Golden Hour In Neonate

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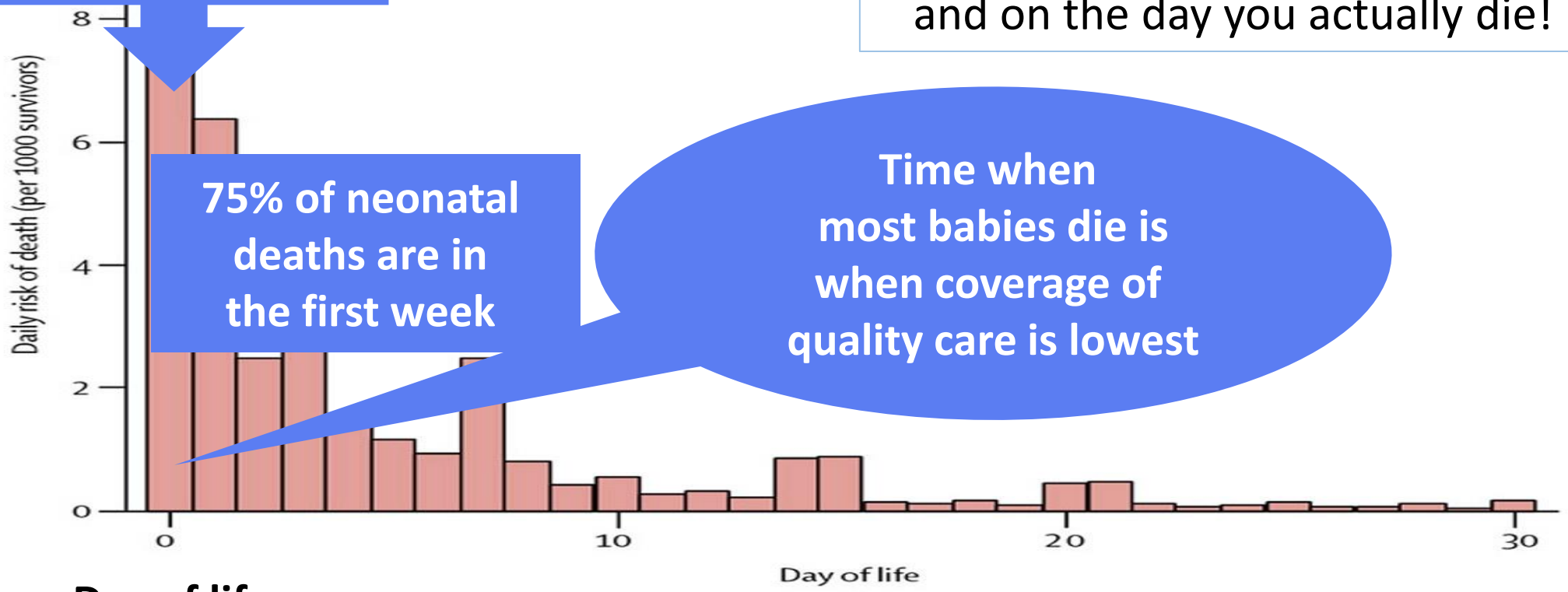
When do newborn babies die?

36% of neonatal deaths are in the first 24 hours

The chances of dying are highest on the day you are born and on the day you actually die!



75% of neonatal deaths are in the first week

Time when most babies die is when coverage of quality care is lowest

Day of life

Adapted from Lawn J Lancet 2005

Golden Hour- first 60 minutes of life

Dependent on mother

Temperature control
Oxygenation
Nutrition
Metabolic functions

Independent

Cardiorespiratory
Metabolic function

Still dependent on Mother

Temperature control
Nutrition
Psychological bonding

Hospitals Practices which interfere with the Golden Hour

Immediate clamping of umbilical cord

Taking baby away from the mother for "routine" tasks

Cleaning up the baby
Weighing the baby
Examining the baby
Checking temperature
Giving Vitamin K injection

Golden Hour

- Peaceful and calm 60 minutes after birth
- Promotes maternal-newborn bonding
- Decreases maternal and newborn stress levels
- Improves neonatal thermoregulation
- Encourages breast feeding

Golden Hour in preterm or sick newborn

- Goal is to stabilize the small or sick newborn in a carefully coordinated manner to give him or her a good start.
- Decrease mortality
- Decrease morbidity
- Allay anxiety in mother and family

Attendance at delivery

- **AAP/AHA Neonatal Resuscitation Program 8th edition:**
- " Every birth should be attended by at least 1 qualified individual who can **initiate** resuscitation and whose **sole** responsibility is management of the newborn baby"

- Note:
- ➢*Every Birth*
- ➢*Initiate resuscitation if required*
- ➢*Sole responsibility is the baby*

Expectation: Delivery Attendance

Routine Term

- **One** NRP trained person present at every delivery in whose primary responsibility is making sure baby successfully transitions to extra uterine life
- High Risk Term/Preterm

- **At least 2**trained persons ready to initiate life saving steps if indicated

- Preterm
- Ability to have additional help as needed especially ELBW, VLBW
- Have appropriate Equipment, Supplies, Oxygen, Blender

Different Approach to Resuscitation

- **ADULT**
- Prior to the collapse, they were breathing
- Lungs are filled with air
- Need to get blood pumped from the heart and get oxygen from lungs into blood
- **Heart has the problem**
- **CHEST COMPRESSION FIRST**

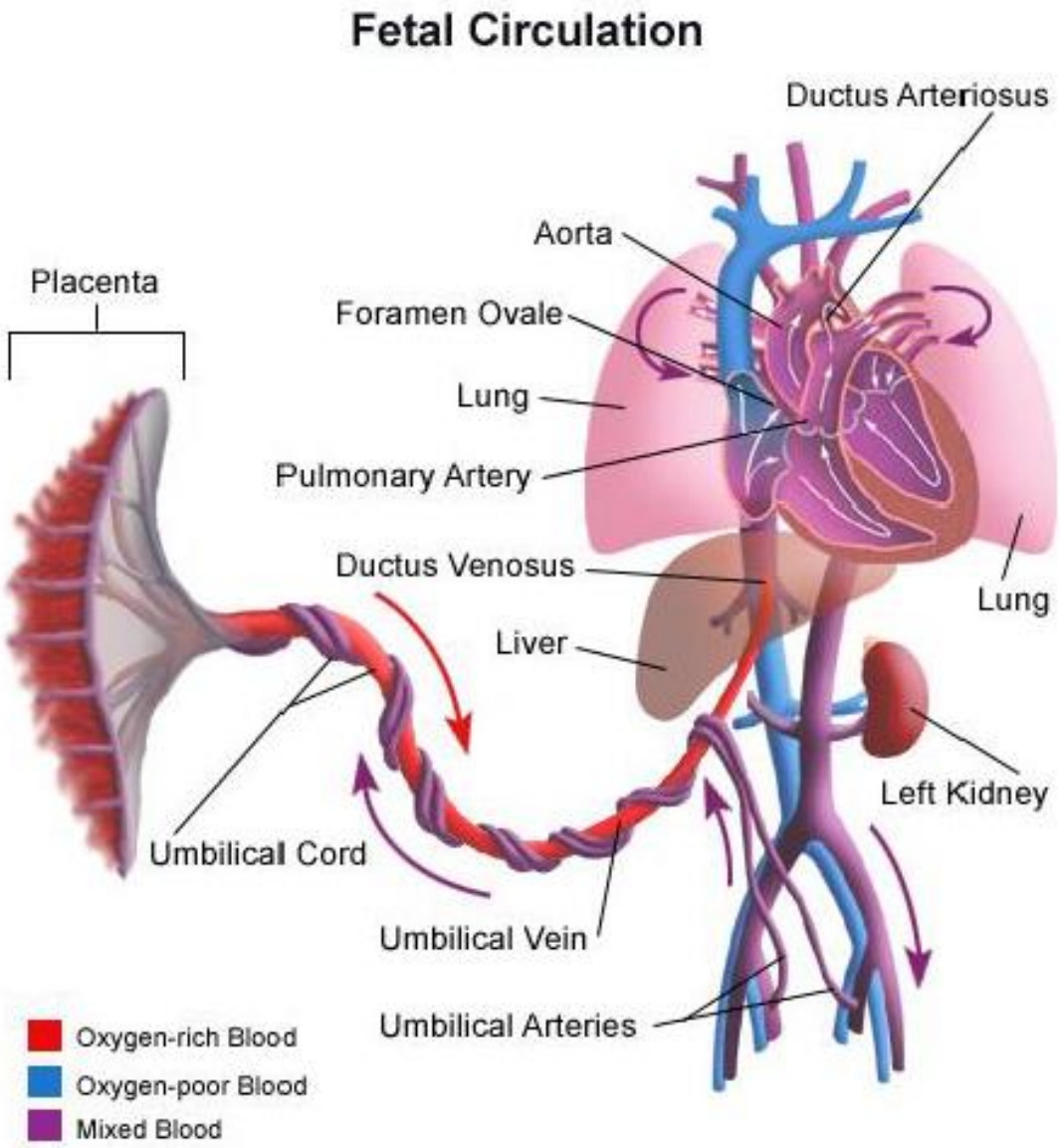
- **NEWLY BORN**
- Fetal Breathing: no gas exchange
- In utero: fluid filled lungs, not air
- Oxygen supplied by placenta
- **Heart is healthy**
- Need to get air into lungs
- **PPV FIRST**

