



ESRA ITALIAN CHAPTER

30° NATIONAL MEETING

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Giuseppe Servillo, Fabrizio Fattorini

13-15 NOV 2025

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HOTEL RAMADA

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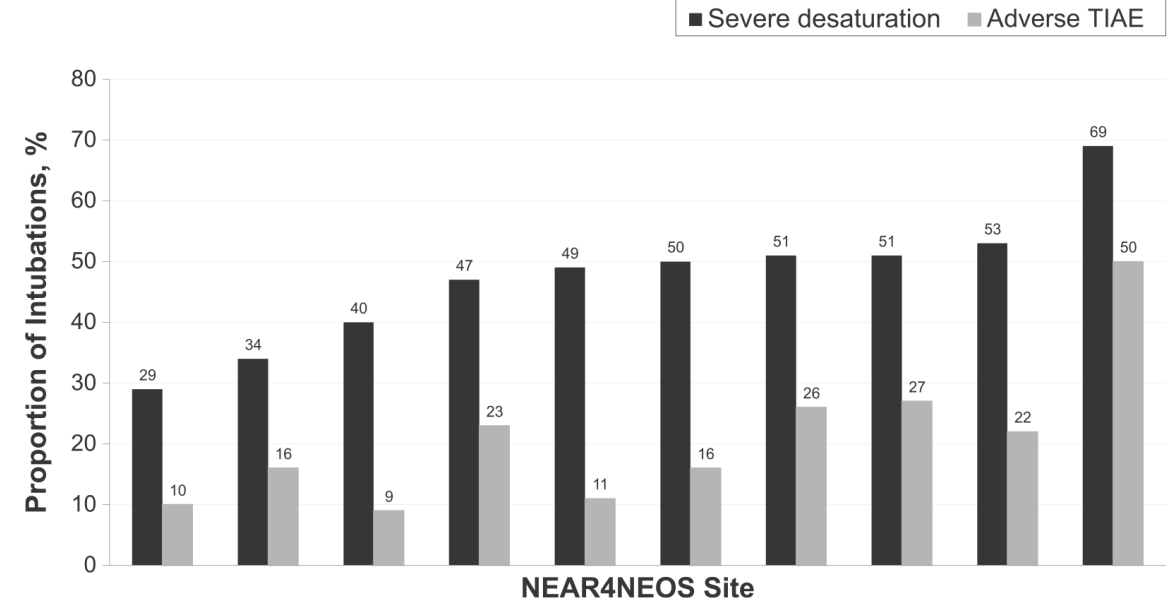
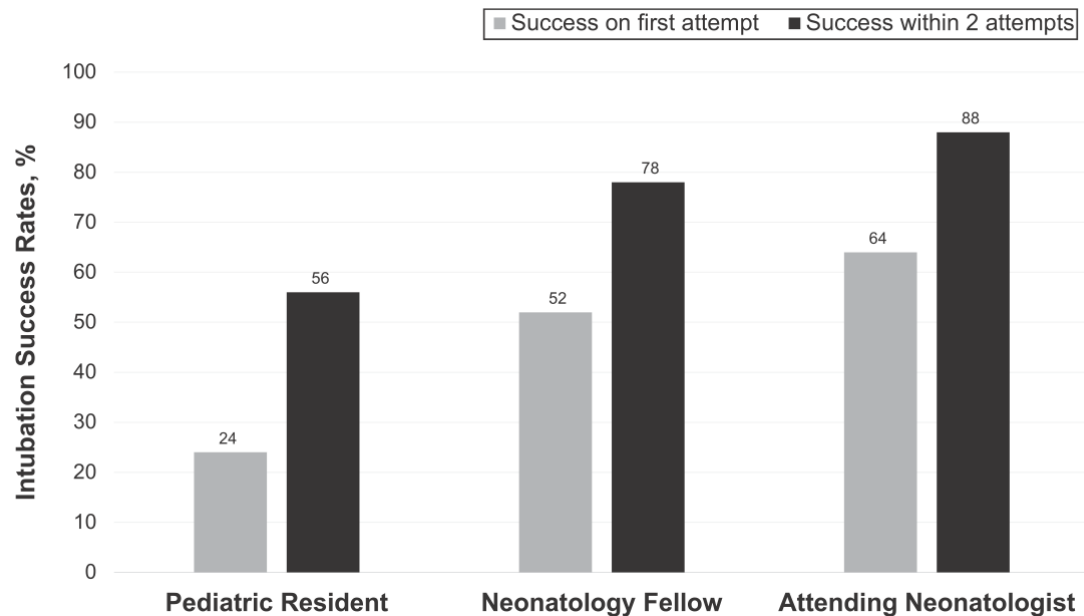
Neonatal resuscitation: when not to intubate

Dott. Stefano Luciani
Dott.ssa Francesca De Luca



Neonatal Intubation Practice and Outcomes: An International Registry Study

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Letter to the Editor

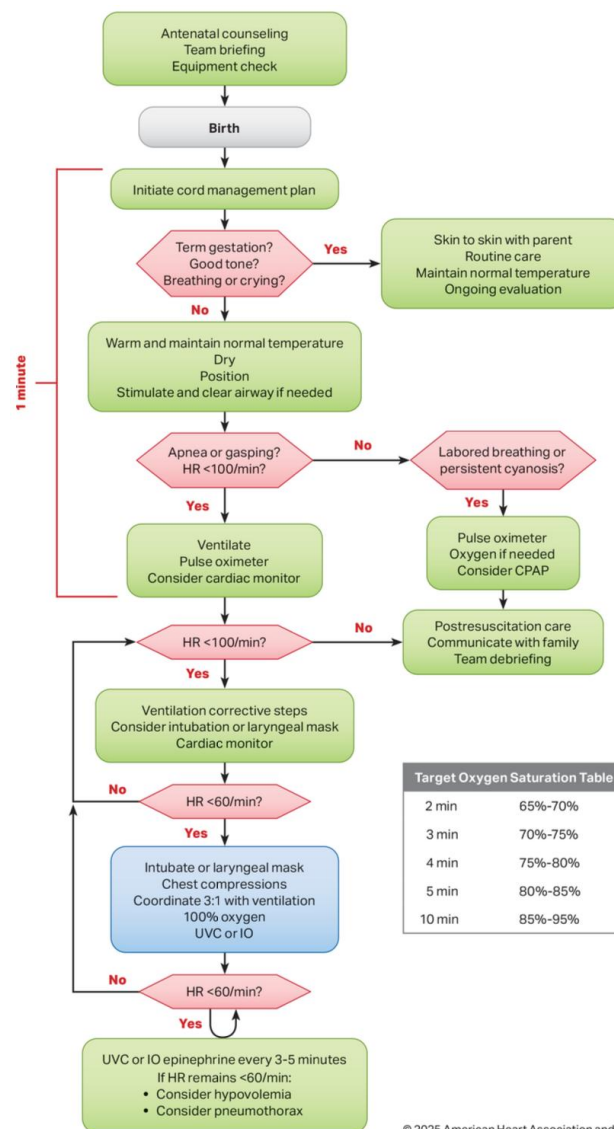
Intubation in neonatal resuscitation — Compelling necessity or incalculable risk?

