus
- Uncircumcised boys:
  - Wash and rinse penis with soap and warm water
  - Do not attempt to retract the foreskin
  - Follow healthcare provider's instruction on when foreskin can be retracted easily without causing pain or trauma

(LOWDERMILK ET AL., 2020)

NEWBORN SCREENING

- Universal Newborn Screening
  - Newborn screen
  - Hearing screen
  - Critical congenital heart disease (CCHD) screen
- Prophylaxis for potentially painful procedures
- Neonatal Drug Screening
- Car Seat Study

NEWBORN SCREEN

- A genetic screening mandated by U.S. law aimed at early detection of genetic diseases resulting in severe health consequences if not treated early
- Collected after 24 hours of age and before discharge
  - Collected by RN or Lab (institution specific)
- May need to be repeated if obtained prior to 24 hours of age, after a blood transfusion was given, or if birth weight was <1500g

(LOWDERMILK ET AL., 2020)

NEWBORN SCREEN

NICU

1. Admission
2. 48-72 hours of age (if initial collected less than 24 hours of age or less than 2000gms at birth
3. 28 days of life or upon discharge (whichever comes first) if less than 2000gms or had any prior abnormal screening result

- Must have initial screen prior to any blood transfusions

NEWBORN SCREEN

- U.S. DHHS recommends screening for 35 core disorders and 26 secondary disorders
  - Core disorders: hemoglobinopathies (i.e. sickle cell disease), inborn errors of metabolism (i.e. PKU, galactosemia), severe combined immunodeficiency, and critical congenital heart disease
  - May vary by state
  - Current list: http://genes-r-us.uthscsa.edu/
- Most disorders are not symptomatic at birth

(LOWDERMILK ET AL., 2020)

HEARING SCREEN

- Most commonly diagnosed genetic disorder in the universal newborn screening program
- Routine screening for all newborns before discharge or not later than 1 month of age
- Gives information about the pathways from the external ear to the cerebral cortex

(AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION, 2018; LOWDERMILK ET AL., 2020)

HEARING SCREEN

Timing:

- Newborns cared for in the well-baby nursery are screened as close to hospital discharge as possible and prior to 1 month of age
- NICU newborns are screened when they are ready for discharge and/or when they are medically stable
- MHS – wait minimum of 12 hours

(AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION, 2018; LOWDERMILK ET AL., 2020)

HEARING SCREEN

Testing:

- Done in a nursery or a quiet room with the infant resting quietly or sleeping
- Preferred method for testing is to have the newborn resting quietly in his/her bassinette – although, if needed, the newborn can be held.
- “Care should be taken not to screen newborns more times than recommended in the protocol. The probability of an erroneous "pass" outcome (i.e., of infants with hearing loss passing the screening) increases with every screen.”

(AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION, 2018)