In Utero: Placenta Function

- **Placenta provides respiratory gas exchange**
  - Oxygen to baby via Umbilical vein
  - Carbon dioxide returns to placenta via Umbilical Arteries

- **In Utero Fetal Breathing from ~15 weeks gestation**
  - Role in lung growth and respiratory muscles development
  - Not gas exchange

Fetal Circulation

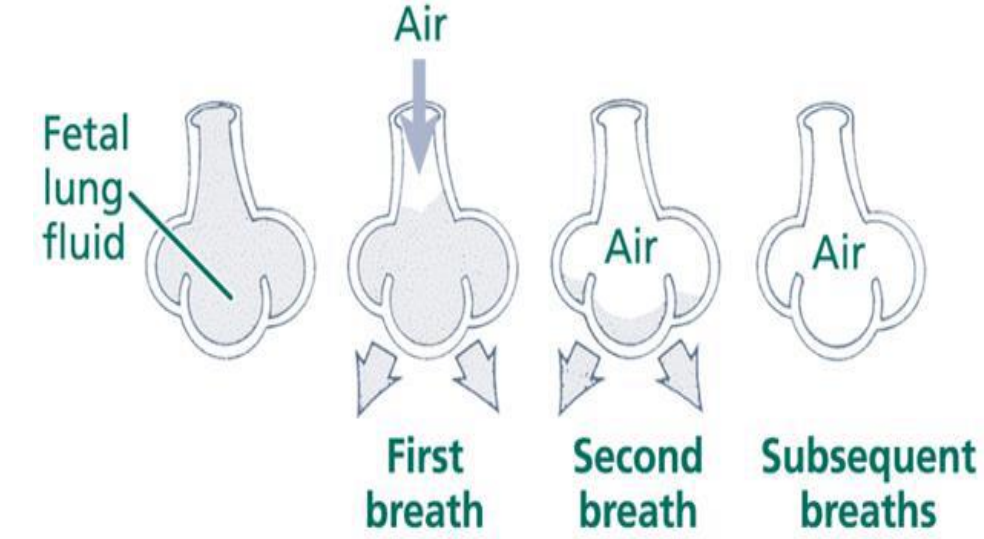


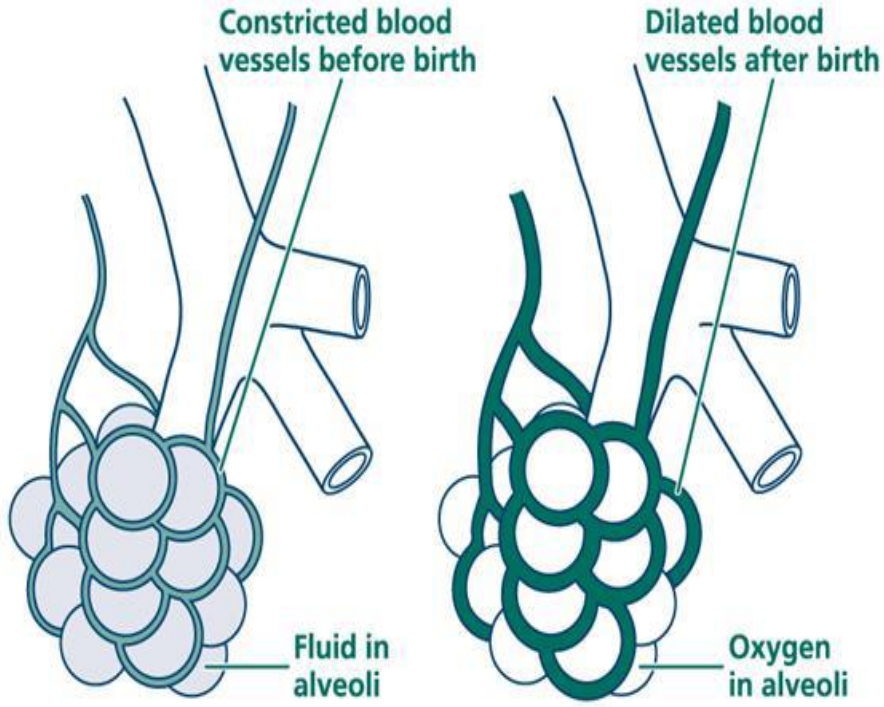
- **Blood from Placenta**
  - Blood flow from placenta to **umbilical vein (UV)**
  - Through **Ductus venosus** (**DV**) into IVC
  - Enters Right Atrium, then across **Foramen ovale** (**FO**) into Left Atrium
  - To Left Ventricle, then pumped out through Aorta to brain and body
    - MOST OXYGENATED BLOOD TO BRAIN
- **Blood return from brain/upper body**
  - To SVC to Right Atrium
  - About 20% cardiac output to Right ventricle to Pulmonary artery- tightly vasoconstricted so blood divert across **Ductus Arteriosus** (**DA**) to Aorta
  - Blood to distal aorta and back to placenta via **umbilical arteries (UA)**
  - Lower pO2 and saturation in UA than UV

Transition

- **Ideally when baby is born: breaths/cries-** displaces fluid in lungs with air

- Vasoconstricted pulmonary blood vessels dilate allowing more blood flow into lungs
- Oxygen in lungs transfers into the blood and carbon dioxide from blood into lungs to be exhaled.
- Increase in blood flow to left atrium and to left ventricle, pumped out through Aorta to brain and body





Dilation of pulmonary blood vessels at birth

Change in Systemic Vascular Resistance

- **Clamping the umbilical cord leads to increased systemic vascular resistance (BP)**
  - Increased pressure left atrium => closure Foramen ovale
  - Increased flow from pulmonary artery in lungs=> decrease R to L flow across DA
  - As increase in O2 saturation => gradual closure of DA
  - Loss of venous flow from UV=> closure of DV

- **Transition starts within minutes but physiologically and physically may take weeks to months (complete relaxation of pulmonary vessels may take months)**

Prior to Delivery

- Antenatal Consult
- Team Briefing
- Equipment check general and specific
- **PRE-BIRTH QUESTIONS**
- Gestational Age
- Amniotic Fluid –Clear/Blood/Meconium
- Risk Factors: Maternal/Fetal
- Cord Management -Delay

Initial Evaluation After Birth

Correlates with effective transition

- Term or Preterm
- Breathing/Crying
- Tone
- **Not breathing/Crying?**
- **Poor tone?**

Initial Steps

- **Warm, Dry**
- **Stimulate, Position Airway**
- **Suction only if visible secretions**