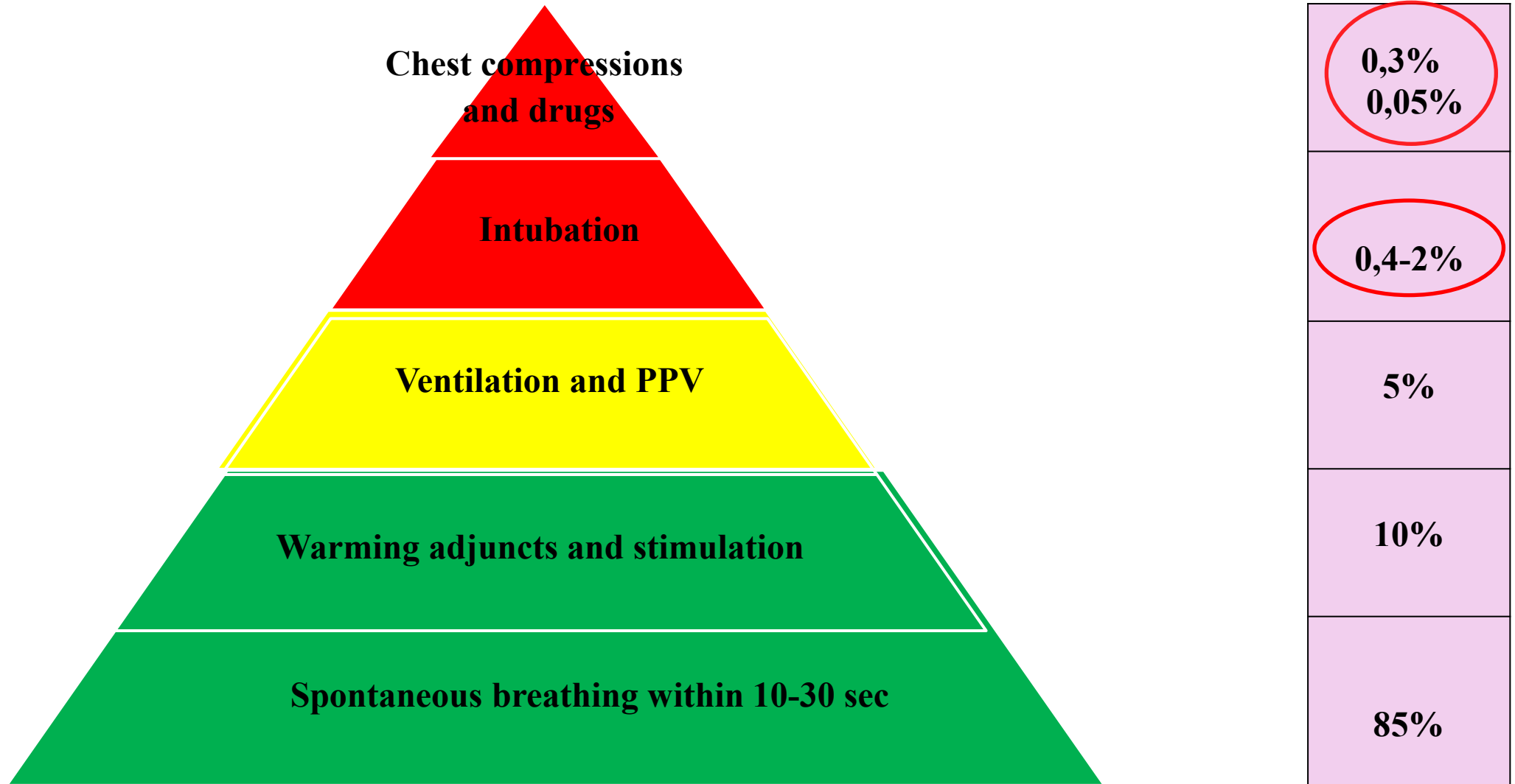


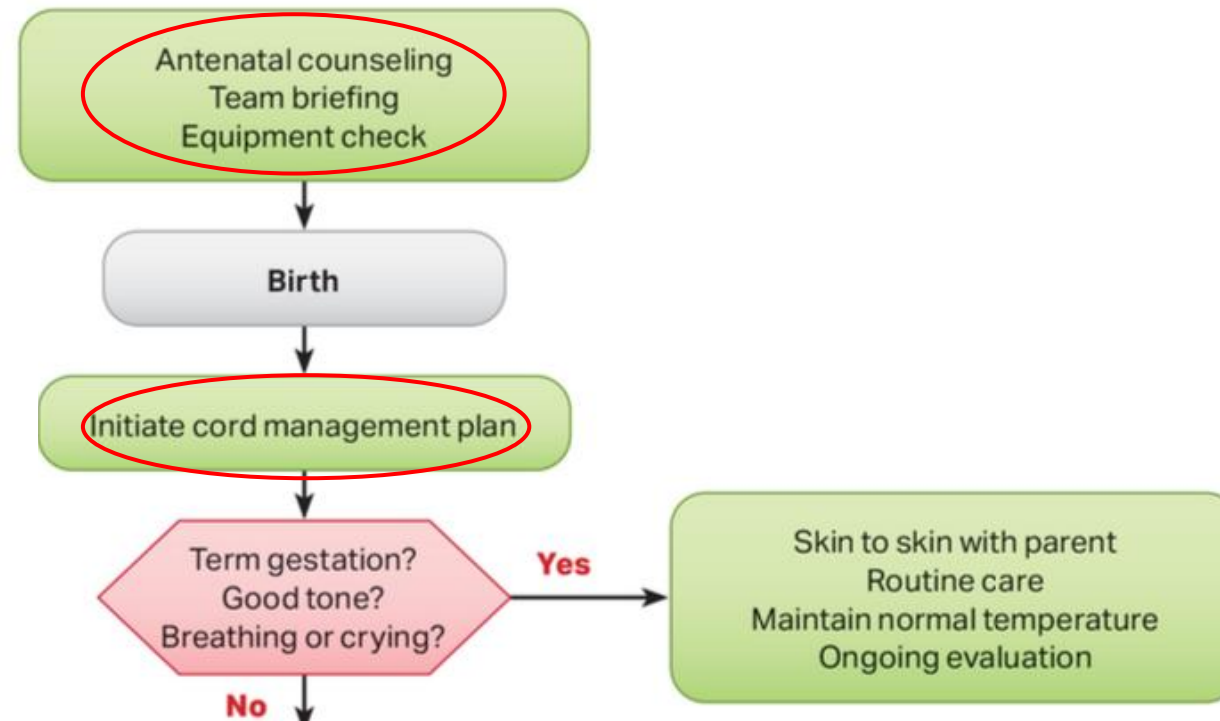


Part 5: Neonatal Resuscitation: 2025 American Heart Association and American Academy of Pediatrics Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care

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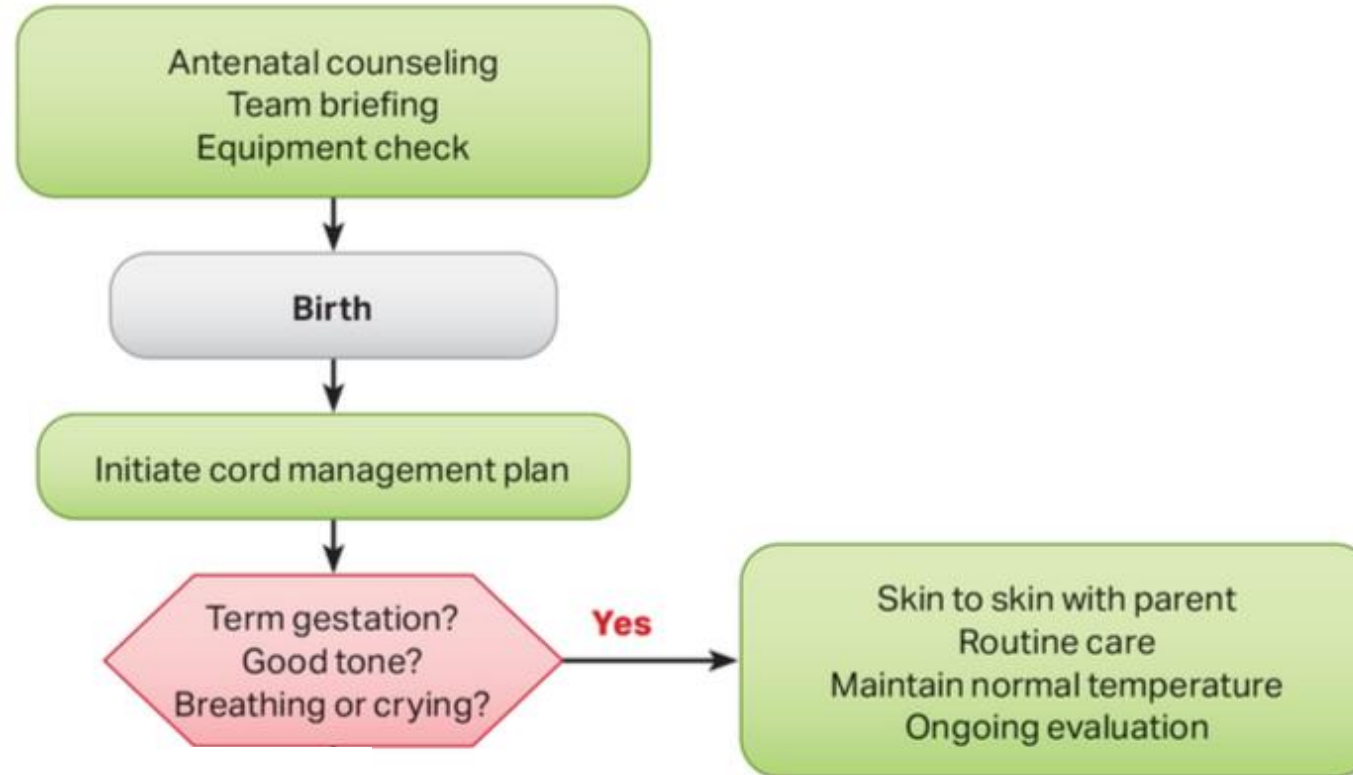




UMBILICAL CORD MANAGEMENT

Recommendations for Term Newborn Umbilical Cord Management		
COR	LOE	Recommendations
2a	B-R	1. For term newborn infants who do not require immediate resuscitation, deferred cord clamping for at least 60 seconds can be beneficial when compared to immediate cord clamping.
2b	B-R	2. For nonvigorous term newborn infants and late preterm infants 35 weeks or more gestational age, intact cord milking may be reasonable when compared to immediate cord clamping.
2b	C-LD	3. For term newborn infants who do not require immediate resuscitation, the usefulness of intact umbilical cord milking compared to deferred cord clamping is uncertain.