HEARING SCREEN

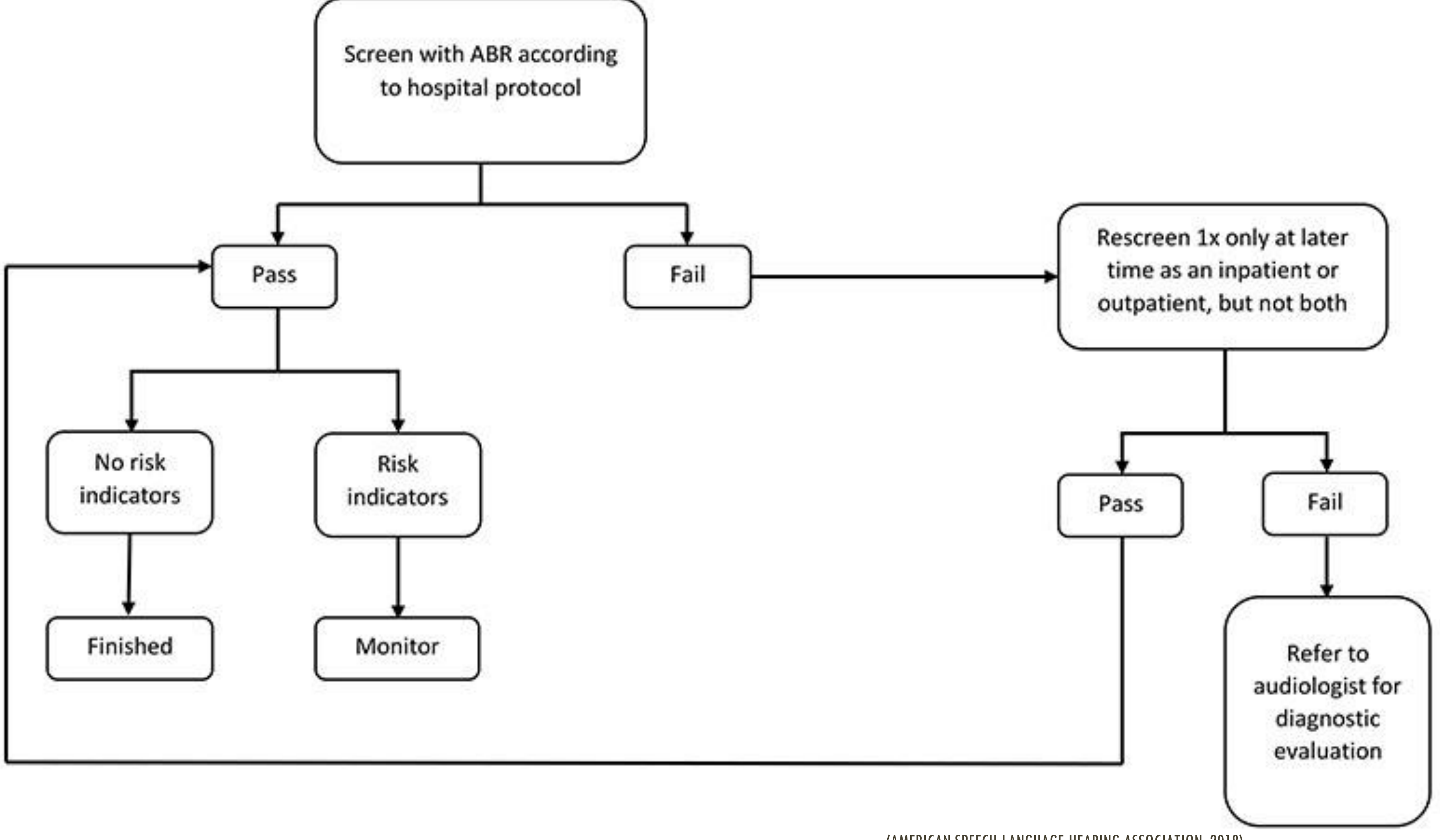
Pass/Refer:

- A newborn must pass the screening in both ears during one session for the screening to be considered a "pass."
- If the newborn does not pass in one ear or both, the result is a “refer” and both ears must be rescreened.
- If the newborn passes the screening or the rescreening and has no risk factors for late-onset or progressive hearing loss, then the screening is complete.

(AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION, 2018)

HEARING

American Speech-Language-Hearing Association Hearing Screen Algorithm



(AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION, 2018)

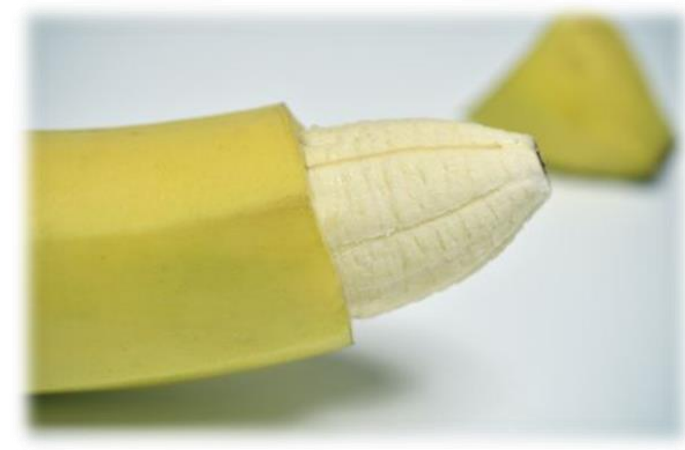
HEARING SCREEN

- If newborn refers, wait approximately12 hours before retesting if possible.
- If follow-up is needed, families should receive:
  - Explicit recommendations on how to secure follow-up testing
  - Contact information for an audiologist whom they can contact directly with questions in the interim
  - Available local, state, and national resources that they can use to obtain information about subsequent stages of the screening process

(AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION, 2018)

CIRCUMCISION

- Surgical removal of the foreskin (prepuce)
- Performed prior to discharge and when stable
- Bris: Jewish ceremony performed on 8th day; coincides with synthesis of clotting factors
- Requires both informed consent and time out
- Contraindications: significantly premature infants, blood dyscrasias, family history of bleeding disorders, congenital abnormalities such as hypospadias, congenital chordee, deficient shaft skin (penoscrotal fusion or congenital bured penis), no vitamin K administration



(AAP, 2012; LOWDERMILK ET AL., 2020)

CIRCUMCISION PAIN MANAGEMENT

- EMLA cream
- Lidocaine (dorsal penile nerve block – DPNB; ring block)
- Oral sucrose
- Nonpharmacologic measures as adjuncts (i.e. NNS and swaddling)
- Acetaminophen 10-15mg/kg PO Q6H for up to 24 hours as ordered by provider

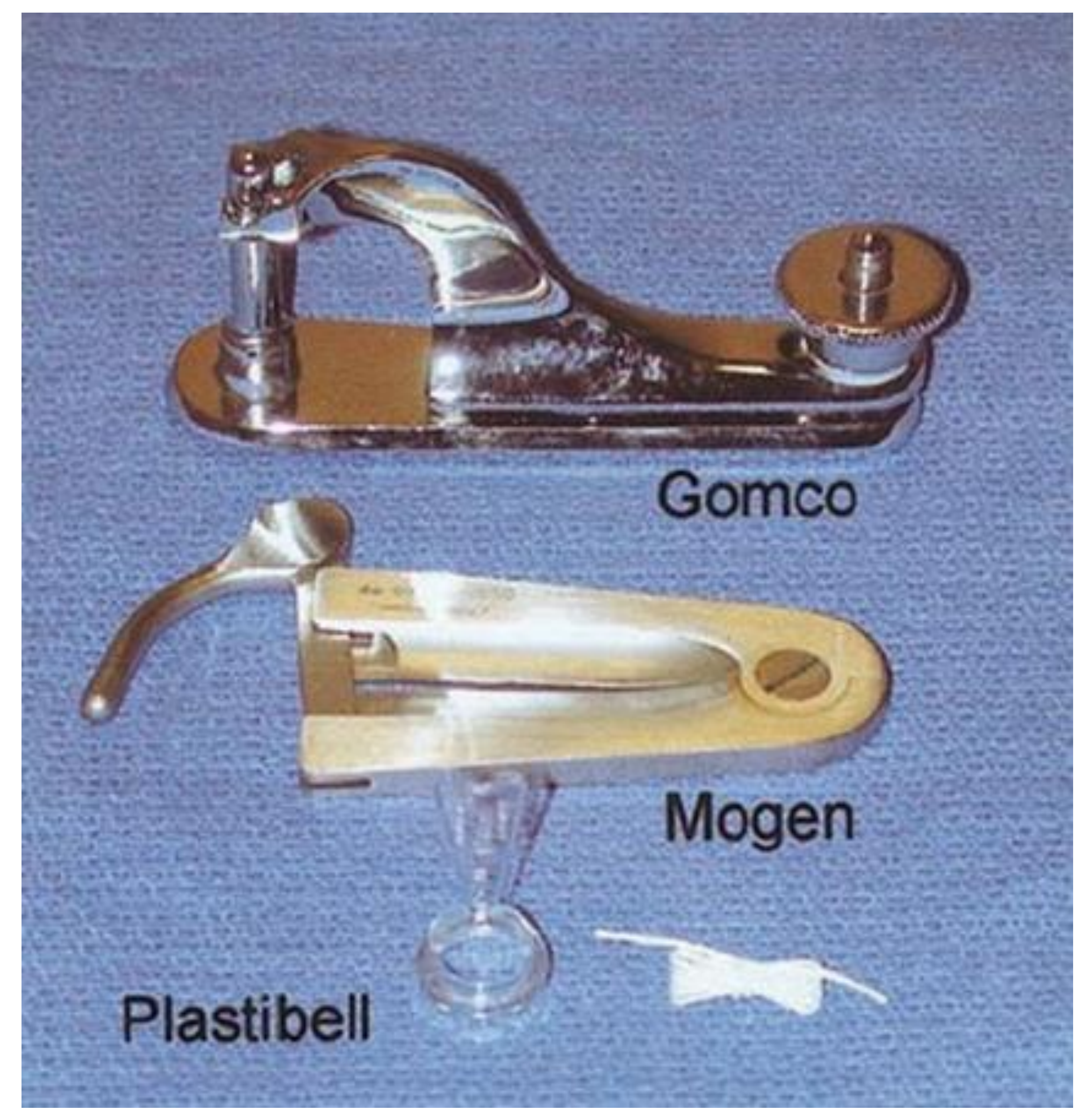
(LOWDERMILK ET AL., 2020)

