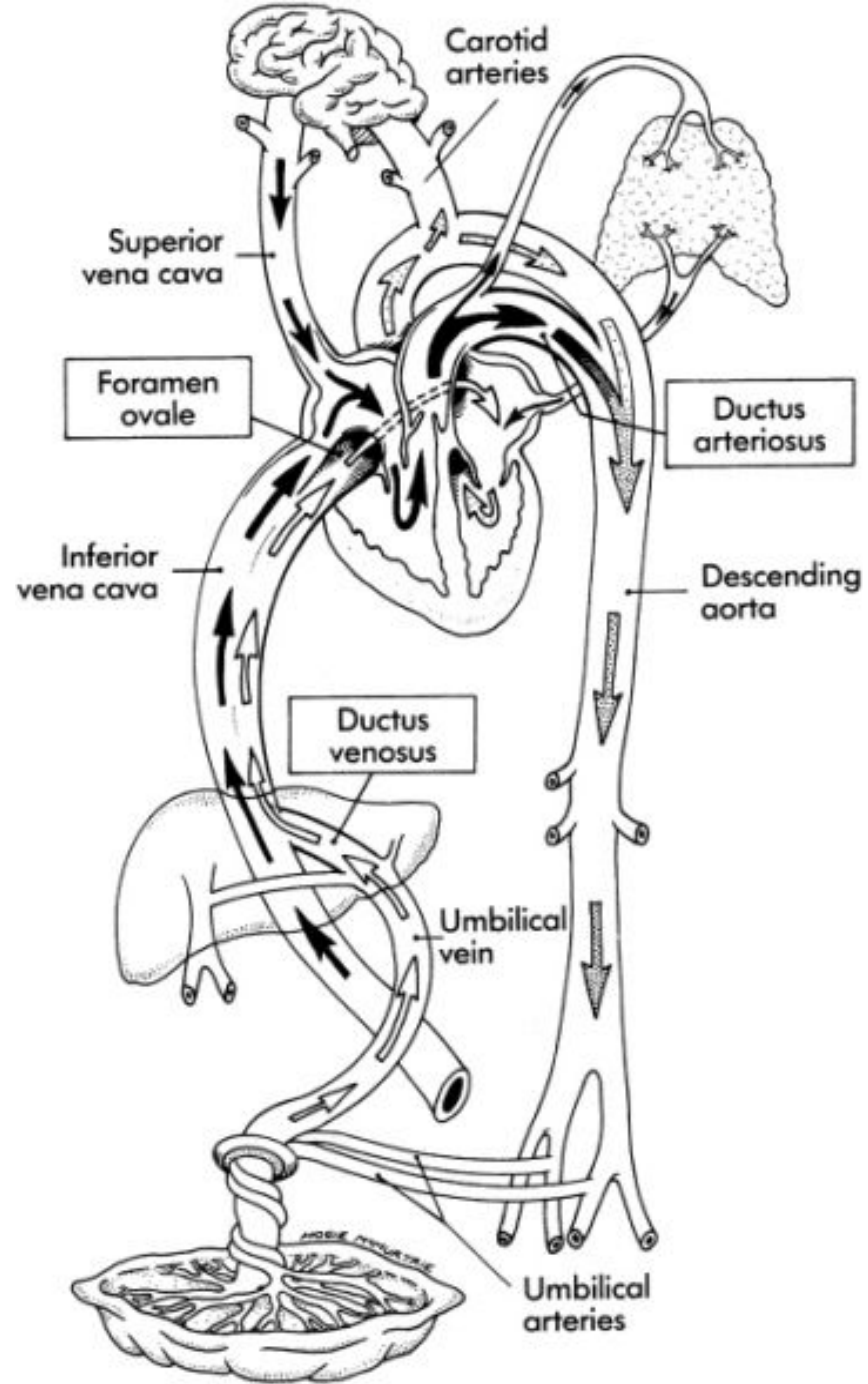