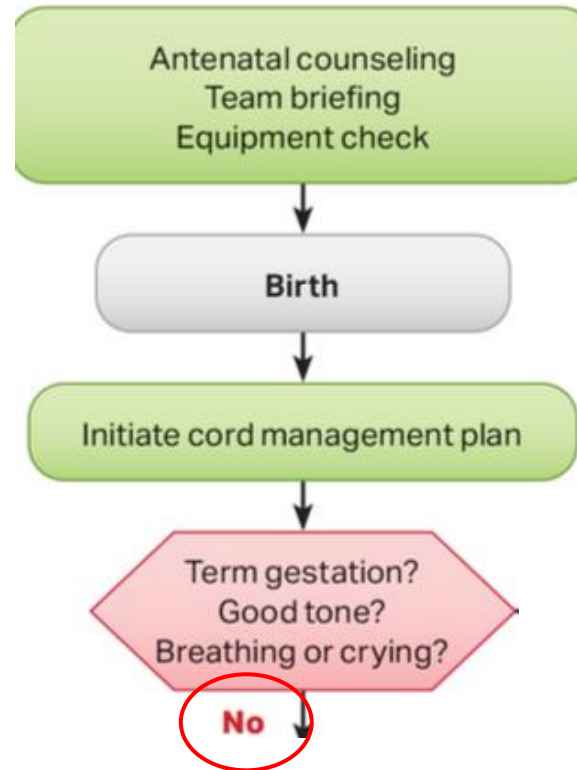
Recommendations for Preterm Newborn Umbilical Cord Management		
COR	LOE	Recommendations
1	A	1. For newborn infants born at <37 weeks of gestation who do not require immediate resuscitation, deferred cord clamping for at least 60 seconds is recommended when compared to immediate cord clamping.
2b	B-R	2. For newborn infants born at 28+0 to 36+6 weeks of gestation who do not require immediate resuscitation and in whom deferred cord clamping cannot be performed, intact cord milking may be reasonable.
3: Harm	B-R	3. For newborn infants born at less than 28+0 weeks of gestation, intact cord milking should not be performed.



Initial Steps

1. Maintain normal temperature:
 - warm environment
 - promptly drying the infant
2. Skin-to-skin contact with the parents
3. Leaving the mouth and nose visible.





No ↓

Warm and maintain normal temperature
Dry
Position
Stimulate and clear airway if needed

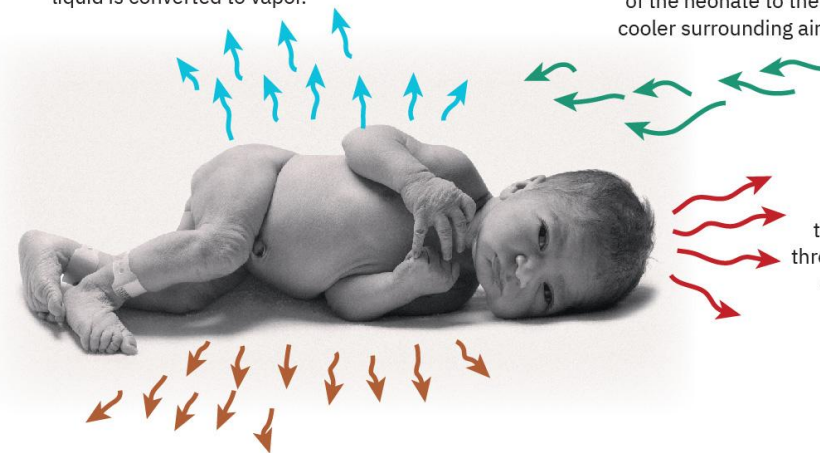
Neonatal heat loss

Evaporation:
The loss of heat from the neonate's wet skin to the surrounding air as the liquid is converted to vapor.

Convection:
The loss of heat from the warm skin of the neonate to the cooler surrounding air.

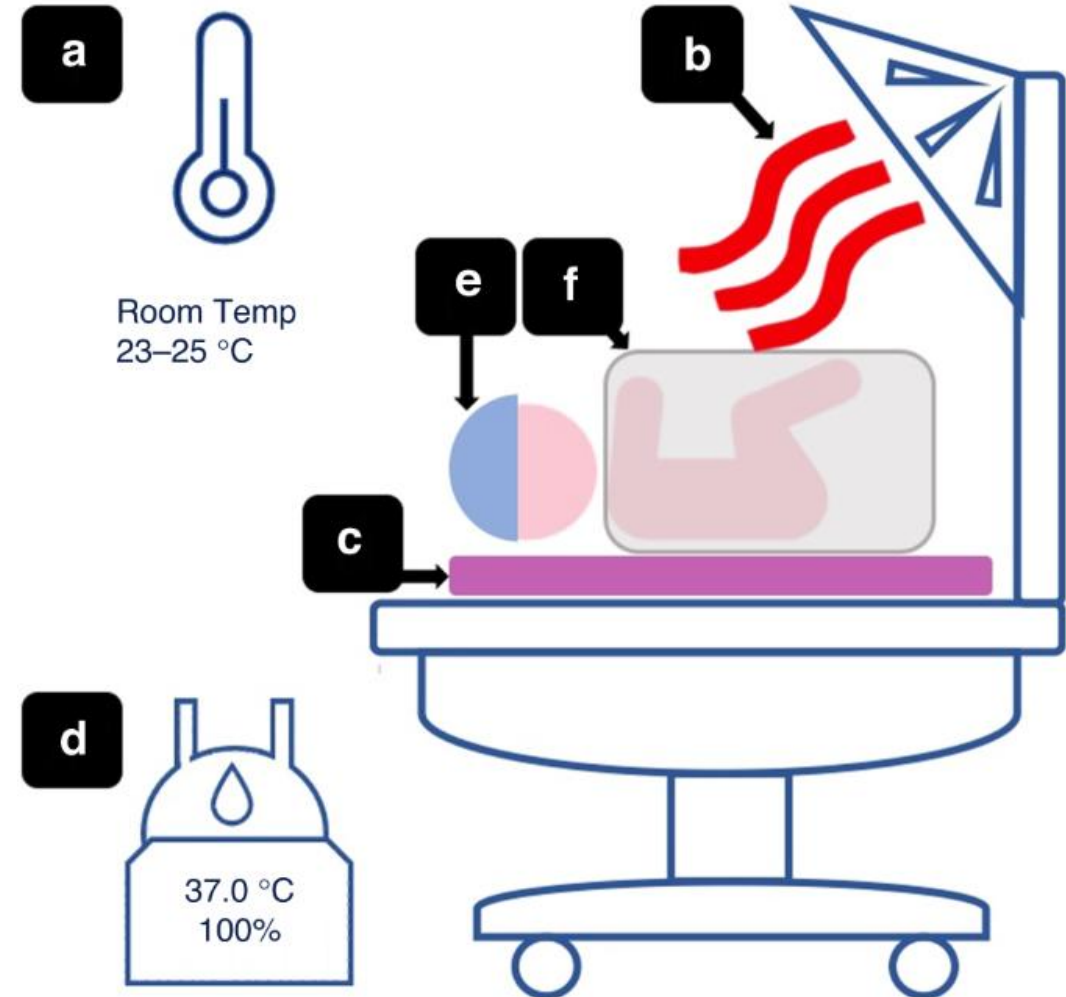
Radiation:
The loss of heat from the neonate's warm skin through indirect contact with cooler nearby surfaces and objects.

Conduction:
The loss of heat when the neonate comes in direct contact with a cooler surface or object.