CIRCUMCISION TECHNIQUES

Gomco: surgical removal of the foreskin; minimizes blood loss

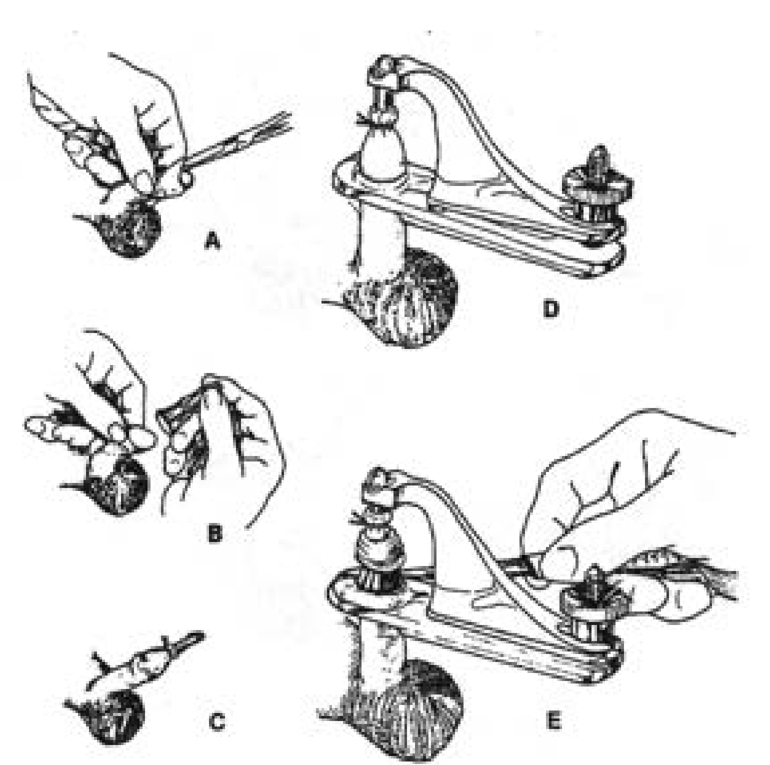
Mogen clamp: see above

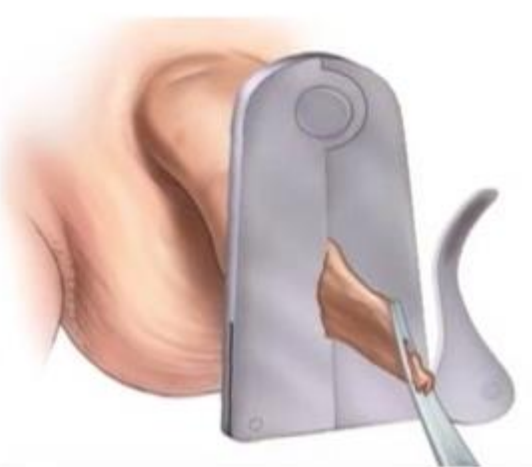
PlastiBell: plastic bell is fitted over glans, suture is tied around the rim of the bell, and excess foreskin is cut away; plastic rim remains in place and falls off when healing has taken place

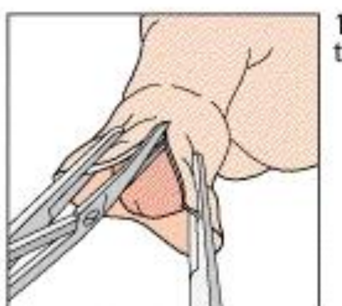


(LOWDERMILK AT AL., 2020)

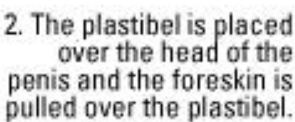
CIRCUMCISION TECHNIQUES







1. An incision is made in the top of the foreskin.



2. The plastibel is placed over the head of the penis and the foreskin is pulled over the plastibel.

3. A suture is tied around the foreskin over the tieing groove in the plastibel. Excess skin beyond the suture is trimmed away. The plastibel falls off 3-7 days later.

