

Neonatal resuscitation

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2010

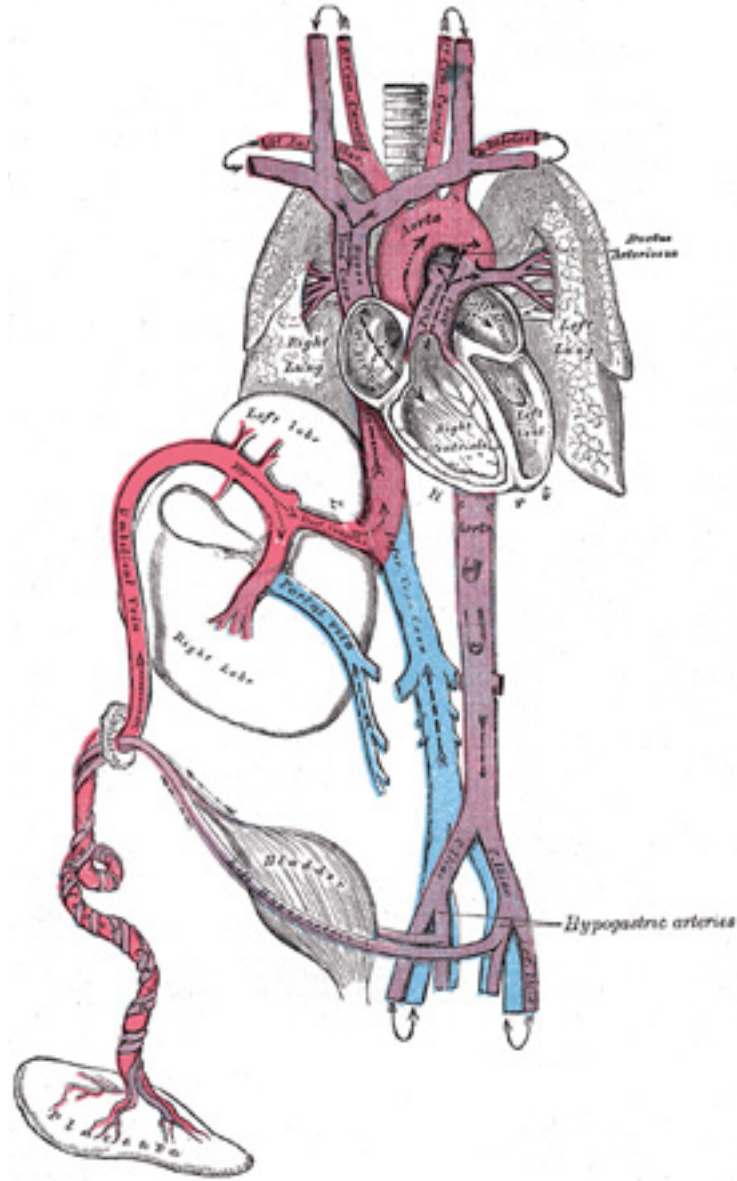
Content

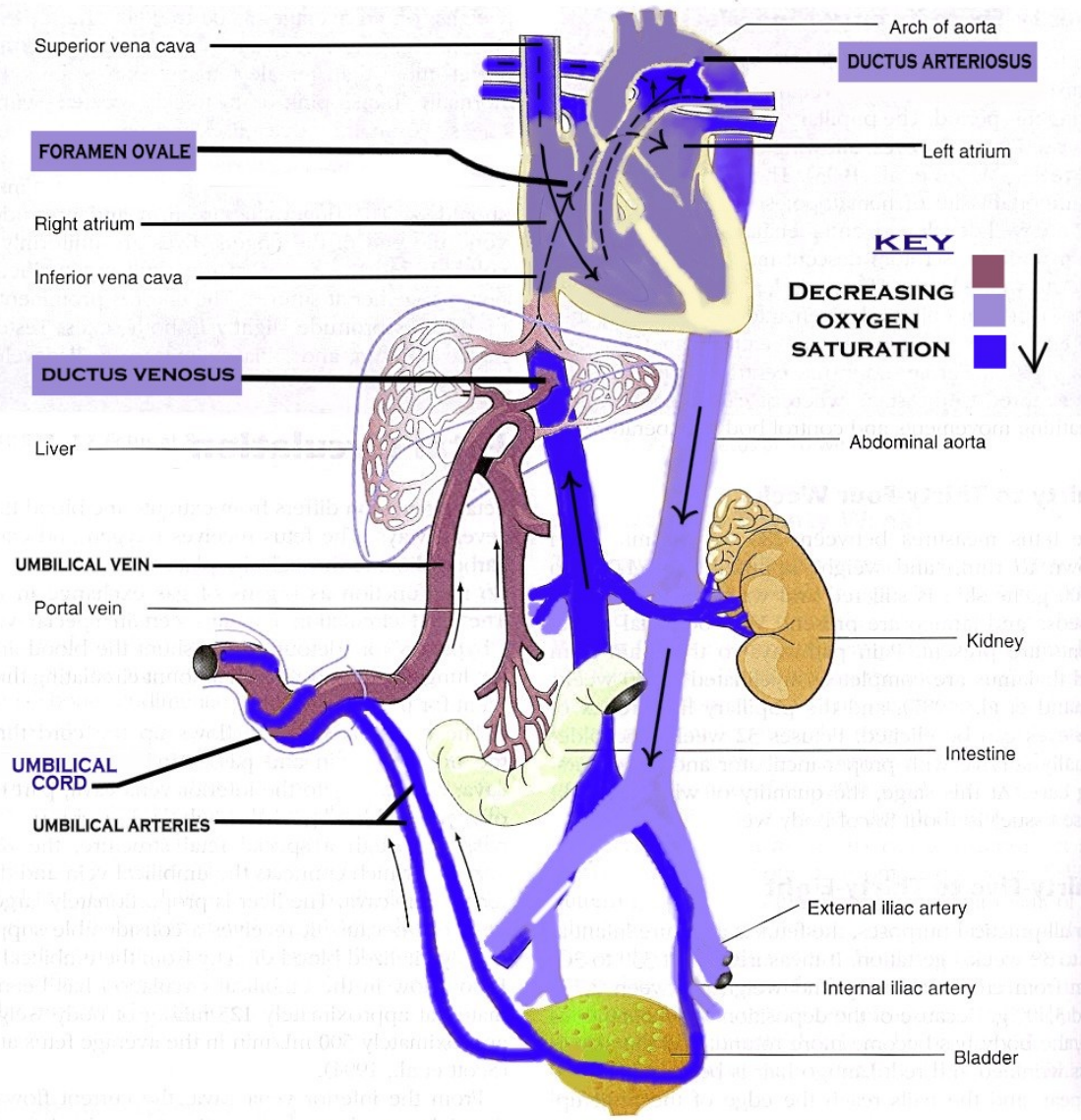
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- Physiology
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- What to do?
- ABC
- Drugs