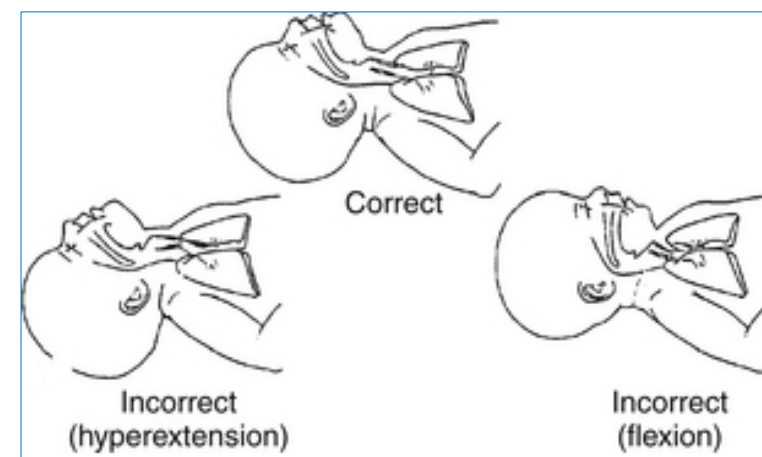
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Warm and maintain normal temperature
Dry
Position
Stimulate and clear airway if needed



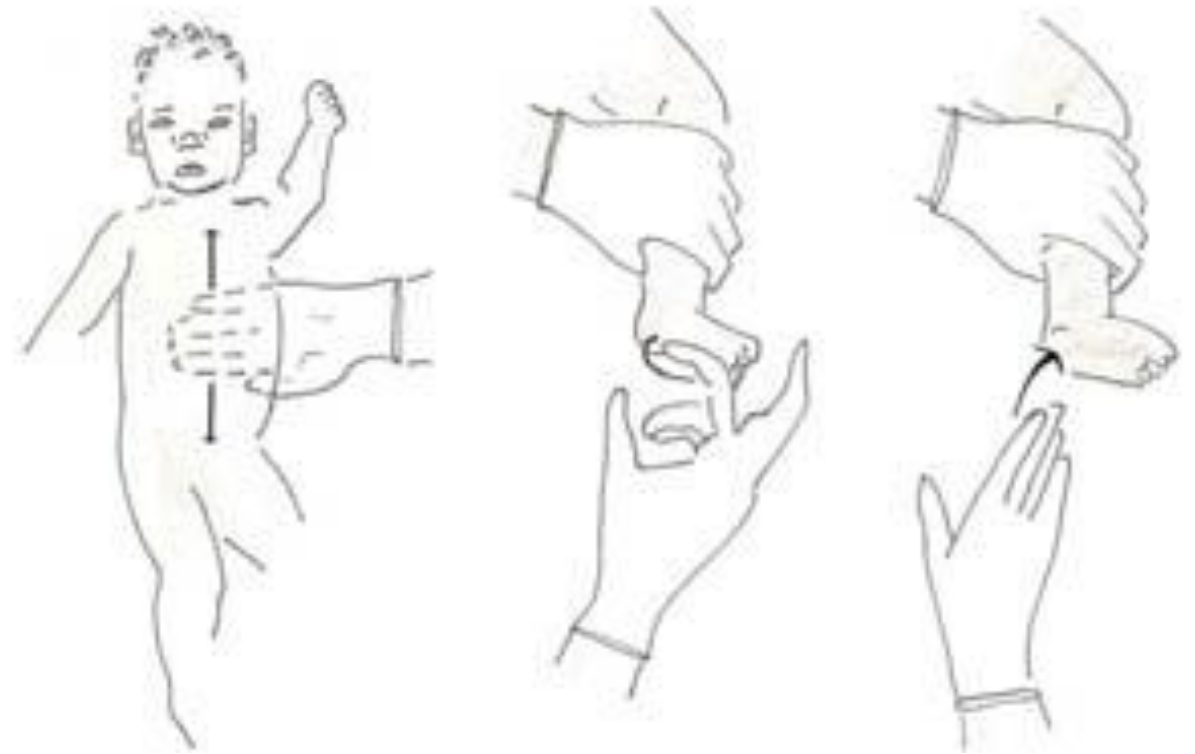
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Warm and maintain normal temperature
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No ↓

Warm and maintain normal temperature
Dry
Position
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No ↓

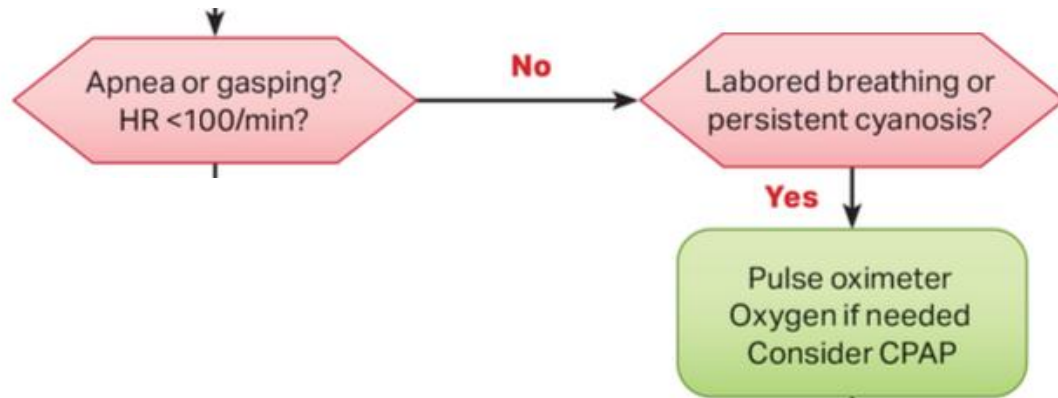
Warm and maintain normal temperature
 Dry
 Position
 Stimulate and clear airway if needed

Clearing the Airway in Newborn Infants

Recommendations for Clearing the Airway in Newborn Infants		
COR	LOE	Recommendations
2a	C-EO	1. Suctioning of the mouth and nose can be considered in newborn infants if ventilation is required and the airway appears obstructed.
2a	C-EO	2. Intubation and tracheal suction can be beneficial for newborn infants who have evidence of tracheal obstruction during ventilation.
3: No Benefit	B-R	3. Routine oral, nasal, oropharyngeal, or endotracheal suctioning of newborn infants is not recommended, regardless of whether the fluid is clear or meconium stained.



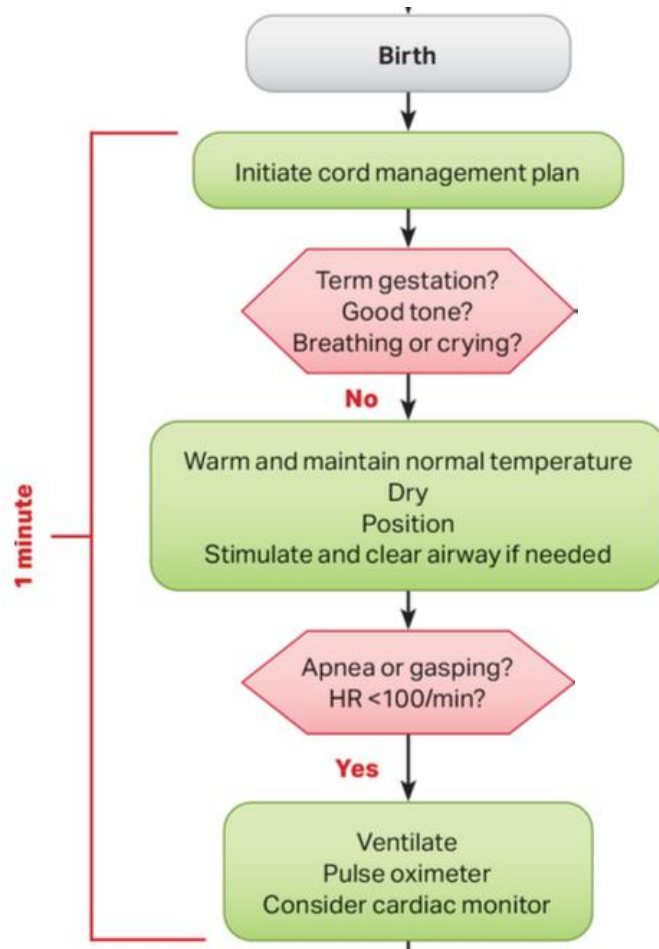
max 100-150mmHg, mouth and then nose



ASSESSMENT OF HEART RATE

Recommendations for Assessment of Heart Rate in Newborn Infants		
COR	LOE	Recommendations
2a	B-NR	1. ECG can be useful for fast and accurate heart rate assessment in newborn infants.
2a	C-LD	2. Auscultation and pulse oximetry are reasonable alternatives to ECG for heart rate assessment in newborn infants.