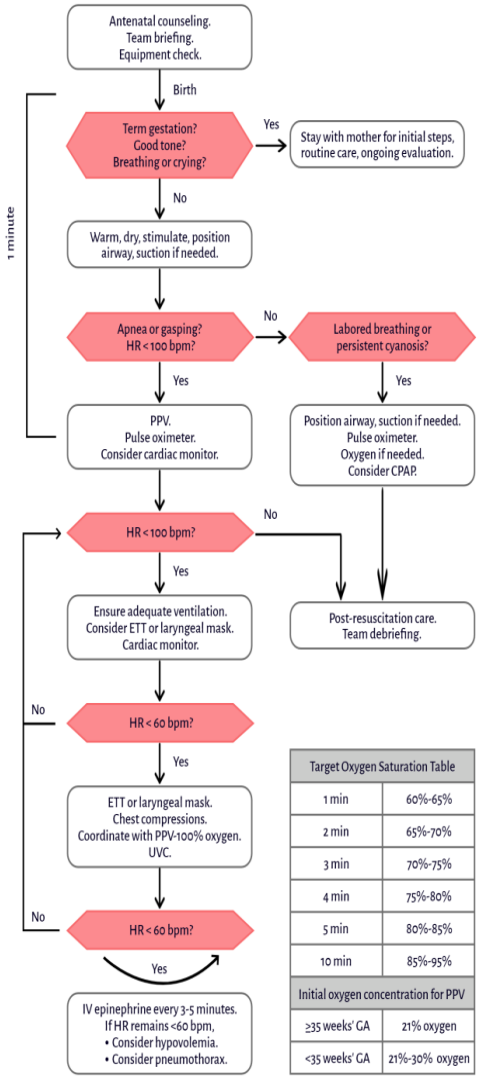
NRP algorithm

A. Airway-initial steps to establish open airway and support spontaneous respiration

B. Breathing: assist with positive pressure ventilation, CPAP or supplementary oxygen

C. Circulation: support circulation with chest compressions in newborns who have bradycardia despite PPV

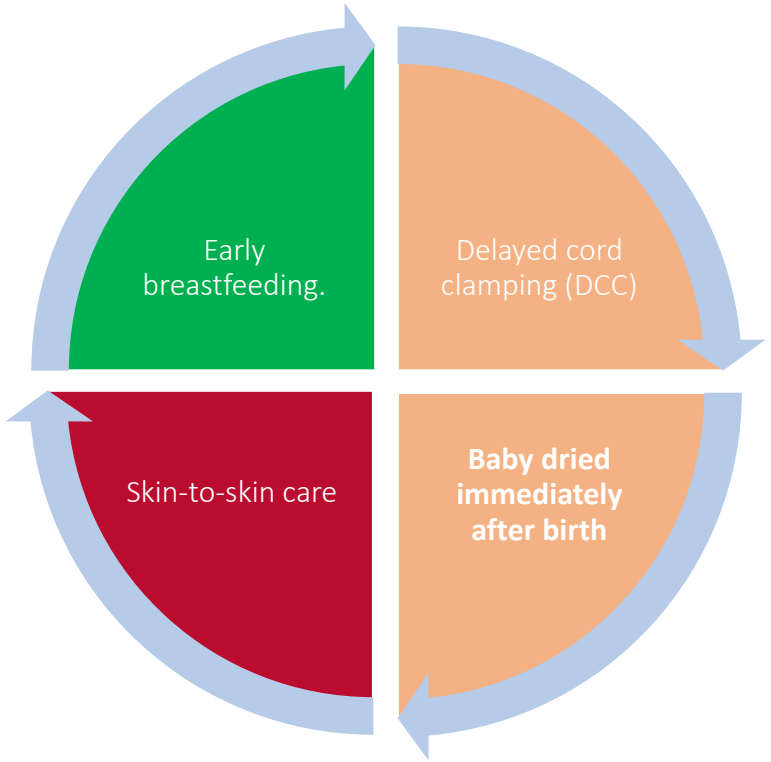
D. Drug: Drug epinephrine is administered if bradycardia persists despite chest compressions and PPV



Golden Hour for Well Term and Late **Preterm**(more than 34 weeks gestational age) who do not require resuscitation at birth

The main components are:

- 1.Delayed cord clamping
- 2.Dried newborn immediately.
- 3.Skin to skin care
- 4.Early breast feeding.



Oxygen

- No Changes: avoid hyperoxia or hypoxia
- Late Preterm and Term: 21% adjust as indicated
- Preterm: 30% adjust as indicated

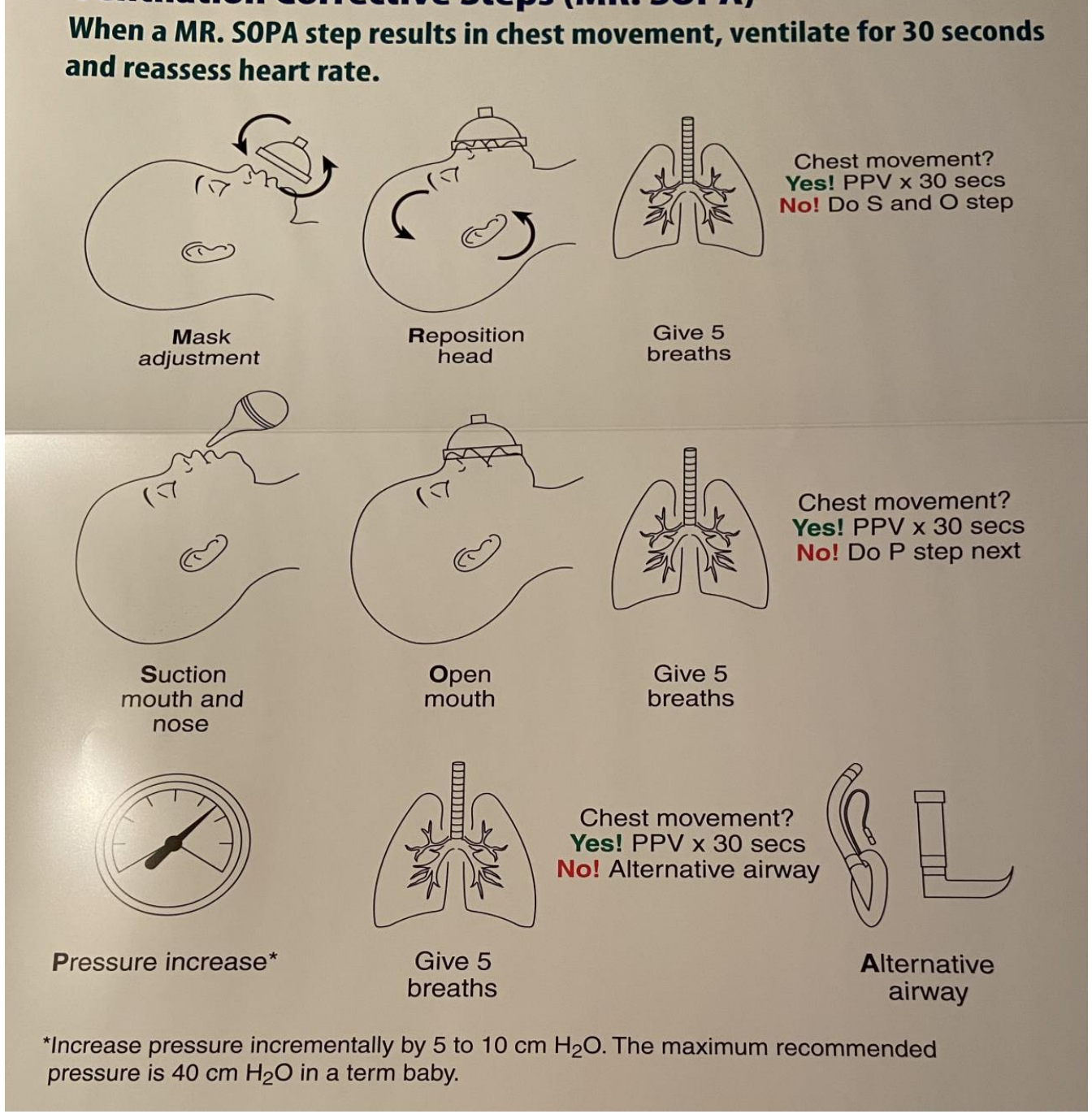
- Requirement
- **Oxygen with blender in DR and NICU**
- Titrate FIO2 to meet saturation goals; **adjust every 30 seconds**
- Do not allow saturations to remain below 80% at 5 minutes
- Use 100% oxygen with Chest Compressions