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Background

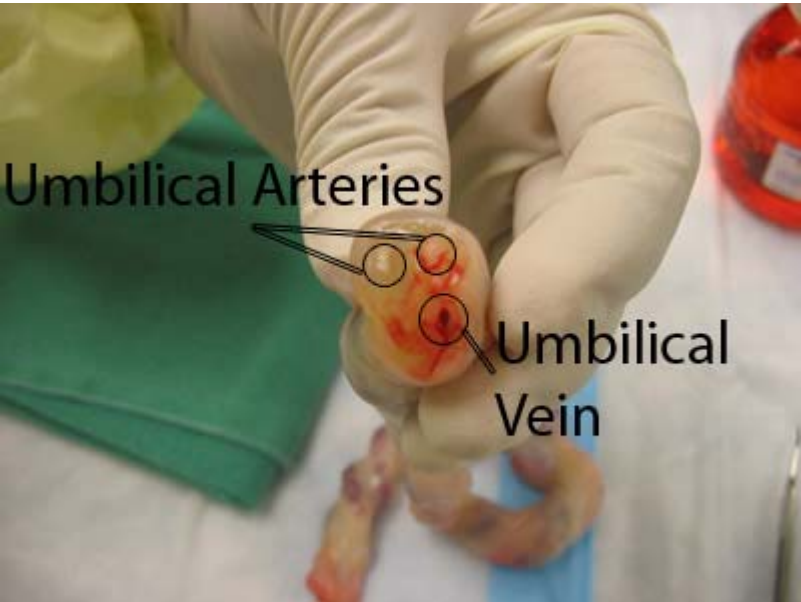
- 3-10% of the neonates need resuscitation
- 1/5 of them need more advanced help, as chest compressions and assisted ventilation
- Encefalopathy is still, most often, due to perinatal asphyxia
- CPR to neonates differs from CPR to children