VENTILATION AND CONTINUOUS POSITIVE AIRWAY PRESSURE

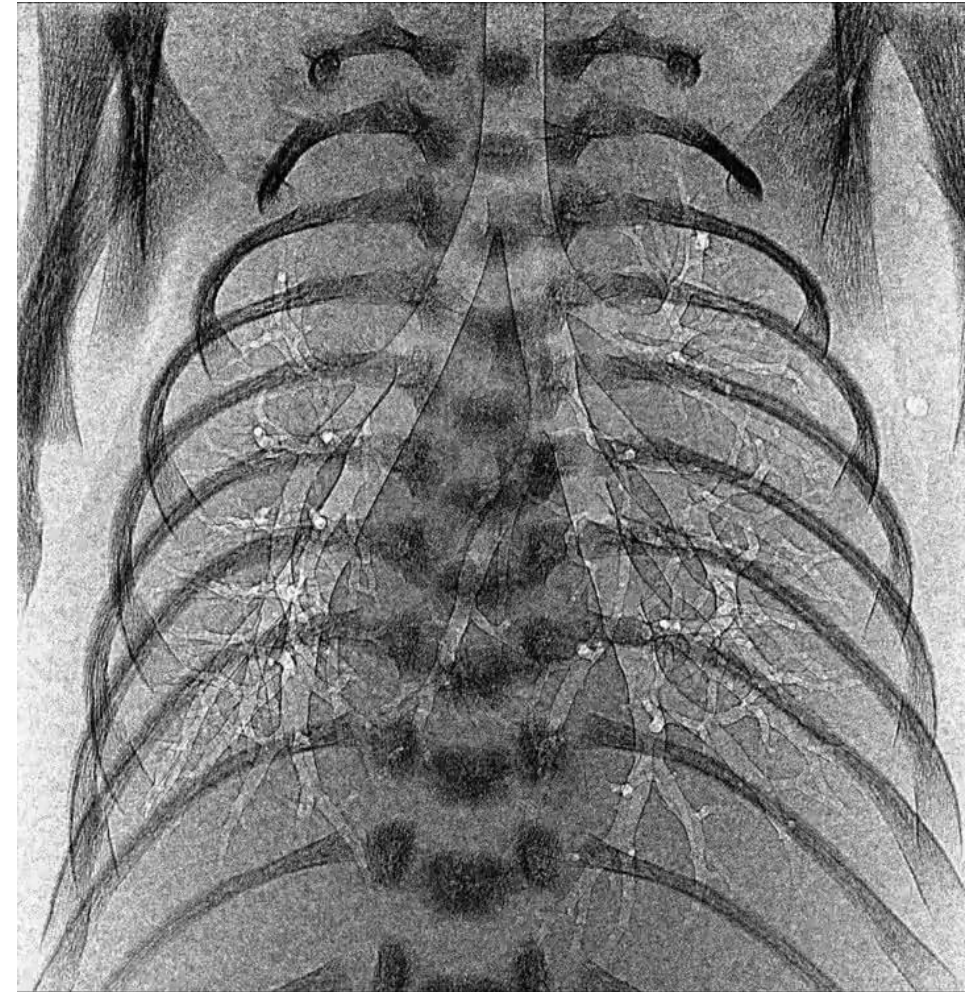
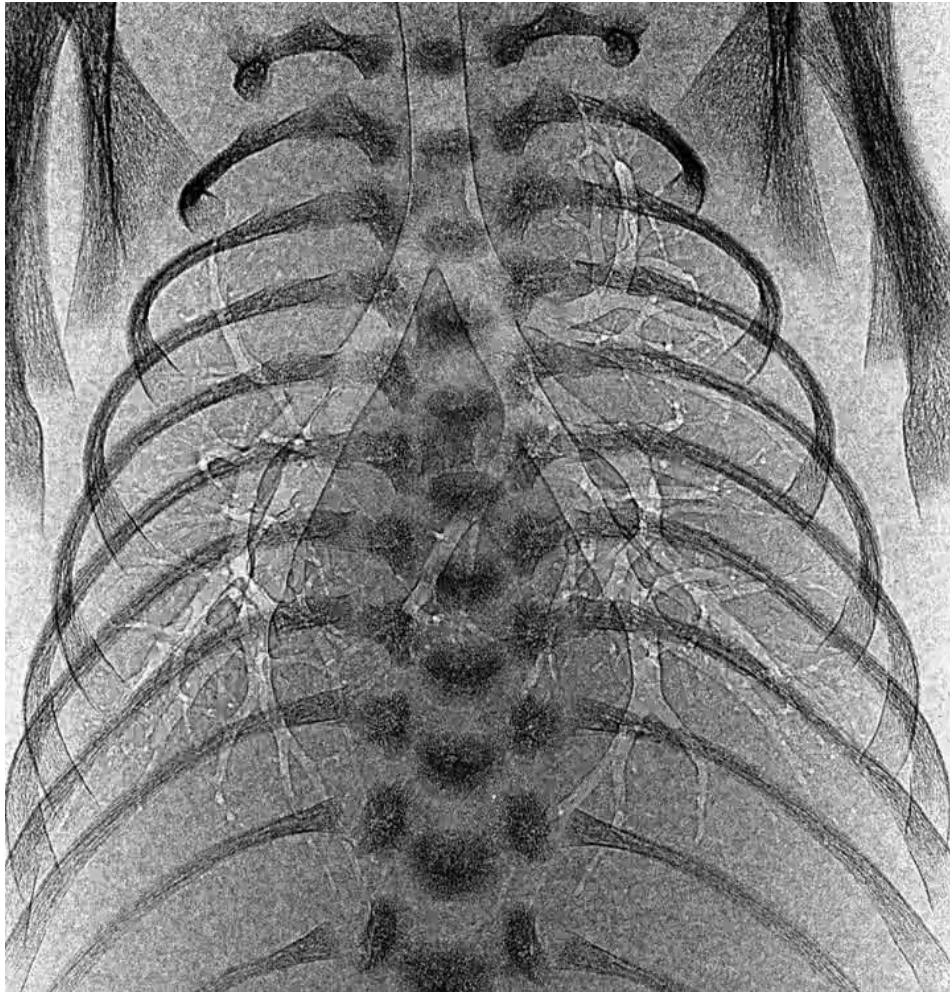
Ventilatory Support

Recommendations for Ventilatory Support		
COR	LOE	Recommendations
1	B-NR	1. Ventilation should be provided within 60 seconds after birth in newborn infants who are gasping or apneic or who are persistently bradycardic (heart rate less than 100/min) despite appropriate initial steps.
2a	C-LD	2. For newborn infants, initial peak inflation pressures of 20 to 30 cm H ₂ O are reasonable, with adjustment of peak inflation pressures to provide effective ventilation.
2b	C-LD	3. In newborn infants receiving ventilation, it may be reasonable to provide positive end-expiratory pressure (PEEP).
3: Harm	C-LD	4. Excessive peak inflation pressure can result in high tidal volume, which is potentially harmful and should be avoided.