CIRCUMCISION ASSESSMENT

- Post procedure, infant may be fussy for several hours and may have disturbed sleep-wake states and disorganized feeding behaviors
- Assess for bleeding per institution policy (Q15-30mins first hour; Q1H for 4-6 hours, with each diaper change thereafter)
- Apply gentle pressure if bleeding occurs
  - If bleeding does not resolve with pressure – notify provider – may require ligation of blood vessel
- Assess pain
- Monitor for first void post circumcision
- Monitor for infection

(LOWDERMILK ET AL., 2020)

CIRCUMCISION CARE & PARENT EDUCATION

- Check for bleeding with each diaper change
- Monitor urinary output
- Keep area clean
  - Frequent diaper changes;
  - Cleanse penis gently with warm water only for first 3-4 days
  - No baby wipes or soap until healed
  - Apply Vaseline with each diaper change for 7-10 days (not used after Plastibell)
  - Sponge bathe/avoid immersion bathing until healed
- Notify provider if signs or symptoms of infection are present
- Provide comfort
  - Handle area gently
  - Provide nonpharmacologic comfort measures

(LOWDERMILK ET AL., 2020)

CIRCUMCISION SPECIAL CONSIDERATIONS

- Plastibell:
  - Inspect the position of the plastic ring
  - Notify provider if the ring moves onto the shaft of the penis
  - Plastic ring should fall off after 1 week
  - Instruct parents to notify provider if plastic ring is still in place after 8 days
  - Petroleum jelly or dressing are usually not applied to the penis
- Healing process:
  - Glans of the penis is dark red after circumcision
  - Granulation tissue develops on glans in 24-48 hours, persists for 2-3 days
  - Do not attempt to remove yellow exudate

(LOWDERMILK ET AL., 2020)

NEONATAL PAIN

- Assess for pain routinely
  - With vitals
  - More frequently with routine procedures (especially heel sticks, injections, circumcision, etc.)
- Consider health of neonate, type and duration of painful stimulus, environmental factors, and infant's states of alertness
- Behavioral state of the newborn affects the pain response
  - More awake = more robust pain response compared with sleep state
- Source, location, timing also affect response
- Newborns respond differently to acute pain than prolonged/recurrent pain
- Severely compromised or preterm neonates may have varied pain response

(LOWDERMILK ET AL., 2020)

NEONATAL PAIN ASSESSMENT TOOLS

Scoring Tool	Intended Use
NIPS Neonatal Infant Pain Scale	Acute pain, postoperative pain
PIPP Premature Infant Pain Profile	Acute pain
NPASS Neonatal Pain Agitation and Sedation Scale	Acute pain, prolonged pain, level of sedation
CRIES C—Crying; R—Requires increased oxygen administration; I—Increased vital signs; E—Expression; S—Sleeplessness	Prolonged pain, postoperative pain

(LOWDERMILK ET AL., 2020)

NEONATAL INFANT PAIN SCALE (NIPS)

A score of > 3 indicates pain

	Score	Finding	Details
Facial expression	0	Relaxed muscle	Restful face, neutral expression
	1	Grimace	Tight facial muscles, furrowed brow, chin, jaw
Cry	0	No cry	Quiet, not crying
	1	Whimper	Mild moaning, intermittent
	2	Vigorous cry	Loud scream, rising, shrill, continuous
Breathing patterns	0	Relaxed	Usual pattern for this baby
	1	Changed	Indrawing, irregular, faster, gagging
Arms	0	Relaxed/restrained	No muscular rigidity, occasional movement
	1	Flexed/extended	Tense, straight arms, rigid, extension/flexion
Legs	0	Relaxed/restrained	No muscular rigidity, occasional movement
	1	Flexed/extended	Tense, straight legs, rigid, extension/flexion
State of arousal	0	Sleeping/awake	Quiet, peaceful, sleeping, or alert and settled
	1	Fussy	Alert, restless, and thrashing