Assess Breathing

- Apnea, Poor Effort, Low HR
- PPV:
  - •Bag and Mask
  - •T piece
- Check HR in 15 sec
  - Rising HR
  - Chest Rise
  - Cry, Breathing

MR SOPA

- No changes
- Pictures



Chest Compressions

Indication: If HR <60 b/min after 30 secs PPV with alternative airway

- Clarification of Method and Position
- **Encircle chest use Two Thumbs**
  - AVOID TWO FINGER METOD
- **Chest Compression Person to HEAD OF BED**
  - **Person managing Airway step to side**
- Ratio unchanged 3 compressions to 1 breath

"1 and 2 and 3 and breathe, 1 and 2 and 3 and breathe, 1 and 2……"

Vascular Access: UVC

- Emergent placement of low lying Umbilical Venous Catheter
- Position well below liver and Portal system
- Advantages –
  - No need for CXR confirmation of placement
  - After preparing the skin, cutting cord, should take 1.5 minutes to insert
  - Placement 2-4 cm below skin

Epinephrine

Dosage simplified

- **Epinephrine dosage IV/IO: 0.02mg/k = 0.2ml per kg**
    - Calculated for most weights
    - Range of dose still 0.01-0.03mg/k
- Epinephrine dosage ETT: 0.1 mg/k = 1ml per kg*
- Flush IV/IO: 3 ml Normal Saline
- *ETT only while getting IV access

Volume

- No changes in indication
- Clarify: volume of Saline given over 5-10 minutes
- Clarify: given after Epinephrine if no responds

- Un-cross matched O negative packed red cells can be used
- Usually 10-15 ml/kg over 1-2 hours
    - Maternal, Fetal hemorrhage
    - Pale, in shock

Resuscitating a preterm infant: support transition to extra-uterine life European consensus guidelines Neonatology 2019

- Stimulate newborn gently-
helps with establishing regular respirations
- Early CPAP 6 cms, up to 8 cms
- Start with 30% oxygen/ use blender in DR
- Titrate oxygen up or down based on pulse oximetry
- Monitor HR by auscultation (ECG or pulse oximetry)
- Gentle positive pressure inflations of 20-25 cmsH20 PIP (peak inspiratory pressure) only for persistently apneic or bradycardic newborns
- For infants< 32 weeks GA, try to achieve saturations of 80% or more and HR>100/min within 5 minutes

T piece resuscitator

•Easy to provide CPAP:
Positive end expiratory pressure (PEEP) facilitates lung a
•More consistent PIP and PEEP when using T piece resus
self inflating bag
•Some evidence of decreased rates of BPD and mortality in preterm infants.

➢However, T piece resuscitator needs source of compressed gas
➢Self inflating bag should be available as backup

ILCOR 2021 Neonatal Life Support recommendation “When resources permit, we suggest the use of T-Piece resuscitator over a self inflating bag”

Intubation and Surfactant in preterm infants

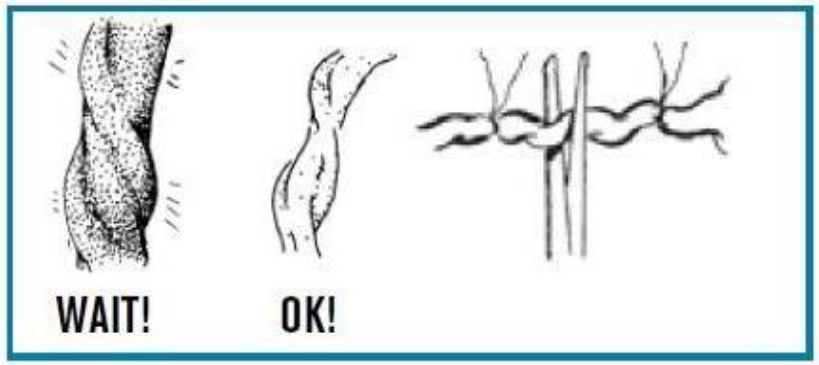
- Intubation should be reserved for babies not responding to PPV via face mask or nasal prongs
- Babies who require intubation for stabilization should be given surfactant
- Avoid “prophylactic intubation” and “ prophylactic surfactant”
- Early rescue surfactant: infants with RDS on CPAP ≥ 6 cms, needing FiO_2 ≥0.3 (30% oxygen)

World Health Organization

"optimal time to clamp the umbilical cord for all infants regardless of gestational age or fetal weight is when the circulation in the cord has ceased, and the cord is flat and pulseless (approximately 3 minutes or more after birth)"

2007

3. **After cord pulsations have ceased (approximately 3 minutes after delivery),** clamp and cut the cord following strict hygienic techniques.



ACOG | Clinical
The American College of Obstetricians and Gynecologists

The American College of Obstetricians and Gynecologists
Committee on Obstetric Practice
Committee Opinion Number 814 December 2020

- In term infants, delayed umbilical cord clamping increases hemoglobin levels at birth and improves iron stores in the first several months of life, which may have a favorable effect on developmental outcomes

- There is a small increase in the incidence of jaundice that requires phototherapy in term infants undergoing delayed umbilical cord clamping.
- Consequently, obstetrician–gynecologists and other obstetric care providers adopting delayed umbilical cord clamping in term infants should ensure that mechanisms are in place to monitor and treat neonatal jaundice.

- Delayed umbilical cord clamping does not increase the risk of postpartum hemorrhage.

Duration of Delayed Cord Clamping

•The World Health Organization (WHO): at least 1 to 3 minutes.

•The American College of Obstetrics and Gynecology (ACOG) and American Academy of Pediatrics 9 AAP):at least 30 to 60 seconds.

•The American College of Nurse Midwives (ACNM):

- 5 minutes if the baby is being held skin to skin with mother
- 2 minutes if the baby is being held below the level of the introitus.

•NICE Guidelines, United Kingdom: not before 5 minutes

Procedure of DCC

•In a vaginal delivery place baby on mother's lower abdomen, wipe baby quickly with a clean warm towel and cover with warm towel or blanket.
•In a C-Section, dry and wrap baby in warmed sterile towel/ blanket; hold baby below level of placenta, most commonly over her thighs.

•Routine suctioning of the oropharynx is not required.
•If the baby is crying, the baby is breathing.
•If the baby is not crying, he or she may be stimulated to breathe by stroking the back firmly 3 to 4 times.

•Cord clamping may be performed at 1 to 3 minutes of age in a baby who is breathing well.
•A nurse or midwife should monitor the time from delivery to cord clamping and call out the time-30 seconds, 1 minute, 1.5 minutes, 2 minutes etc to ensure that the cord is not clamped and cut too soon.

Contra indications to DCC

•If the baby is not breathing, umbilical cord milking may be carried out or the cord may be clamped and cut and the baby handed over the neonatal team for resuscitation.

•There are currently clinical trials of resuscitating babies with an intact cord.

•DCC is also not performed if the mother is ill and requiring urgent interventions at the time of delivery.

•Maternal HIV infection, Hepatitis B infection, COVID 19 infection or suspected chorioamnionitis **are not** contraindications to delayed cord clamping.