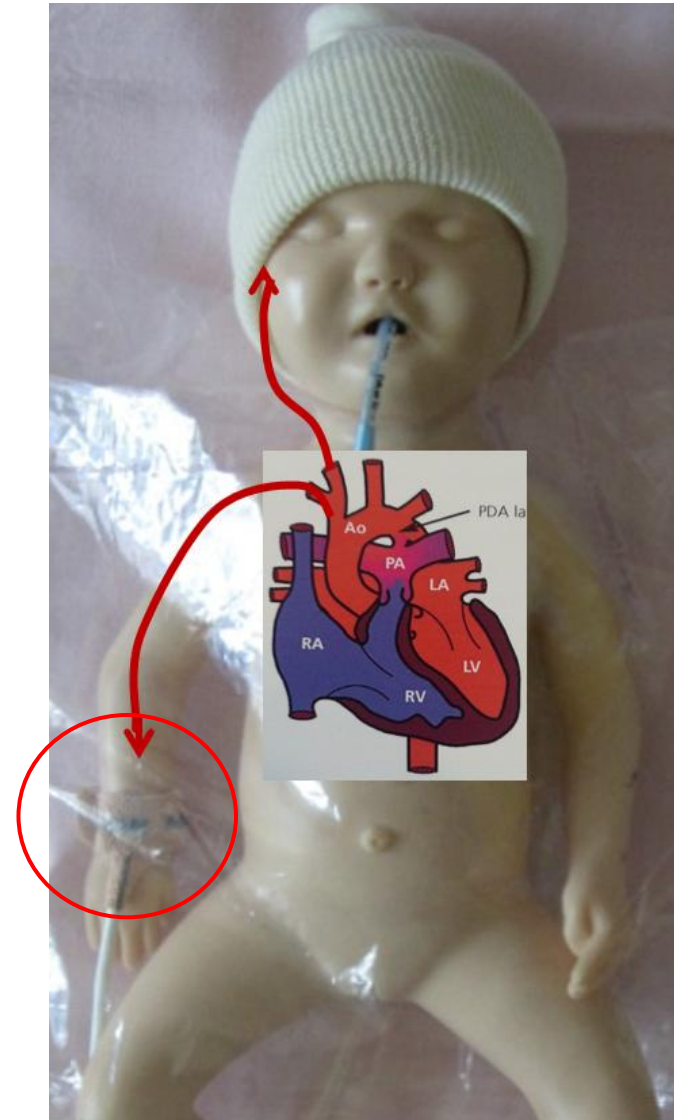
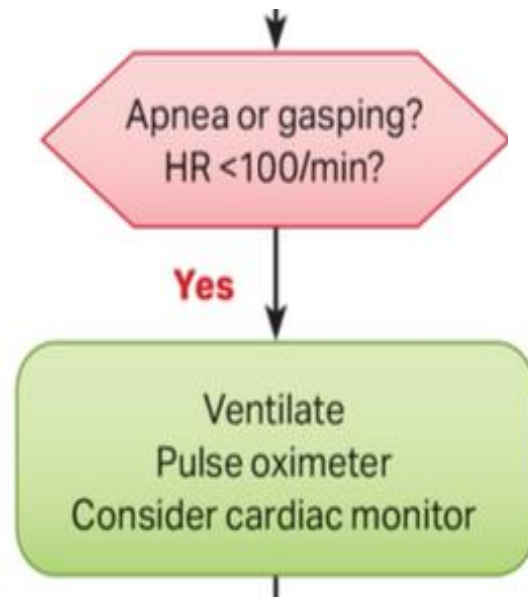


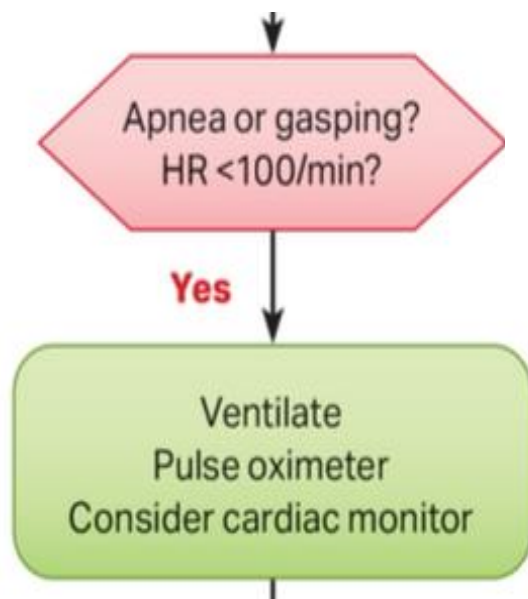








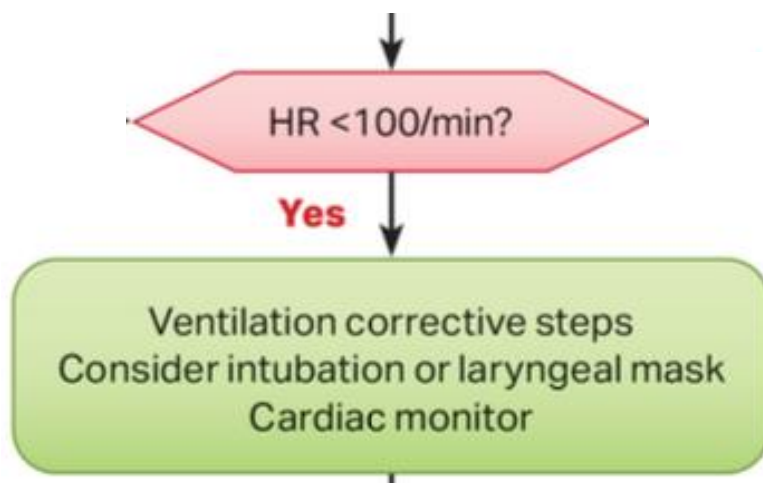




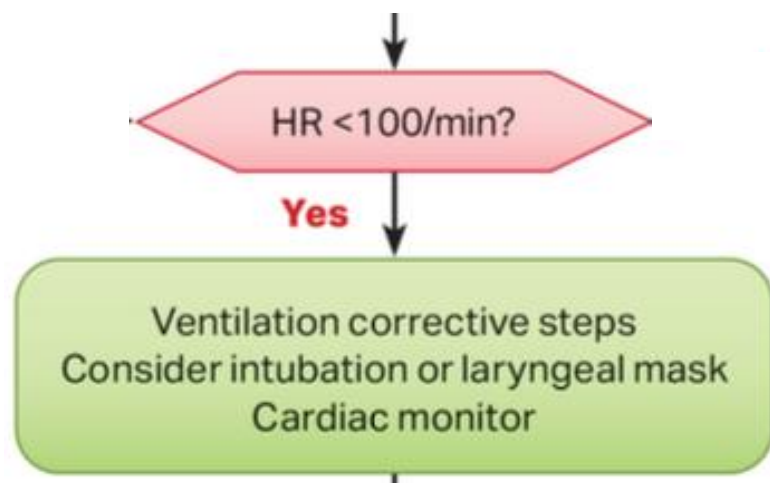
Target Oxygen Saturation Table

2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80%-85%
10 min	85%-95%

- > 35 week: FiO₂ --> 0,21
- 32-34+6 week --> 0,21-0,30
- < 32 week --> 0,30-1 (target 80% a 5 min)



	Corrective Steps	Actions
M	Mask adjustment.	Reapply the mask. Consider the 2-hand technique.
R	Reposition airway.	Place head neutral or slightly extended.
<i>Try PPV and reassess chest movement.</i>		
S	Suction mouth and nose.	Use a bulb syringe or suction catheter.
O	Open mouth.	Open the mouth and lift the jaw forward.
<i>Try PPV and reassess chest movement.</i>		
P	Pressure increase.	Increase pressure in 5 to 10 cm H ₂ O increments, max 40 cm H ₂ O.
<i>Try PPV and reassess chest movement.</i>		
A	Alternative Airway	Place an endotracheal tube or laryngeal mask.
<i>Try PPV and assess chest movement and breath sounds.</i>		



Recommendations for Interfaces to Deliver Ventilation to Newborn Infants		
COR	LOE	Recommendations
2a	C-LD	1. It is reasonable to use a laryngeal mask as an alternative to endotracheal intubation for newborn infants 34+0/7 weeks' or more gestational age for whom ventilation via face mask is unsuccessful.
2b	C-LD	2. It may be reasonable to use a laryngeal mask as the primary interface to administer ventilation instead of a face mask for newborn infants 34+0/7 weeks' or more gestational age.

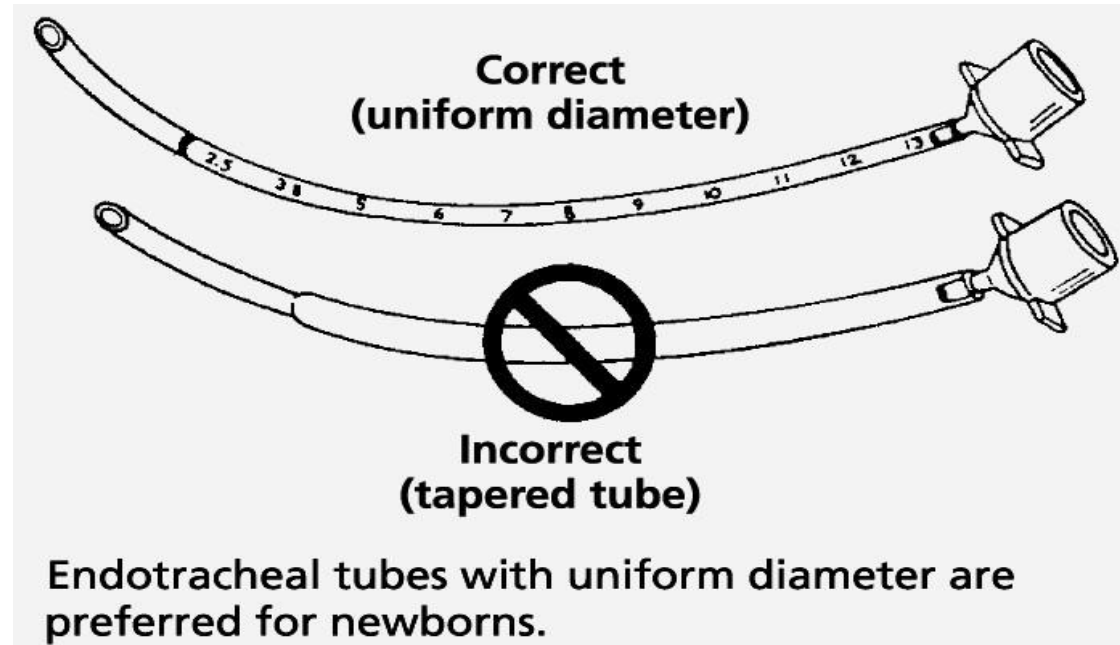


When to intubate a newborn?