Physiology



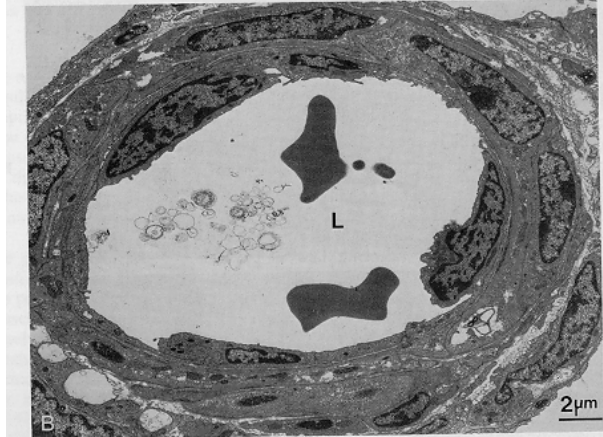


**FETAL CIRCULATION JUST BEFORE BIRTH.
NOTE THE COURSE OF BLOOD FLOW INDICATED BY THE ARROWS.**



Physiology

- Most changes are early (not – puls and BP)
- Pressure in pulmonary arteries and closure of ductus arteriosus: **hours**
- Decreased reactivity in the pulmonary arteries: **weeks**
- Anatomical closure of ductus art.: **2-4 weeks**
- Closure of foramen ovale: **one year**



Physiology

A healthy child takes the first breath with in 60-90 s. Normally 30 s.

Pathophysiology

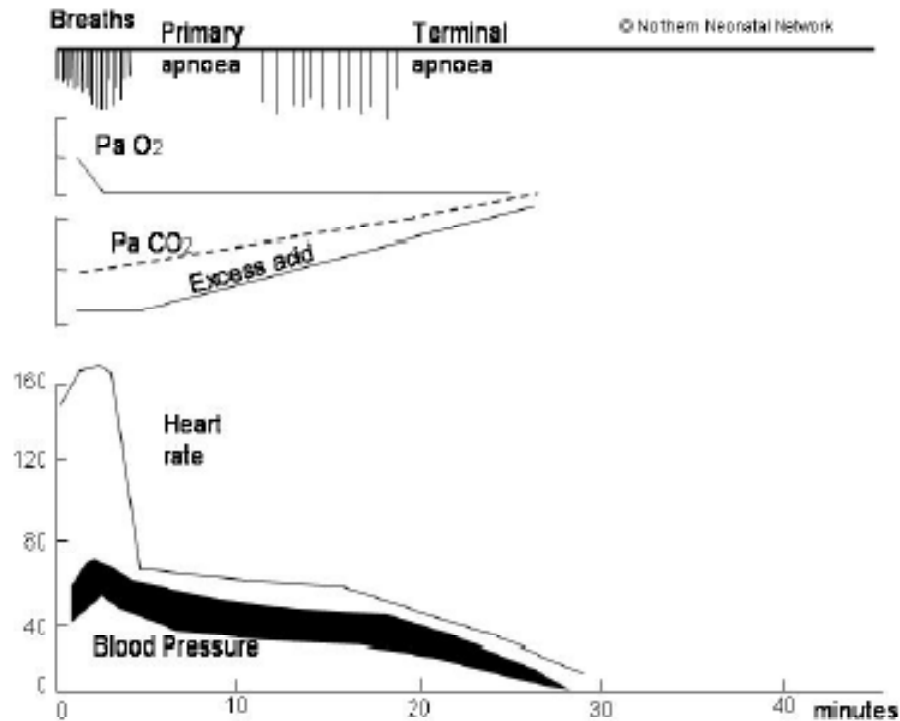


Figure I.1 Response of a mammalian fetus to total, sustained asphyxia started at time 0.