If Delayed Cord Clamping cannot be done, consider Umbilical Cord Milking

- Hold the newborn below the level of the placenta.
- Hold the intact (and often still pulsating) cord between the thumb and forefinger of the dominant hand about 20 cms away from the baby.
- Firmly milk the cord towards the infant 3 to 5 times-this takes 15 to 20 seconds.
- Clamp and cut the cord and hand over the baby to the pediatric team/ nurse

Effect of timing of umbilical cord clamping of term neonates on neonatal outcomes. McDonald SJ, et al.

Cochrane Systematic Reviews July 2013

- 15 trials; 3911 mother –infant pairs
- **Late cord clamping group**

↑ Birth weight (101 g)
↑ Hemoglobin at 24-48 hrs (1.49 g/dL)
↑ Iron stores at 3-6 months
↑Jaundice requiring phototherapy (4.36% vs2.74%)

- **No significant difference in Early vs Late cord clamp:**

–Neonatal mortality
–Apgar score < 7 at 5 minutes of age
–Admission to SCN or NICU
–Respiratory distress
–Polycythemia
–Clinical jaundice

Effect of timing of umbilical cord clamping at preterm birth on maternal and neonatal outcomesRabeH et al Cochrane Database SystRev 2019

25 studies 3100 babies 24 weeks to 36+6weeks GA

- DCC: 30 to 180 seconds, mostly 30-60 seconds
- ECC: less than 30 seconds, mostly immediate

DCC reduces number of babies who die before discharge compared to ECC

average risk ratio aRR0.73, 95% CI 0.54-0.98

DCC ↓ risk of any IVH aRR0.83, 95% CI: 0.70-0.99

No effect on severe IVH or CLD

Not enough information about maternal outcomes

Delayed Cord Clamping / Cord Milking vs Immediate Cord Clamping in Preterm Infants

Cardiovascular Outcomes

Infants with more placental transfusion

- **Less need for inotropic support**

(RR 0.42, 95%CI 0.23 -0.77)

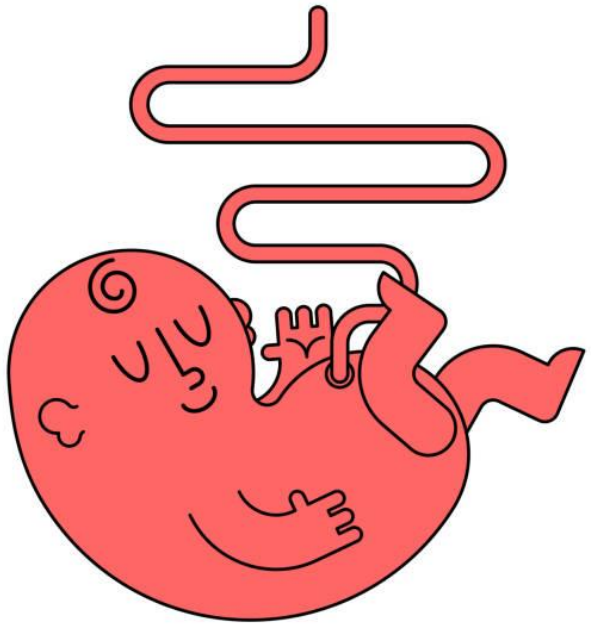
- **Deceased need for transfusion for low BP**

(RR 0.52; 95% CI 0.24-1.11)

- **Mean arterial BP higher at birth and at 4 hours**

(MD 3.52; 95% CI 0.6 to 6.45)

•No difference in treatment for PDA



Delayed Cord Clamping / Cord Milking vs Immediate Cord Clamping in Preterm Infants: Cochrane Review 2012

Hematological outcomes

Transfusions:

✓Reduced blood transfusions for anemia

24% vs36%, RR 0.61 (95% CI 0.46-0.81)

✓Reduced overall number of transfusions

MD -1.26, 95%CI -1.87 to –0.64

Jaundice:

➢Increased peak bilirubin concentrations

MD 15.0 µmol/L, CI 5.62-24.40 [1mg/dl=17µmol/L]

•More phototherapy?

RR1.21, 95% CI 0.94 -1.55

Delayed Cord Clamping / Cord Milking vs Immediate Cord Clamping in Preterm Infants: GI outcomes

Cochrane Review 2012

↓rates of necrotizing enterocolitis

5 trials, 241 infants

RR 0.62, 95% CI 0.43-0.90

If preterm baby does not breath soon after birth and the umbilical cord is clamped immediately

- If no lung expansion, PVR high→ ↓ return of oxygenated blood to LA
- Umbilical arteries occluded→↑afterload

} Decreased LV output

- Umbilical vein occluded ↓ RA filling

} Decreased RV output

- Hypotension > altered cerebral blood flow
- **IVH in preterm infant**

Skin to Skin care –Goal in the Golden Hour

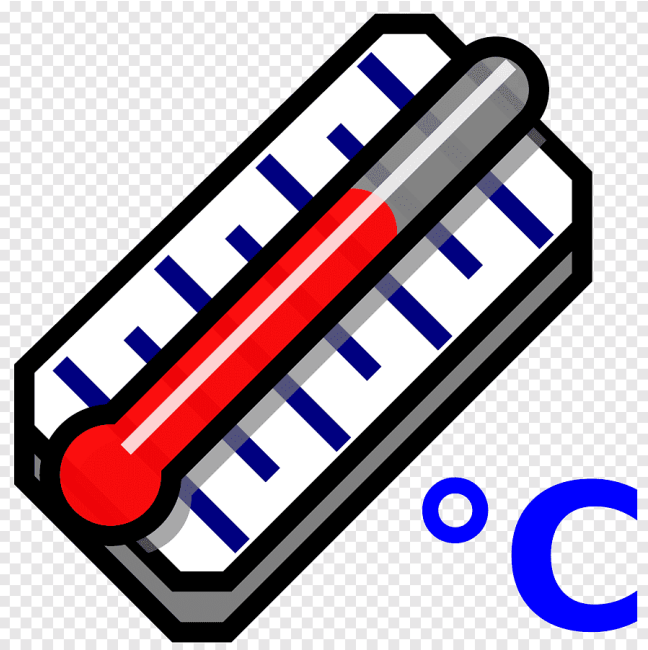
•Uninterrupted contact of mother with baby from birth to at least an hour of age, in order to facilitate bonding and breast feeding.

•All medical interventions are deferred to 60 minutes of age or later.

Thermoregulation

Thermoregulation is the ability to regulate or maintain balance between the neonate's heat generation and heat loss.

Normal temperature range is between 36.5 and 37.5 degrees Celsius



Prevention of Hypothermia in Term and Late Preterm Infants

In **Skin to Skin care**, heat is transferred from the mother to baby

- Mother's body temperature activates the baby's sensory nerves
- Results in the baby's relaxation, reduction in the tone of the sympathetic nerves, dilation of the skin vessels, and increase in the baby's body temperature
- **Skin to Skin benefits include**:
- Regulating heart rate, temperature, and respirations
- Greater weight gain
- Quicker to stabilize thermoregulation than incubator care

Kangaroo Mother Care in Low Birth Weight infants Cochrane Database Syst Rev 2014

18 studies: 2751 infants

↓ mortality: RR 0.60 [95%CI: 0.39-0.92]

↓ hypothermia: RR 0.34 [95%CI 0.17-0.67]

↓ nosocomial infection: RR 0.45 [0.27-0.76]

↓ length of hospital stay: mean diff 2.2 days

Prevention of Hypothermia in Infants 32-36 weeks GA

Warm and humid environment

- **Warmed blankets and bed**
- **Dry infant immediately**
- **Place infant skin to skin with mother if the infant does not have respiratory distress**
- **Place hat after head dried**
- **Infant's temperature should be stable for at least 24 hours prior to bathing**

Prevention of hypothermia in delivery room/OR for infants <32 weeks

Rooms should be 23-25 C

- All surfaces that come in contact with infant should be pre-warmed
- Plastic wrap should be used immediately at delivery.
- Infant's head should be dried and a cap should be placed on infant as soon as possible
- Remain in plastic wrap until temperature is stable and/or procedures are done. Accommodations should be made so that procedures can still be done while infants remains in plastic wrap

Transport of VLBW Infant to NICU

Ideally transport incubator

- Otherwise in plastic wrap with chemical mattress
- At least in plastic wrap with warm blanket below and above infant

Baby Bath

•Deferred until the baby is at least 6 hours old and is maintaining temperature well.