NEONATAL PAIN, AGITATION, AND SEDATION SCALE (NPASS)

Score > 3 requires treatment and/or intervention

Assessment Criteria	Sedation		Sedation/Pain	Pain / Agitation	
	-2	-1	0	1	2
Crying Irritability	No cry with painful stimuli	Moans or cries minimally with painful stimuli	No sedation/ No pain signs	Irritable or crying at intervals Consolable	High-pitched or silent-continuous cry Inconsolable
Behavior State	No arousal to any stimuli No spontaneous movement	Arouses minimally to stimuli Little spontaneous movement	No sedation/ No pain signs	Restless, squirming Awakens frequently	Arching, kicking Constantly awake or Arouses minimally / no movement (not sedated)
Facial Expression	Mouth is lax No expression	Minimal expression with stimuli	No sedation/ No pain signs	Any pain expression intermittent	Any pain expression continual
Extremities Tone	No grasp reflex Flaccid tone	Weak grasp reflex ↓ Muscle tone	No sedation/ No pain signs	Intermittent clenched toes, fists and/or finger splay Body is not tense	Frequent clenched toes, fists and/or finger splay Body is tense
Vital Signs HR, BP, RR, O_2 Sats	No variability with stimuli Hypoventilation or apnea	< 10% variability from baseline with stimuli	No sedation/ No pain signs	↑10-20% from baseline SaO_2 ↓ to 76-85% with stimulation - quick ↑	↑> 20% above baseline SaO_2 to ↓ <75% with stimulation - slow ↑ Out of sync with vent

Loyola University Health System,
Loyola University Chicago, 2009
(Rev. 2/10/09) Pat Hummel, MA, APN, NNP, PNP

Premature Pain Assessment: + 1 if < 30 weeks gestation / corrected age

PHYSIOLOGIC RESPONSES TO PAIN

Vital Signs	Oxygenation	Skin	Lab Values Indicating Metabolic or Endocrine Changes	Other Observations
•↑ HR •↑ BP •Rapid, shallow respirations	•↓ transcutaneous O2 sat •↓ arterial O2 sat	•Pallor or flushing •Diaphoresis •Palmar sweating	•Hyperglycemia •↓ pH •↑ corticosteroids	•↑ muscle tone •Dilated pupils •↓ vagal nerve tone •↑ ICP

(LOWDERMILK ET AL., 2020)

BEHAVIORAL RESPONSES TO PAIN

Vocalizations	Facial Expression	Body Movement & Posture	Changes in State
•Crying •Whimpering •Groaning	•Grimaces •Furrowed brow •Quivering chin •Tightly closed eyes •Open, squarish shaped mouth	•Limb withdrawal •Thrashing •Rigidity •Flaccidity •Fist clenching	•Sleep-wake cycles •Feeding behaviors •Activity level •Fussiness, irritability •Listlessness

(LOWDERMILK ET AL., 2020)

MINIMIZING STRESS AND PAIN

Provide non-pharmacologic support

- Oral sucrose
- Positioning – facilitated tucking (arms and legs flexed, close to midline)
- Containment
- Swaddling
- NNS – pacifier
- Skin to skin
- Breastfeeding
- Decrease environmental stimuli
- Sensorial saturation – term infants only

(LOWDERMILK, ET AL., 2020; VOHRA ET AL., 2017)

MINIMIZING STRESS AND PAIN

- Perform during immunizations, blood draws, heel-pricks, and any other painful procedures
- Initiate a few minutes prior to procedure
  - Allow time to newborn to relax and reorganize
- Combining 2 or more methods results in more effective pain reduction
- **Breastfeeding is the first choice**

(LOWDERMILK, ET AL., 2020; VOHRA ET AL., 2017)

SUCROSE VS. BREASTMILK

- Sucrose provides a morphine-like effect
  - Place drops on pacifier or on tip of tongue
  - 0.1 - 0.2mL (2.5 - 5 drops)
- Research indicates there is not a significant difference in the pain perception of using breast milk, either through breastfeeding or expressed breastmilk compared to the use of sucrose

(CODIPEITRO ET AL., 2008; VOHRA ET AL., 2017)