- PPV with mask inefficient
- Prolonged ventilation
- Need to suction the lower airways due to possible obstruction
- Need for chest compressions
- Special conditions (diaphragmatic hernia if necessary)
- Surfactant administration

«Each intubation try should last no more than 30 seconds»





- ✓ Uniform diameter and uncuffed
- ✓ Centimeter markings and a marker for positioning on the vocal cords

Select the tube based on weight and Gestational Age

Weight (g)	Gestational Age (wks)	Tube Size (mm) (inside diameter)
Below 1,000	Below 28	2.5
1,000-2,000	28-34	3.0
2,000-3,000	34-38	3.5
Above 3,000	Above 38	3.5-4.0

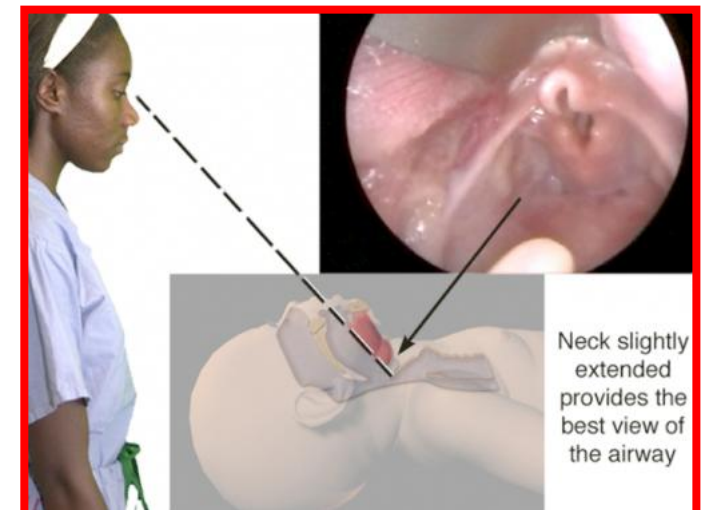
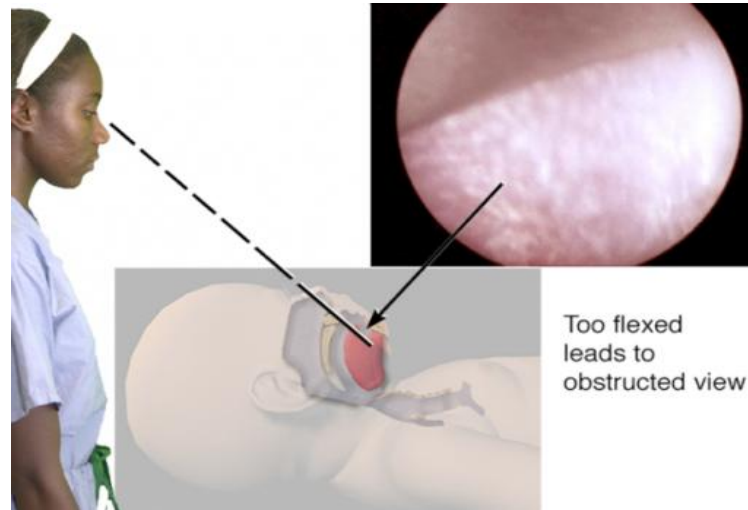
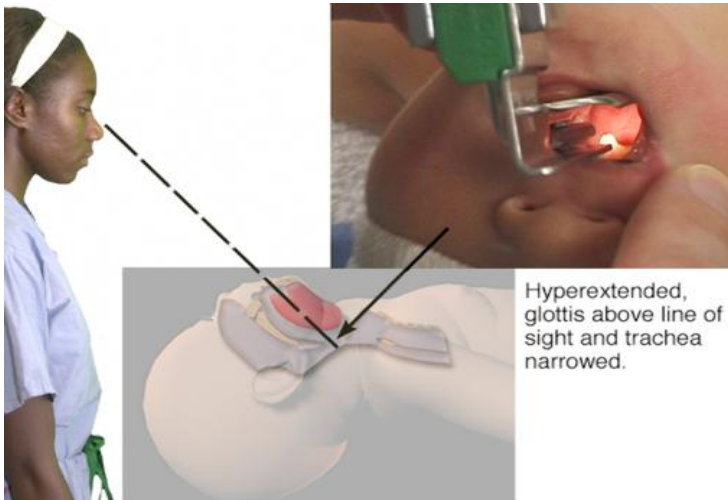
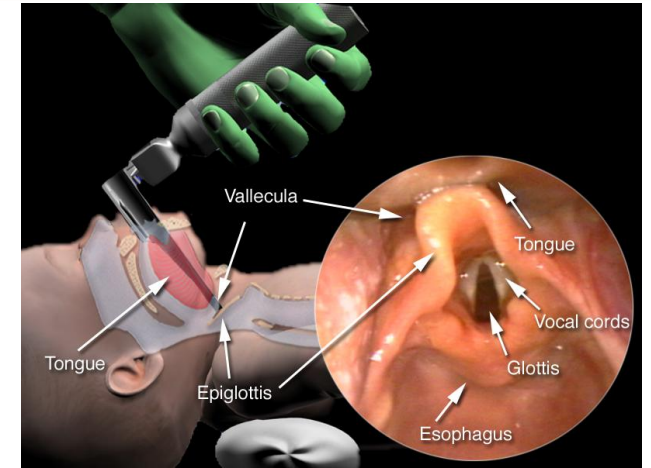
Lama retta:

No. 0 per neonati pretermine

No. 1 per neonati a termine

Fix the tube: newborn's weight in kg + 6

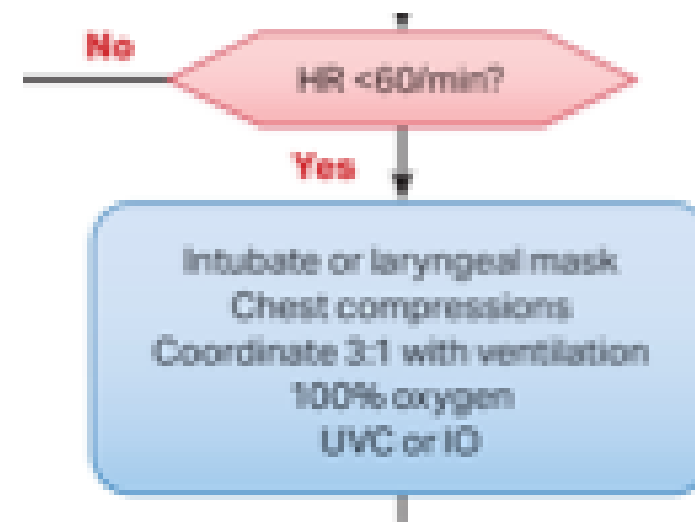
- ✓ Neutral head position
- ✓ Administer free-flow oxygen
- ✓ Insert the laryngoscope centrally



Recommendations for Initiating Chest Compressions in Newborn Infants		
COR	LOE	Recommendations
1	C-EO	1. In newborn infants, chest compressions are recommended if the heart rate remains less than 60/min despite 30 seconds of ventilation that inflates the lungs, as evidenced by chest movement.
1	C-EO	2. During chest compressions in newborn infants, ventilation with an endotracheal tube is recommended.
2b	C-EO	3. During chest compressions for newborn infants born at 34 weeks' or more gestational age when placement of an endotracheal tube is not possible or is unsuccessful, laryngeal mask may be a reasonable alternative.
2b	C-EO	4. It may be reasonable to use 100% oxygen during chest compressions in newborn infants. Once compressions are no longer needed, titrate the oxygen to meet saturation targets.