•Some women prefer to have their newborns bathed before they hold them.
•In the case of maternal HIV infection or Hepatitis B infection, it is preferable to bath the infant to remove the mother's blood before placing the baby skin to skin.

Physiologic Weight Loss in Term Infants

- Weight loss in 1st week= up to 10% body weight
- ↓ **extracellular water= *isotonic contraction***
- Low volume of colostrum
- Low urine output on day 1
- Increased urine output by day 2-3, with loss of water and sodium in 1st week of life.
- Improved maternal milk production by day 4-5
- Regain birth weight by day 7-10.

8/7/

Fluid issues in Preterm infants

- Trans-Epidermal water loss
- Effect of cardiopulmonary adaptation-Atrial Natriuretic Polypeptide
- Immature kidney function

Clinical Implications

Early: (day1-2):

- Permit isotonic contraction of extracellular compartment
- Allow Negative sodium and water balance
- Allow some weight loss (weight gain on day 1-3 is a sign of water retention)
- Monitor fluid intake closely in ELBW infant –may need to be increased every 8 hours
- Addition of Sodium not necessary on day 1

Fluid Management in Term neonate

Day of life	Total Fluid intake	GIR mg/kg/min	Na mEq/kg/d	K mEq/kg/d	Calcium mg/kg/d
1	60	5-6	0	0	1-2
2	80	6-7	1	1	1-2
3	100	8 -9	2-3	2	2
4	120	9 -10	3-4	2-3	2
5 or more	140 -150	11-12	3-4	2-3	2

Account for all fluids: feeds, arterial lines, pressors, sedatives
Allow postnatal weight loss of 6-10%
Adjust GIR based on blood glucose values

Peripheral IV: no more than 12.5% dextrose and minimize Calcium

Fluid Management in Preterm infant

Day	Birth weight 1000-2000g	Birth weight 750-1000g	Birth weight <750g
1	TFI 80 ml/kg/d GIR 5-6 mg/k/min Na 0, K 0, Ca 1-2	TFI 80 -100 ml/kg/d GIR 5-6 mg/kg/min Na 0, K 0, Ca 2	TFI 100 ml/kg/day, may need to ↑every 8 hrs depending on IWL GIR 4-6 mg/kg/min Na 0, K 0, Ca 2
2	TFI 90 -100 ml/kg/d GIR 6-7 mg/k/min Na 0-1, K1-2, Ca 2	TFI 100 ml/kg/d GIR 6 -7 mg/k/min Na 0-1, K1-2, Ca 2	TFI 120 -140 ml/kg/d GIR 5 -7 mg/k/min Na 0, K1-2, Ca 2-2.5
3	TFI 100 -120 ml/kg/d GIR 7-9 mg/kg/min Na 1-2, K 2, Ca 2	TFI 120 ml/kg/d GIR 7-9 mg/k/min Na 1-2, K1-2, Ca 2	TFI 130 -150 ml/kg/d GIR 6-9 mg/k/min Na 0-2, K1-3, Ca 2-2.5
4	TFI 120 -140 ml/kg/d GIR 8-10 mg/kg/min Na 1-2, K 2, Ca 2	TFI 140 ml/kg/d GIR 8 -10 mg/k/min Na 2-3, K 2-3, Ca 2.5	TFI 140 -160 ml/kg/d* GIR 8 -10 mg/k/min Na 1-3, K 2-3, Ca 2-2.5 *If TFI was >160ml/kg/day, start cutting TFI back as serum sodium ↓
5	TFI 150 ml/kg/d GIR 8-10 mg/kg/min Na 2-3, K 2-3, Ca 2	TFI 150 ml/kg/d GIR 8 -10 mg/k/min Na 2-4, K 2-3, Ca 2.5	TFI 130 -160 ml/kg/d GIR 8 -10 mg/k/min Na 2-5, K 2-3, Ca 2.5

Protein intake

- In utero protein accretion is 3-4 g/kg/day
  - In absence of protein, VLBW infants are in a catabolic state (metabolic shock) and can develop non oliguric hyperkalemia
- Early protein intake prevents catabolism, allows better control of glucose levels, and prevents hyperkalemia
- In sick infants, if feeds cannot be started on day 1, consider “Starter TPN”: a combination of dextrose, amino-acids and calcium

Sugar

- In 1st 24 hrs, target glucose ≥ 45 mg/dl before feeds.
- If on IV fluids, keep serum glucose at 60 - 100 mg/ dl
- D10W at 60 ml/kg/day= GIR of 4.2 mg/kg/min
- D10 W at 100 ml/kg/day= GIR of 7 mg/kg/min

- GIR mg/kg/min= $\frac{[\%\ \text{dextrose infusion x infusion rate in ml/hr x 0.167}]}{\text{weight in kg}}$

Or GIR mg/kg/min= $\frac{\%\ \text{dextrose infusion x infusion rate in ml/hr}}{\text{weight in kg x 6}}$

Breast feeding during the Golden Hour

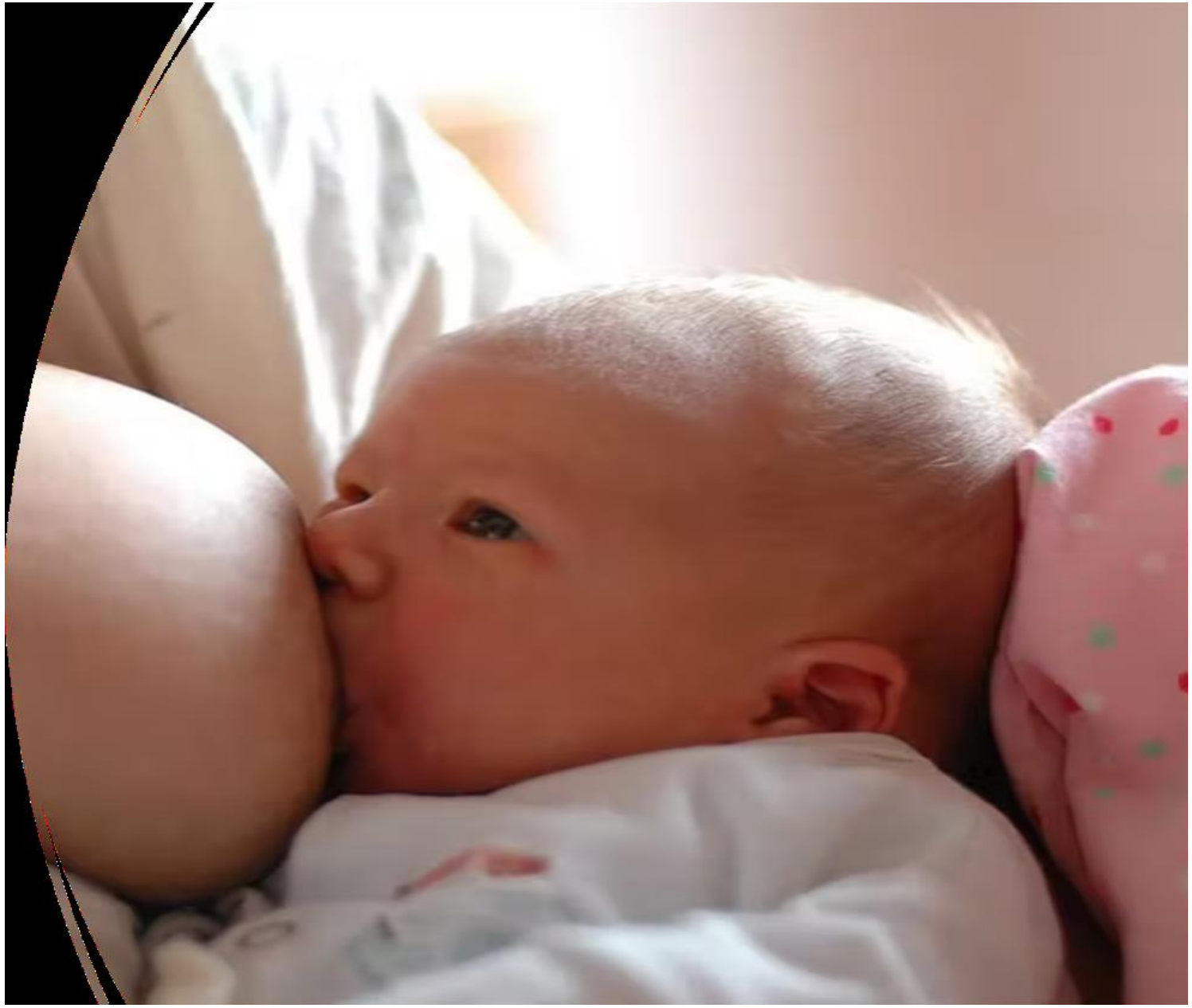
- Early skin to skin care has been shown to improve both breast feeding rates and duration of breast feeding.
- Breast feeding should be initiated within 30 minutes of birth in most instances.
- In the first hour after birth, newborns are often in a “quiet, alert state” and they instinctively seek out the maternal breast in the hour after birth.
- Allowing the baby to suck and latch on is important for bonding and for the mother’s confidence in continuing breast feeding.