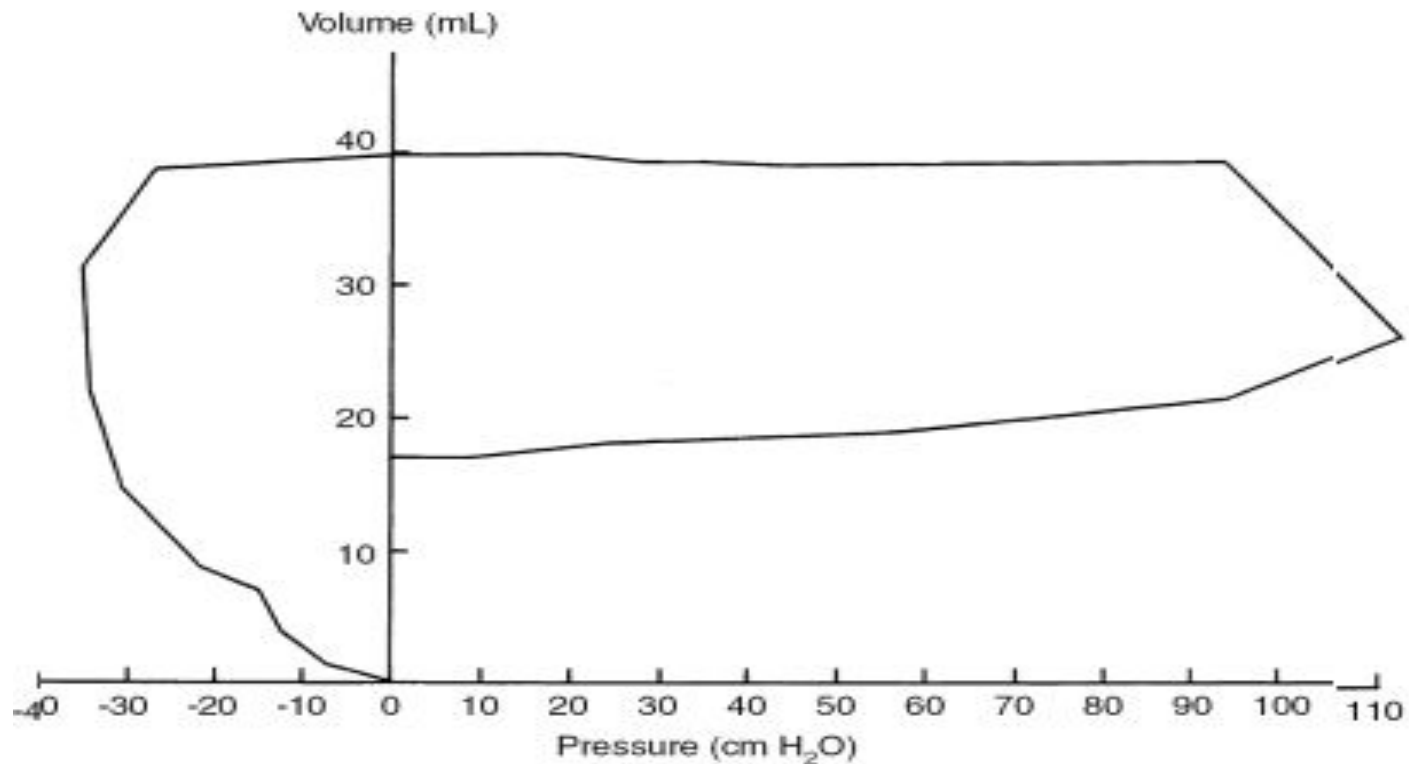


