# The Golden Hour

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### Objectives

- Describe strategies to reduce newborn heat loss
- Describe the benefits of skin-to-skin contact during the golden hour
- List interventions recommended to maintain safety during skin-to-skin
- Describe risk factors associated with Sudden Unexpected Postnatal Collapse of the Newborn (SUPCN)
- Describe therapeutic hypothermia
- Define event(s) that prompt the need for therapeutic hypothermia
- Identify newborns who might benefit from newborn cooling

#### Goals of the Golden Hour

Prevent Heat Loss
 Establish Early Feeding/Prevent Hypoglycemia
 Promote Bonding



#### The Golden Hour Overview

Immediate skin-to-skin
 Delayed Cord Clamping
 Establish Early Feeding
 Defer assessments and interventions until after first feeding

- Eyes/Thighs (Erythromycin, Vitamin K, Hepatitis B), weight, full assessment
- APGARS can be assessed during skin-to-skin

### Skin-to-Skin



#### Benefits to mom

More rapid uterine involution
Decreased postpartum blood loss
Increased postpartum weight loss
Less anxiety, more confidence in parenting

CLINICAL REPORT Guidance for the Clinician in Rendering Pediatric Care

# American Academy of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™

### Safe Sleep and Skin-to-Skin Care in the Neonatal Period for Healthy Term Newborns

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#### BOX 1: PROCEDURE FOR IMMEDIATE SKIN-TO-SKIN CARE

- 1. Delivery of newborn
- Dry and stimulate for first breath/cry, and assess newborn
- If the newborn is stable, place skin to skin with cord attached (with option to milk cord), clamp cord after 1 minute or after placenta delivered, and reassess newborn to permit physiological circulatory transition<sup>56</sup>

- 4. Continue to dry entire newborn except hands to allow the infant to suckle hands bathed in amniotic fluid (which smells and tastes similar to colostrum), which facilitates rooting and first breastfeeding<sup>57</sup>
- Cover head with cap (optional) and place prewarmed blankets to cover body of newborn on mother's chest, leaving face exposed<sup>58</sup>
- Assess Apgar scores at 1 and 5 minutes
- Replace wet blankets and cap with dry warm blankets and cap
- 8. Assist and support to breastfeed

#### BOX 2. COMPONENTS OF SAFE POSITIONING FOR THE NEWBORN WHILE SKIN-TO-SKIN<sup>62</sup>:

- 1. Infant's face can be seen
- Infant's head is in "sniffing" position
- Infant's nose and mouth are not covered
- Infant's head is turned to one side
- Infant's neck is straight, not bent

- Infant's shoulders and chest face mother
- 7. Infant's legs are flexed
- Infant's back is covered with blankets
- Mother-infant dyad is monitored continuously by staff in the delivery environment and regularly on the postpartum unit
- When mother wants to sleep, infant is placed in bassinet or with another support person who is awake and alert

### Benefits to baby

Temperature regulation
Blood sugar regulation
Facilitates initial feeding
May aide in transition

### Barriers pre & post Covid



### PLEASE DO NOT ENTER

#### Skin to Skin is currently in progress...

#### THE GOLDEN HOUR

The Golden Hour refers to the first hour of a newborn's life. This is a very special time for bonding and transitioning to life outside the womb. We ask that mother and baby remain Skin to Skin during this time.



I am sorry I couldn't visit with you. I am very busy you see getting to know my new family. This is a high priority for me. Can't wait to meet you soon!

> Love, Baby

Visitors please respect this special time for our new parents and baby by remaining in the waiting area.

### PLEASE DO NOT ENTER

#### Skin to Skin is currently in progress...



#### Direct skin-to-skin contact has numerous benefits for mom and baby.

For Baby:

- Cries less
- Regulates breathing and heart rate
- Maintains temperature
- Higher and more stable blood sugars
- · Early stimulation of immune system
- Calming during procedures
- Baby is more likely to exclusively breastfeed and breastfeed for a longer period of time

- For Mom:
- Decreases chances of excessive bleeding
- Decreases anxiety and pain
- Increases bonding with baby
- Makes it easier to recognize and respond to infant cues
- Builds confidence in infant care

Visitors please respect this special time for our new parents and baby by remaining in the waiting area.

### Skin to Skin in the OR

Teamwork!
Physician
Anesthesia
Support person
Supervision



### Where there's a will...



### Special Considerations



- Spouses
- Same sex parents
- Adoptions
- Surrogates

### Sudden Unexpected Postnatal Collapse of the Newborn

### Sudden Unexpected Postnatal Collapse of the Newborn or SUPCN

- Possible Risk Factors
  - Primiparous mother
  - First breastfeeding
  - Newborn in prone position
  - Mother in supine position during skin-to-skin contact
  - Lack of surveillance by health care staff
  - Parental distraction, such as with smartphones
  - Maternal opiate analgesia or regional or general anesthesia
  - Magnesium sulfate
  - Maternal BMI >  $25 \text{ kg/m}^2$

### What to do about SUPCN

- ► IDENTIFY INFANTS AT RISK
- Elevate HOB if possible
- Observe for the first 2 hours
- Assess position at breast
- EDUCATE parents and support persons