Advantages of Mother's Own Milk (MOM) / Breastfeeding

- Decreases infections: neonatal sepsis, pneumonia, diarrhea, meningitis, and urinary tract infection especially in low and middle-income countries (LMIC)
- Protects against necrotizing enterocolitis, inflammation of the intestines
- Can prevent suboptimal/poor nutrition, more so in LMIC
- Linked with lower mortality including due to sudden infant death syndrome (SIDS)
- Less chronic problems in later life, e.g., diabetes, ischemic heart disease, Crohn's disease and ulcerative colitis
- Enhances cognitive development

Benefits for the mother

- Decreased postpartum bleeding
- Decreased risk of ovarian cancer
- Decreased risk of breast cancer
- Decreased cost



Advantages of Colostrum

- Helps strengthen the baby's immune system
- Coats the intestines –prevents absorption of harmful bacteria
- Offers ideal nutrition for the newborn
- Has a laxative effect -helps clear meconium
- Easy to digest

Advantages of Colostrum

- Helps prevent low blood sugar in full-term babies
- Benefits of cells in colostrum –some survive in the gut, enter the body and have impact on organs. ***Has stem cells that may have developmental benefits!***
- Colostrum of mothers with *preterm* births has higher quantities of protein and human milk oligosaccharides
- Oropharyngeal application of colostrum helps in colonization of oral microbiota

Risks of Delaying Initiation of Breastfeeding

- Delaying initiation of breastfeeding by 2–23 hours after birth increases the risk of newborns dying in the first 28 days of life by 40%

- Delaying by 24 hours or more increases that risk by 80%

- 55% of babies do not receive breastfeeding at birth

REFERENCES

1. Moore ER, Bergman N, Anderson GC, et al. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database Syst Rev 2016;11:CD003519.
2. Neovita. Timing of initiation, patterns of breastfeeding, and infant survival: Prospective analysis of pooled data from three randomized trials. Lancet Glob Health 2016;4:e266–e275.
3. From the First Hour of Life: Making the Case for Improved Infant and Young Child Feeding Everywhere [Computer Program]. New York, New York, 2016.

Some Data from Jordan

•67% breastfed within the first hour
•95% initiated breastfeeding in the hospital
•25.4% of children were exclusively breastfed

until 6 months
•***Exclusive breastfeeding rate (26%) is lower***

than the global average (44%)

References:
* Al-Awwad, N.J et al. A. Review of the Nutrition Situation in Jordan: Trends and Way Forward.
Nutrients 2022,*14*,135. https://doi.org/ 10.3390/nu14010135
* ShattnawiKK. Healthcare Professionals' Attitudes and Practices in Supporting and Promoting the Breastfeeding of Preterm Infants in NICUs. Adv Neonatal Care. 2017 Oct;17(5):390-399. doi: 10.1097/ANC.0000000000000421. PMID: 28787301

Non-Nutritive Sucking (NNS) on "Emptied Breast" –Stimulates Sucking Reflex; Prolongs Lactation

Provision of NNS on an "emptied breast" is a better than use of pacifiers, especially in LMIC, and it increases exclusive breastfeeding rates

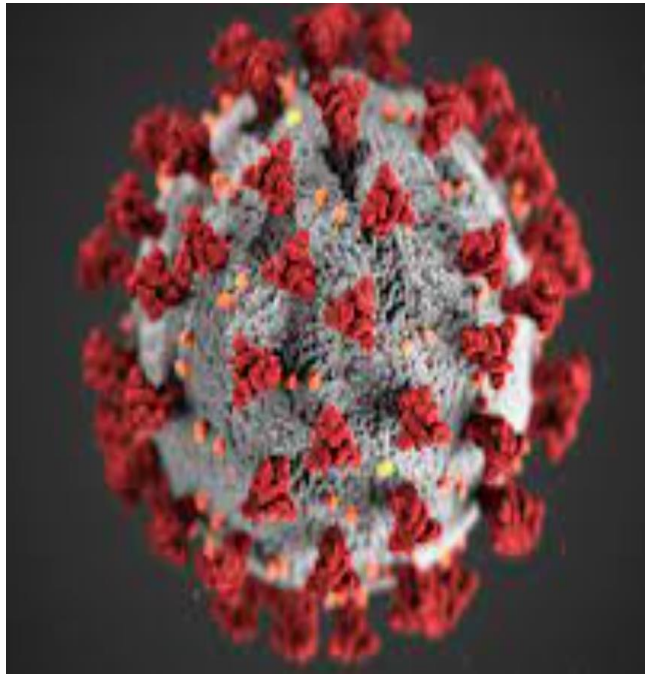
- As pacifier use has been associated with reduction in SIDS, AAP recommends its use, but because it may interfere with breastfeeding its use is recommended in specific medical situations with continuation of breastfeeding (AAP Task Force on Sudden Infant Death Syndrome, 2005).
- **Note:** Breastfeeding itself also prevents SIDS!

1.) Narayanan I et al. Sucking on the 'emptied' breast

Impact of COVID 19

•Early in COVID-19 pandemic, in high income countries, mothers and infants were separated without initiation of breastfeeding

•Was associated with adverse effects on breast milk feeding outcomes, such as duration