# Hypoxia and asphyxia of newborns

*Asistant professor of hospital pediatrics  
department*

- **Hypoxia of fetus is pathologic state connected to oxygen insufficiency during the pregnancy and delivery.**
- **This is the most widespread state in perinatal medicine and most common cause of perinatal morbidity consisting 21%-45% of all perinatal states.**

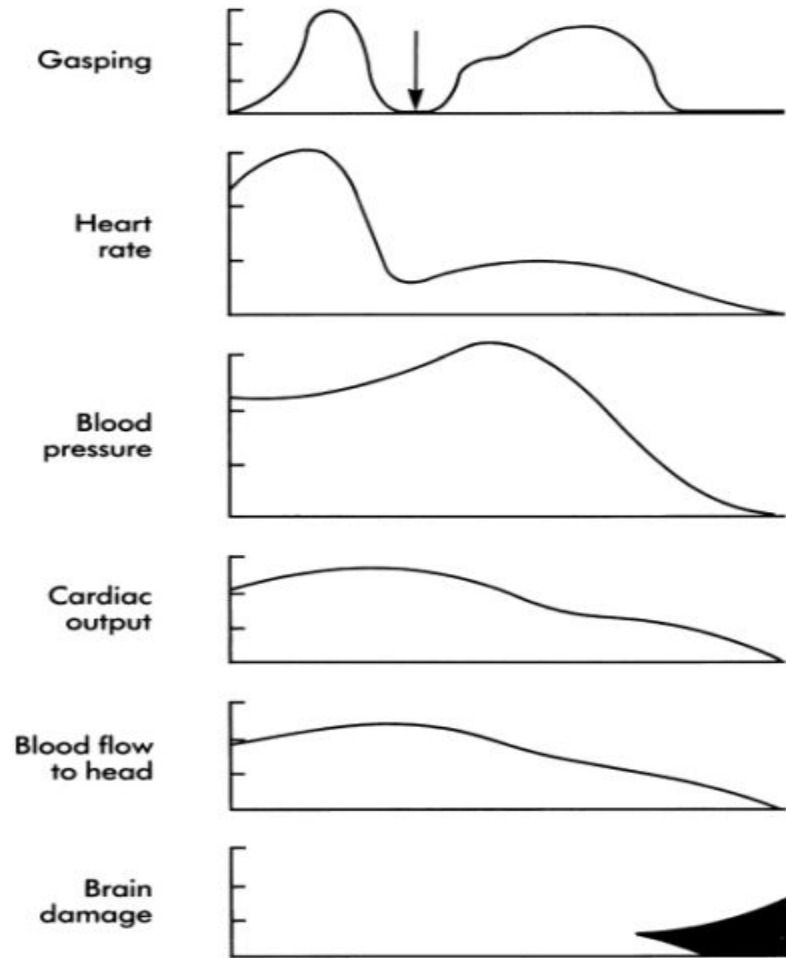




**Figure 25-2** Typical pressure-volume loop of first breath. Air enters the lung as soon as intrathoracic pressure falls. Expiratory pressure greatly exceeds inspiratory pressure. (From Milner AD et al: *Lung expansion at birth. J Pediatr* 101:879, 1982.)

## Antepartum Risk Factors

- Maternal diabetes
- Pregnancy-induced hypertension
- Chronic hypertension
- Chronic maternal illness
- Cardiovascular
- Thyroid
- Neurologic
- Pulmonary
- Renal
- Anemia or isoimmunization
- Previous fetal or neonatal death
- Bleeding in second or third trimester
- Maternal infection
- Polyhydramnios
- Oligohydramnios
- Premature rupture of membranes
- Post-term gestation
- Multiple gestation
- Size-dates discrepancy
- Lithium carbonate
- Magnesium
- Adrenergic blocking drugs
- Maternal substance abuse
- Fetal malformation
- Diminished fetal activity
- No prenatal care
- Age <16 or >35 years



Schematic diagram of changes associated with asphyxia. Arrow indicates the point of primary apnea.

# Apgar Score

SIGN	0	1	2
Heart rate	Absent	Less than 100 beats per minute	More than 100 beats per minute
Respiratory effort	Absent	Slow, irregular	Good, crying
Muscle tone	Flaccid	Some flexion of extremities	Active motion
Reflex irritability	No response	Grimace	Vigorous cry
Color	Pale	Cyanotic	Completely pink

## **Resuscitation Tray (Sterile) Resuscitation Equipment**

Bulb syringe	Radiant warmer
DeLee suction trap	Wall suction with manometer
Endotracheal tubes (2.0, 2.5, 3.0, 3.5, and 4.0 mm)	Oxygen source with flow meter
Suction catheters (6, 8, 10, and 12F)	Resuscitation bag (250–500 mL) with manometer
Endotracheal tube stylet	Laryngoscope
Umbilical catheter (3.5, 5F)	Laryngoscope blades (Miller 0 and 1)
Syringes (5, 10, and 20 mL)	Charts with proper drug doses and equipment sizes for various sized neonates.
Three-way stopcock	Warmed linens
Feeding tubes (5, 8F)	
Towels	
Umbilical cord clamps	
Scissors	