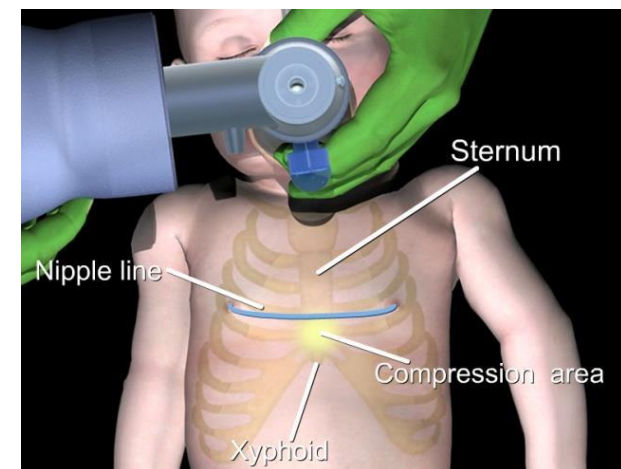
Compression:ventilation ratio 3:1

90 compressions and 30 ventilations for minute



Recommendations for Providing Chest Compressions

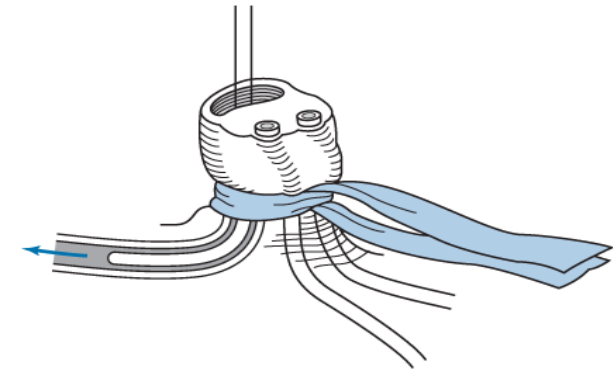
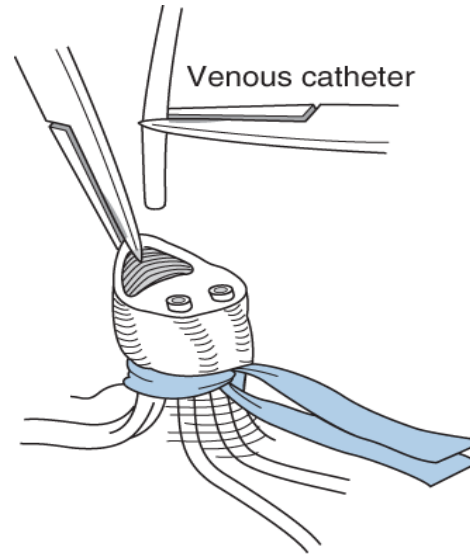
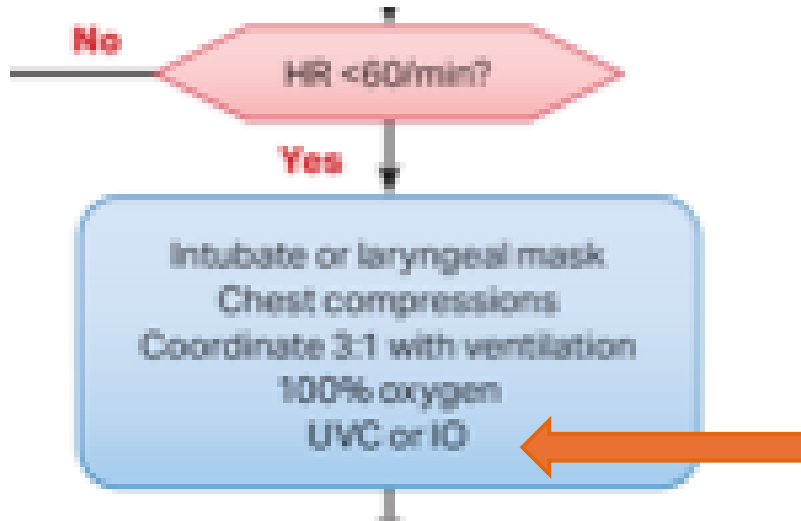
COR	LOE	Recommendations
2b	C-LD	1. It may be reasonable to repeatedly deliver 3 compressions followed by a ventilation breath (3:1 ratio) when providing chest compressions to newborn infants.
2b	C-LD	2. It may be reasonable to use the 2 thumb-encircling hands technique compared to the 2-finger or other techniques when providing chest compressions to newborn infants.
2b	C-LD	3. It may be reasonable to compress to one third the anterior-posterior diameter of the chest when providing chest compressions to newborn infants.
2b	C-LD	4. It may be reasonable to compress over the lower one third of the sternum, taking care to be above the xiphoid process when providing chest compressions to newborn infants.
2b	C-EO	5. It may be reasonable to change the compressor role every 2 to 5 minutes when providing chest compressions to newborn infants and to switch the compressor during the heart rate assessment period.



2 techniques

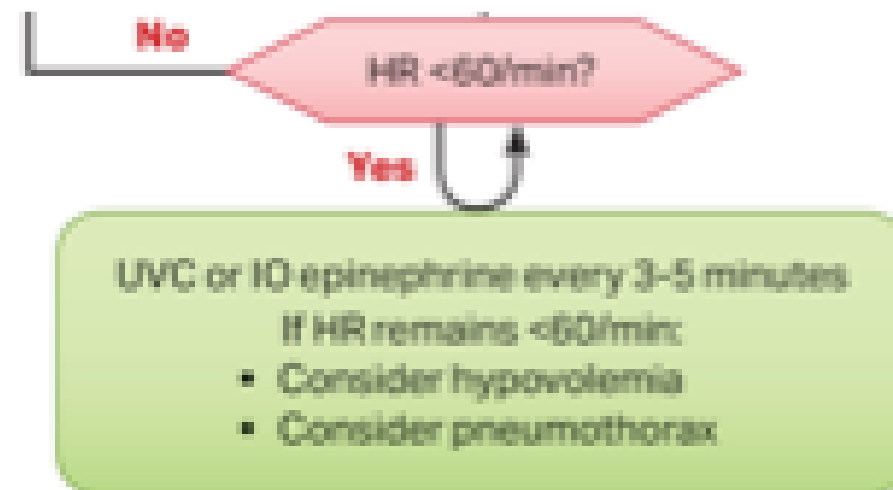








Recommendations for Epinephrine Administration in Neonatal Resuscitation		
COR	LOE	Recommendations
1	B-NR	1. In newborn infants whose heart rate has not increased to 60/min or more after optimizing ventilation and chest compressions, it is recommended to administer intravascular epinephrine (0.01–0.03 mg/kg).
2a	B-NR	2. In newborn infants who do not have an adequate response to an endotracheal dose of epinephrine, it is reasonable to administer intravascular epinephrine as soon as access is obtained regardless of the dosing interval.
2a	C-LD	3. In newborn infants receiving epinephrine, it is reasonable to administer endotracheal epinephrine at a larger dose (0.05–0.1 mg/kg) while vascular access is being obtained.



Epinephrine every 3-5 minuti

- **ET:** 0,05-0,1 mg/kg (0,5-1 ml/kg - 1:10.000)
- **EV** (while vascular access is being obtained): 0,01-0,03 mg/kg (pari a 0,1-0,3 ml/kg - 1:10.000)

When not to resuscitate?

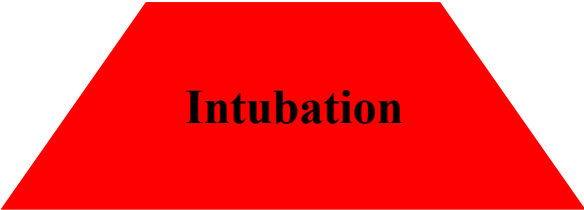
rare survivors, resuscitation is not indicated (Class IIa). Examples may include extreme prematurity (gestational age <23 weeks or birth weight <400 g), anencephaly, and chromosomal abnormalities incompatible with life, such as trisomy 13.



If the heart rate remains undetectable and all steps of resuscitation have been completed, it may be reasonable to redirect goals of care. Case series show small numbers of intact survivors after 20 minutes of no detectable heart rate. The decision to continue or discontinue resuscitative efforts should be individualized and should be considered at about 20 minutes after birth. Variables to be considered may include whether the resuscitation was considered optimal, availability of advanced neonatal care (such as therapeutic hypothermia), specific circumstances before delivery, and wishes expressed by the family.^{3,6}

Neonatal resuscitation: when not to intubate

WAIT, you should intubate the newborn only after PPV has failed and the heart rate remains below 100 bpm, despite all ventilation corrections, and you need to start chest compressions



Intubation



0,4-2%



PLEASE
WAIT!



Thank
you