Pathophysiology

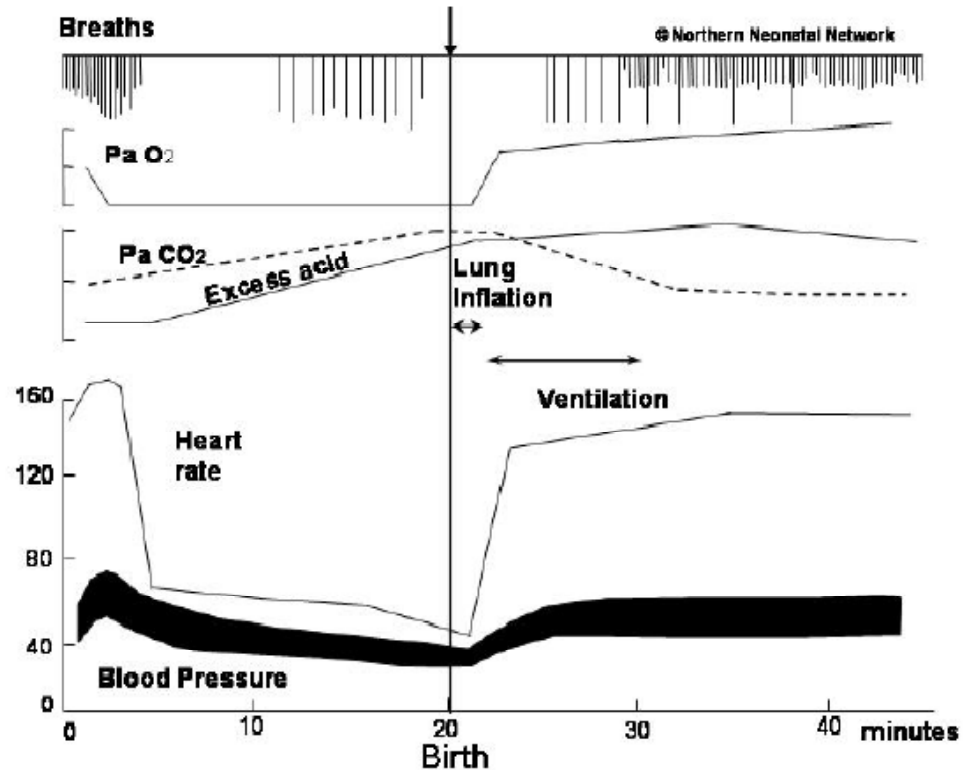


Figure 1.2. Effects of lung inflation and a brief period of ventilation on a baby born in early terminal apnoea but before failure of the circulation (Reproduced with permission from the Northern Neonatal Network)

Pathophysiology

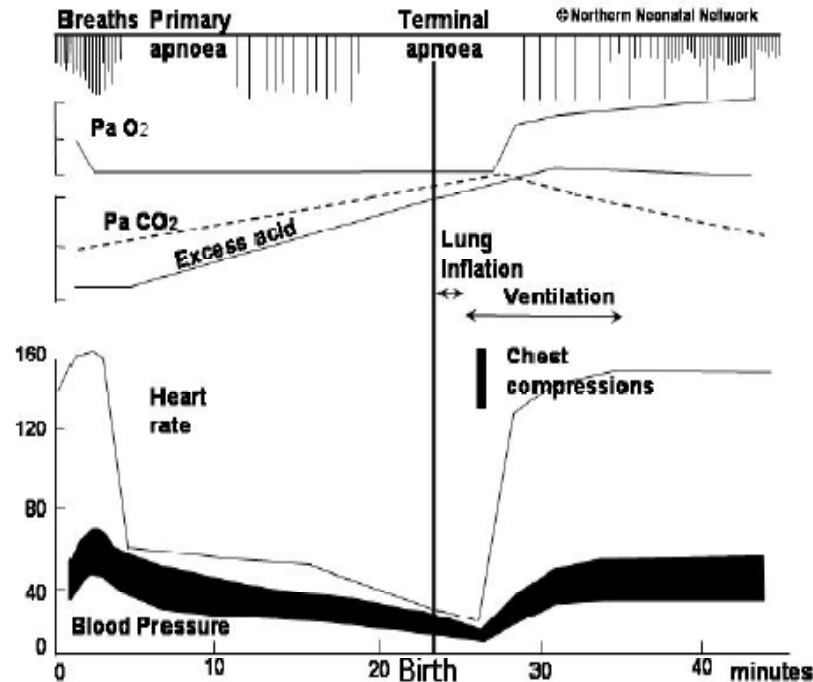


Figure 1.3. Response of babies born in terminal apnoea. In this case lung inflation is not sufficient because the circulation is already failing. However, lung inflation delivers air to the lungs and then a brief period of chest compressions (CC) delivers oxygenated blood to the heart which then responds. (reproduced with permission from the Northern Neonatal Network)

What to do?