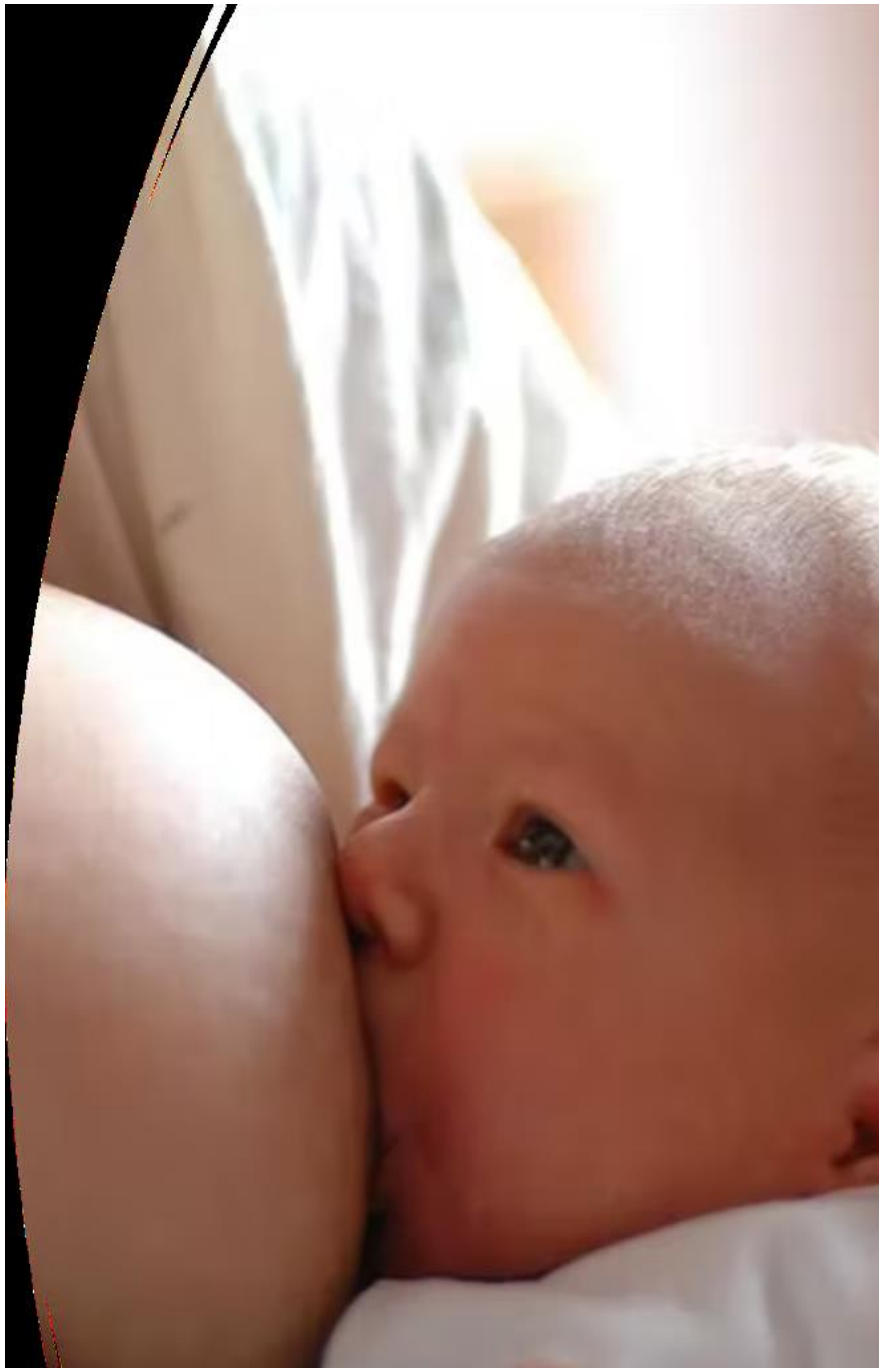
Ref:Rostomianet al, 2022 The Effects of COVID-19 Hospital Practices on Breastfeeding Initiation and Duration Post discharge. Breastfeed Med, 2022 Jun 22.

Impact of COVID 19 (cont'd)

WHO has consistently recommended not separating mothers and babies

- Breast milk of mothers with COVID-19 has antibodies

Ref: Low JM et al, 2021. Titers and neutralizing capacity of SARS-CoV-2-specific antibodies in human milk: a systematic review. *Arch Dis Child Fetal Neonatal Ed,* 2021;**0**:F1–F7



After the Golden Hour

•Obtain the baby's weight (birth weight), length and head circumference
•Check the baby's temperature (axillary temperature), heart rate and respiratory rate
•Examine the baby for congenital malformations or other symptoms and signs.
•Document birth measurements and vital signs
•Administer Vitamin K injection.
•Defer the bath to at least 6 hours after birth, to ensure the baby is maintaining temperature well and has no respiratory distress.

60 minutes plus

Team Debrief for 5-10 minutes

Discuss what went well, what could be improved

Parents

Allow them to visit, see and touch baby, take photographs

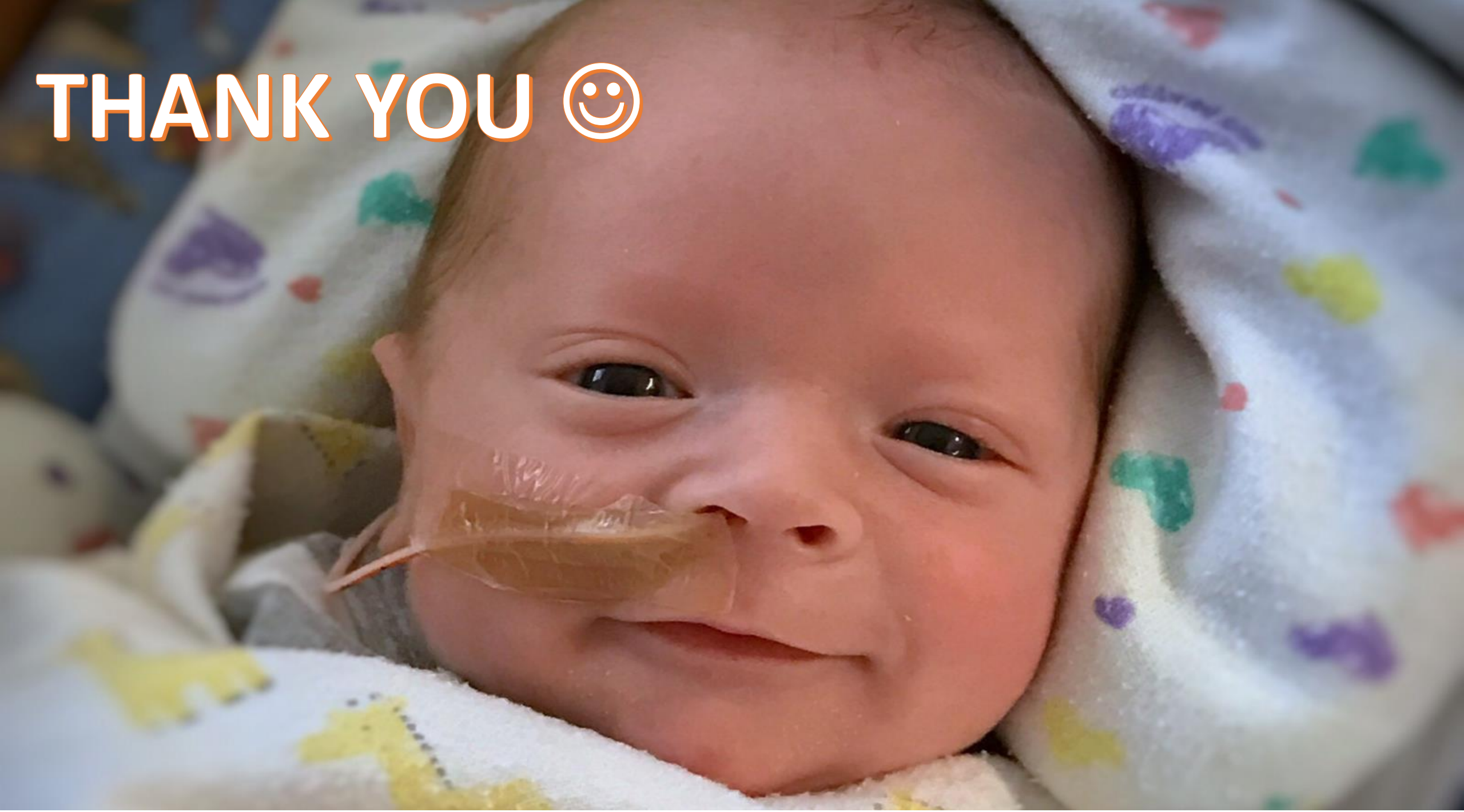
Update parents in more detail-discuss baby's condition and plan of care.

Ensure that mother has support to pump/ express and store breast milk

Documentation

Ensure orders are complete, accurate and communicated to team

Record History, Physical examination, Diagnoses and Plan of care


THANK YOU ☺