# Elements of a Resuscitation

Thermal management

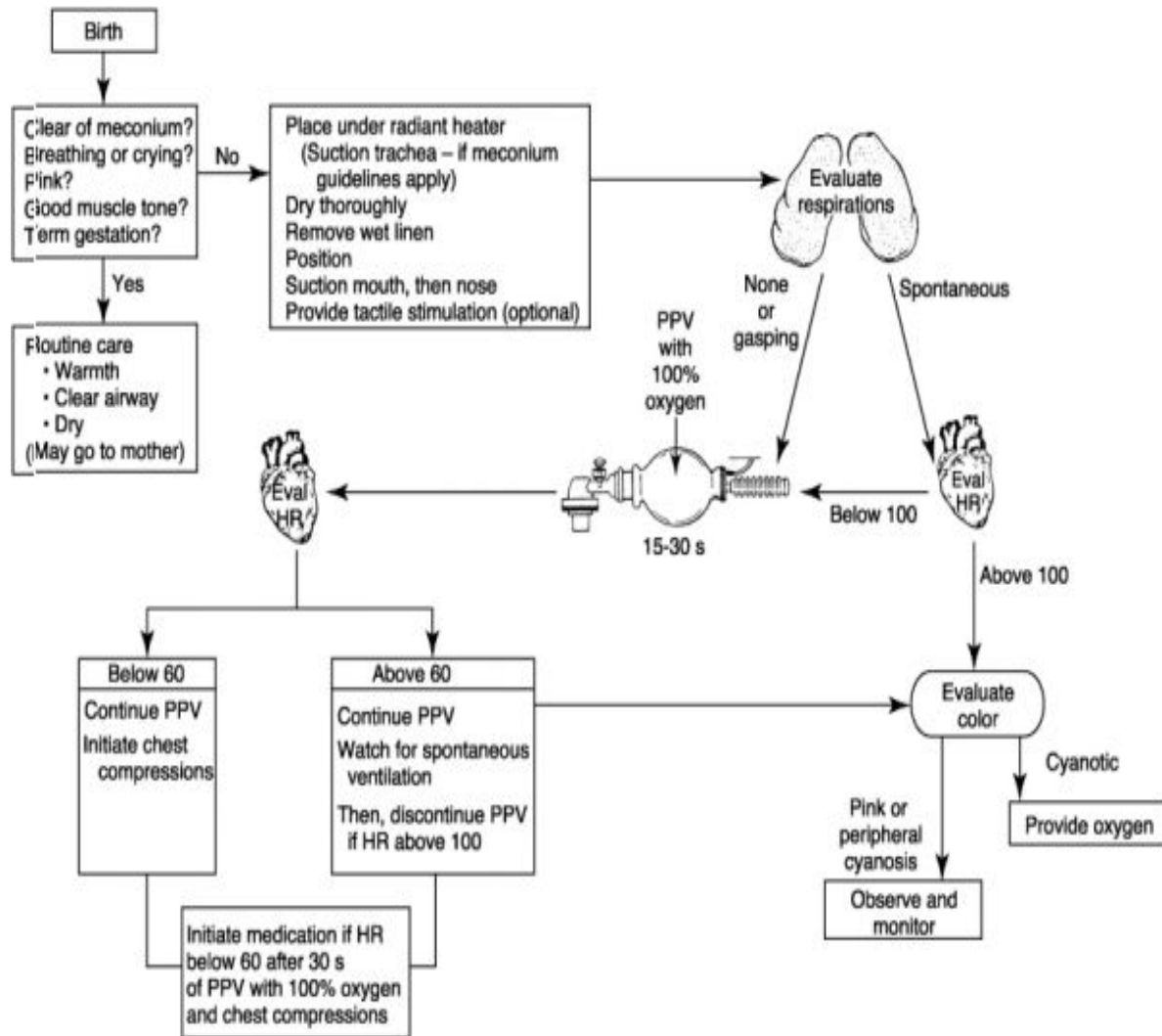
Clearing the airway

Tactile stimulation

Establishment of ventilation

Chest compression

Medication



Overview of resuscitation in the delivery room. PPV, positive pressure ventilation. (Data from Kattwinkel J (ed): *Textbook of Neonatal Resuscitation*, 4th ed. Copyright American Heart Association/American Academy of Pediatrics, 2000.)