- Call for help
- Start the clock
- Radiant heater/warmth
- Stimulate

What to do?

- Assess ABC, all at the same time!! LLF
- Airway and breathing
- HR
- Color
- Tonus

Assessment then resuscitation (ABC)

Airway

- Positioning, picture
- the only strong indication for suction of the airways are the combination:
 - 1) A lot of meconium (thick)
 - 2) Inadequate respiration
 - 3) HR under 100 beats/min or hypotonia
- Studies have shown that only 1:500 needs to be intubated
- Intubation "gold standard" tube size?

Airway



Figure I.4. Chin lift in infants

Airway



Figure I.5. Jaw thrust

Breathing

- O₂-konc
- First breath(assisted) 25-30cmH₂O, see picture
- What is an adequate breath? LLF
- Reassess after 30 s.
- F_q: 60/min
- Continue to spontaneous breathing

Breathing

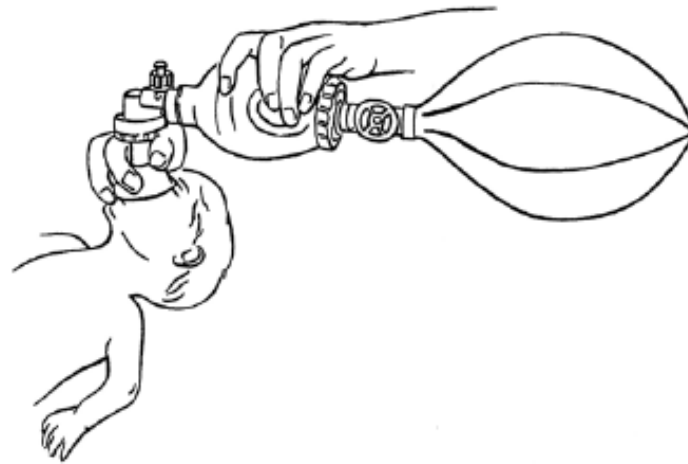


Figure I.6. Bag and mask ventilation



Circulation

- If adequate assisted ventilation and HR less than 60 beats/min, during 30 s – start compressions, picture
- Approx 100/min, 2/3 of the depth of the thorax
- 3:1
- Nb! If the assisted ventilation do not work – the compressions will have no effect!!