NEWBORN SAFETY

- Drop/fall prevention
- Sleeping environment
- Car Seat
- Safe skin to skin

NEWBORN DROP/FALL

- Risk factors
- Safety precautions:
  - Place infant in bassinet if parent becomes sleepy
  - Hourly rounding
  - Transportation of infant in bassinet

(LOWDERMILK ET AL., 2020)

SAFE SLEEP

- Back to sleep
- Firm sleep surface with no additional bedding, soft objects, positioners
- Do not cover with blankets
- Breastfeeding
- Room sharing, not bed sharing, for the first year (most important for the first 6 months of life)

(AAP & ACOG, 2017)

SAFE SLEEP – CONT.

- Consider pacifier use at nap time and bedtime
- Avoid smoke exposure
- Avoid overheating and head covering
- Health care professionals should model safe sleep measures from birth

(AAP & ACOG, 2017)

CAR SEATS

- Car seat safety tips – see resources tab
- Car seat study:
  - "Infant car seat challenge"
  - Performed on infants <37 weeks gestation, <2500g
  - Monitored for 90-120 minutes or length of time equal to care ride home
  - Monitors for apnea, bradycardia, and decreased oxygen saturations
  - Demonstrates how well the infant tolerates being in a semi-reclined position
  - Caution! - commonly used infant equipment places infant in the same position

(LOWDERMILK ET AL., 2020)

CAR SEAT SAFETY

Anita Owen BSN, RN, CPST

SUPC

SUDDEN UNEXPECTED POSTNATAL COLLAPSE

SUDDEN UNEXPECTED POSTNATAL COLLAPSE

Occurs when a spontaneously breathing newborn unexpectedly and suddenly becomes:

- Limp
- Pale or cyanotic
- Bradycardic
- Unresponsive
- Apneic
- And requires cardiopulmonary resuscitation from temporary or permanent cardiac and/or respiratory failure

(AAP, 2016; AWHONN, 2020)

SUDDEN UNEXPECTED POSTNATAL COLLAPSE

SUPC is a safety concern during skin to skin postpartum

Synonymous terminology:

- Suffocation
- Asphyxiation
- Strangulation
- Entrapment
- Life threatening event
- Brief resolved unexplained event

(AAP, 2016; AWHONN, 2020)

SUDDEN UNEXPECTED POSTNATAL COLLAPSE

Occurs in infants who are:

- Term or near-term (born at > 36 weeks gestation)
- Healthy at birth
- Have a 5-minute Apgar score > 8
- And experience cardiorespiratory collapse within the first week of life

(AAP, 2016; AWHONN, 2020)

ETIOLOGY

- Most common cause is positional occlusion of the newborn's airway
  - Unsafe positioning while skin to skin
  - Not paying close attention to infant while breastfeeding
- May also be related to previously unknown newborn pathophysiology
- Other potential medical conditions should be excluded for SUPC to be diagnosed (i.e. sepsis, cardiac disease)

(AAP, 2016; AWHONN, 2020)

WHO IS AT INCREASED RISK?

Maternal	Perinatal	Neonatal	Environmental
• Primiparous status • Maternal fatigue • Maternal BMI >25 • Medications causing drowsiness/sedation • Maternal smoking during pregnancy • Sleep deprivation • Fatigue	• Category III FHR • Shoulder dystocia • Operative vaginal birth • Maternal medications affecting newborn (general anesthesia, mag) • Skin to skin • Breastfeeding	• Resuscitation at birth • Low APGAR scores • Late preterm • Early term (37-39 weeks) • Excessively sleepy	• Distraction in caregivers • Unsafe positioning • Lighting

(AAP, 2016; AWHONN, 2020)

WHEN SUPC OCCURS, THE NEWBORN APPEARS QUIET OR ASLEEP AND PROGRESSES THROUGH:

- Hypoxia
- Bradypnea
- Bradycardia
- Color changes from pale to gray or blue
- Unresponsiveness

(AAP, 2016; AWHONN, 2020)

OUTCOMES

- Full recovery with no neurologic consequences
- Mild/moderate/severe neurologic damage
  - Hypoxic-ischemic encephalopathy
  - Cerebral palsy
- Death - “sudden, unexpected infant death”
- Rapid identification and initiation of resuscitative interventions are critical