### Cold Stress



#### **Babies at Risk for Cold Stress**

#### Preterm/SGA

- Less Brown Fat and insulating white fat
- Greater surface area in relation to body weight
- Thinner skin

#### Sick Babies

- Stress on metabolism related to increased oxygen and calorie use
- Babies with open defects

### What are some Interventions to Reduce Heat Loss?





- Dry infant
- ► Warm blankets
- ► Hat
- Avoid Drafts
- Maintain Room Temperature

### Non-Shivering Thermogenesis

Heat is produced by increasing metabolism, especially in brown adipose tissue



### Brown Fat Distribution

C

6

K

aS)

### The Radiant Warmer



- Probe placed on abdomen, typically RUQ
   Set Serve at 24 50
- Set Servo at 36.5C

#### Recommended Delivery Room Temperature

#### Term: 72-78 F (AAP)

- Preterm: 74-77 F (NRP)
  - WHO suggests 77-82 F

### Thermal Protection of the Newborn: a practical guide

Adults should not determine the delivery room temperature according to their own comfort.



MATERNAL AND NEWBORN HEALTH/ SAFE MOTHERHOOD UNIT DIVISION OF REPRODUCTIVE HEALTH (TECHNICAL SUPPORT) WORLD HEALTH ORGANIZATION GENEVA

# What about in the Operating Room?

#### • From AORN:

 The recommended temperature range in an operating room is between 68°F and 75°F. Collaborate with infection prevention, and facility engineers when determining temperature ranges. Each facility should determine acceptable ranges for temperature in accordance with regulatory and accrediting agencies.

#### Resources:

 Guideline for a safe environment of care, part 2. In: Guidelines for Perioperative Practice. Denver, CO: AORN, Inc. (Updated March 3, 2015) Special Considerations: The Premature Infant











#### Therapeutic / Neuroprotective Hypothermia for treatment of Hypoxic Ischemic Encephalopathy

Unintentional / Accidental Hypothermia and Rewarming Guidelines

#### **Impaired Placental – Fetal Perfusion**

- Causes → placental abruption, uterine rupture, prolapsed / ruptured cord, maternal collapse requiring CPR
- Results in ↓↓ fetal cardiac output → poor perfusion and oxygenation of fetal organs and brain → *ischemic injury*

#### Asphyxia

 Term used to describe impaired gas exchange that results in hypoxemia and hypercarbia





#### **Birth Asphyxia**

- Known perinatal event capable of impairing perfusion and O<sub>2</sub> delivery
- Results in hypoxia, acidemia and metabolic acidosis

#### Severe Hypoxemia

#### Anaerobic Metabolism

**Lactic Acid Production** 

↓ pH

End Organ + Brain Damage

#### Hypoxic-Ischemic Encephalopathy (HIE)



#### Hypoxic-Ischemic Encephalopathy (HIE)

Initial ischemic insult → cascade of events leading to neuronal death

Striate vessels underperfused → watershed injury to areas of distal perfusion Diffuse white matter injury

Perinatal event disrupts brain perfusion and oxygenation  $\rightarrow$ severely hypoxemic blood  $\rightarrow$  causes brain hypoxia and ischemia



### Hypoxic Ischemic Encephalopathy

# Resuscitation and stabilization factors associated with worsened neurologic outcomes

- Hyperthermia
  - Prevent hyperthermia at all times
  - Treat fever quickly



- Be vigilant! Evaluate glucose often
- Aggressively treat with D<sub>10</sub>W bolus if low
- Maintain the blood sugar
   50 110 mg/dL (2.8 6 mmol/L)



#### Phases of HIE

- Primary Energy Failure
  - initial insult results in cell swelling and necrosis
  - Occurs prior to hypothermia therapy and not affected by treatment
- Secondary Energy Failure
  - reperfusion of the brain, lack of oxygen leads to apoptosis
  - Can be impacted with hypothermia
- Latency Period
  - period between these two phases that allows for a therapeutic window of treatment
- These phases can each occur in utero

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#### Therapeutic Hypothermia

#### Used as a neuroprotective therapy to treat HIE

- Intentional lowering of body temperature to approximately 33.5°C for 72 hours
- Done in a controlled NICU setting
- Only major therapy available to ↓ mortality rate and ↓ chance for major disability





### Therapeutic Hypothermia

#### Candidates

- Started within 6 hours of birth
- > 36 weeks gestation
- > 1800 grams



- Blood gas (cord or neonatal within 1<sup>st</sup> hour of life) pH ≤ 7.0 or base deficit ≥ 16
  - $\hfill If no blood gas available \rightarrow$  other criteria used
- Abnormal neurologic exam

Consult your tertiary care center quickly to discuss candidacy for cooling <u>and</u> whether passive cooling should be initiated prior to arrival of the transport team

#### Passive Cooling...in the waiting

- Turning off radiant warmer no external heat applied to newborn
- Place newborn on <u>unactivated</u> heating mattress absorbs heat from baby
- Initiates cooling earlier
- Performed only under guidance of receiving physician

-The Golden Hour -Acute Perinatal Events -Skin to skin -SUPCS -Cold stress

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