Circulation



Figure I.8. Infant chest compression: hand-encircling technique

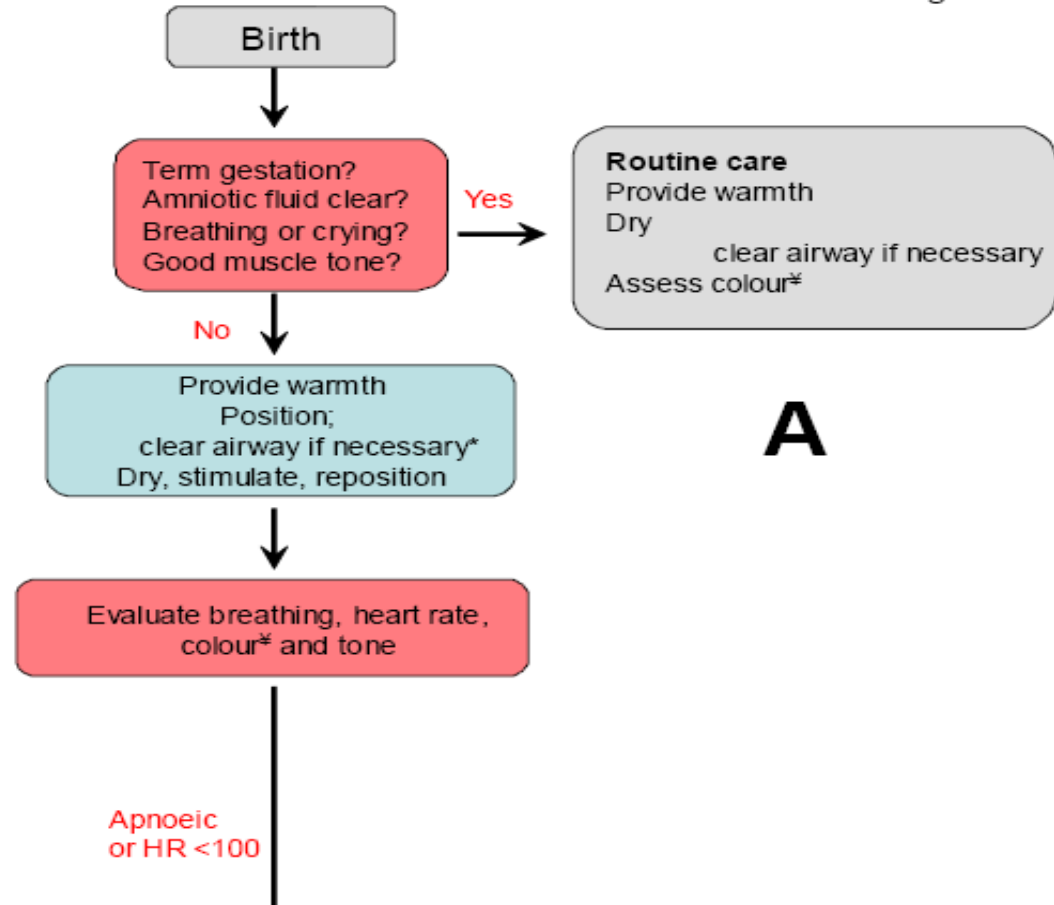
Reassess!!

Drugs

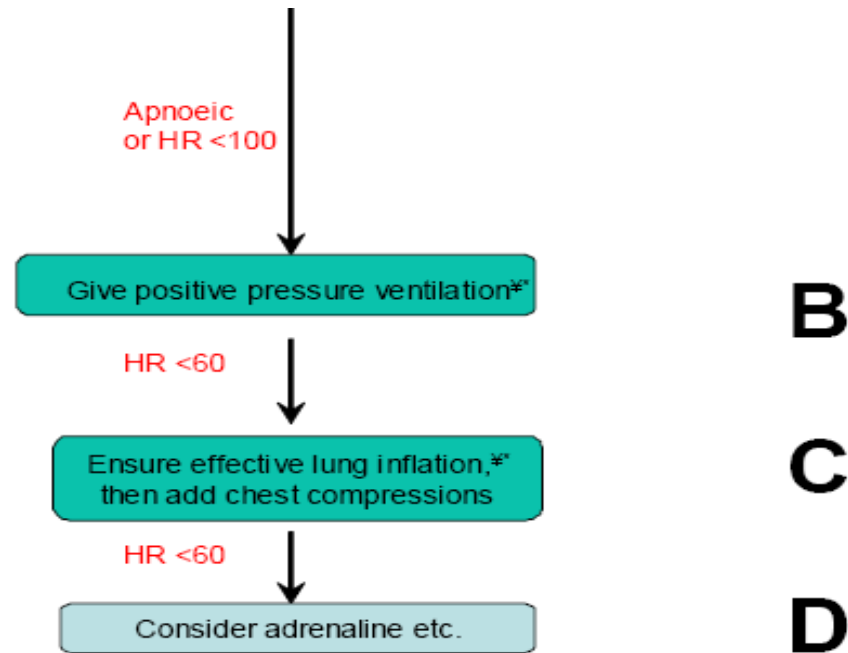
- You will have no effect of the drugs if the ventilation is inadequate
- If you need drugs, it is a bad sign
- Administration
- Adrenalin, buffer, glucose & fluids
- Naloxone, Atropine & calcium

Algorithm

Newborn resuscitation algorithm



Algorithm



*Tracheal intubation may be considered at several steps
‡ Consider supplemental oxygen at any stage if cyanosis persists

The end