(AAP, 2016; AWHONN, 2020)

PREVENTION

- Continuously monitor the newborn throughout first 2 hours of life
- Continue to observe and monitor for SUPC during skin to skin and breastfeeding regularly throughout entire hospital stay
- Conduct visual observations of newborn positioning during routine nursing interactions

  Consistently reinforce family education
- Ensure nursing staff are competent in NRP, safe positioning, and monitoring of the newborn during skin to skin contact and breastfeeding
- Promote safe environment
  - Stable ambient temperature
  - Appropriate lighting for assessments
  - Unobstructed view of newborn

(AAP, 2016; AWHONN, 2020)

ASSESSMENT

Frequent and repetitive assessments should be performed throughout the postpartum period

Assessment components include:

- Breathing
- Activity
- Color
- Tone
- Position
- Feeding assessments

(AAP, 2016; AWHONN, 2020)

PARENT/FAMILY EDUCATION

Steps for safe positioning during skin to skin to ensure airway protection

Mothers and families should avoid all distractions during skin to skin and breastfeeding

Mothers should be alert and able to continuously observe her newborn for breathing, position, activity, and color at all time during holding, breastfeeding, and skin to skin

Mothers should be able to distinguish normal sleep from a developing SUPC

Newborn should be placed supine in a bassinet or crib, or with another support person, when the mother is sleepy, not alert, or not attentive

(AAP, 2016; AWHONN, 2020)

Normal Sleep	Developing SUPC
• Regular chest movements, 35-50 times per minute • Pink lips • Easy breathing	• Shallow or no chest movements • Pale or blue lips • Labored or no breathing

NORMAL SLEEP VS DEVELOPING SUPC FOR PARENT EDUCATION

(AAP, 2016; AWHONN, 2020)

Steps for Safe Skin to Skin

To ensure baby remains safe during skin to skin time, mom should sit in a semi-reclined position and hold baby using the following steps:

1. Face can be seen
2. Nose is slightly tilted upward, in a "sniffing" position
3. Mouth and nose aren't covered
4. Head is turned to one side
5. Neck is straight – not flexed or bent
6. Shoulders and chest face mother
7. Legs are flexed
8. Back is covered with a blanket

Adapted from CDC, 2016 DOI: https://doi.org/10.1542/peds.2016-1889 & AWHONN, 2020 DOI: https://doi.org/10.1016/j.jogn.2020.05.002

METHODIST
WOMEN'S HOSPITAL

REFERENCES

American Academy of Pediatrics & American College of Obstetricians and Gynecologists. (2017). *Guidelines for perinatal care* (8th ed.). Elk Grove Village, IL: Author.

American Academy of Pediatrics (2012). Technical report: Male circumcision. *Pediatrics, 130*(3), e759-785. doi:10.1542/peds.2012-1990

American Speech-Language-Hearing Association (2018). Newborn hearing screen. Retrieved from https://www.asha.org/PRPSpecificTopic.aspx?folderid=8589935234§ion=Key_Issues#Technology

AWHONN (2018). *Neonatal skin care: Evidence-based clinical practice guideline* (4th ed). Washington D.C.: AWHONN.

California Maternal Quality Care Collaborative (2020). Mother & baby substance exposure toolkit. Retrieved from https://www.cmqcc.org/resources-toolkits/toolkits/mother-baby-substance-exposure-initiative-toolkit

Codipietro, L., Ceccarelli, M., & Ponzone, A. (2008). Breastfeeding or oral sucrose solution in term neonates receiving heel lance: a randomized, controlled trial. Pediatrics, 122(3), e716-e721. doi:10.1542/peds.2008-0221

Davidson, M., London, M., & Ladewig, P. (2020). *Olds' maternal-newborn nursing & women's health across the lifespan* (11th ed.). Pearson Education, Inc.

Lowdermilk, D. L., Perry, S.E., Cashion, K., & Alden, K. R. (2024). *Maternity & womens's health care* (13th ed.). St. Louis, MO: Elsevier.

Vohra, A., Purani, C., Mehariya, K. M., & Shah, B. (2017). Neonatal analgesia: Effect of sucrose solution versus breastfeeding in procedural pain. Pediatric Oncall Journal, 14(4), 79-81. doi:10.7199/ped.oncall.2017.56