

# CARDIO PULMONARY RESUSCITATION (CPR)

# DEFINITION

- Artificial ventilation accompanied by cardiac massage to facilitate normal breathing and heart action in the event of cardiac arrest

# PURPOSE

- To re-establish effective ventilation and circulation

# EQUIPMENT

- Cardiac Board,
- Suction apparatus,
- Oxygen supply,
- Box containing AMBU bag,
- Sterile endotracheal tube(2.5 – 5.5 mm) Extra batteries,  
Laryngoscope with 0, 1, 2, size tongue blades and stillet,
- Magill forceps,
- Adhesive scissors,
- Airway,
- Syringes 1, 2, 5, 10 cc,
- Intracardiac needle 20 g, 22g, 6 -8 cm length, needles 23 g  
and 20 g,
- Elastoplasts bandage



Suction  
Equipment

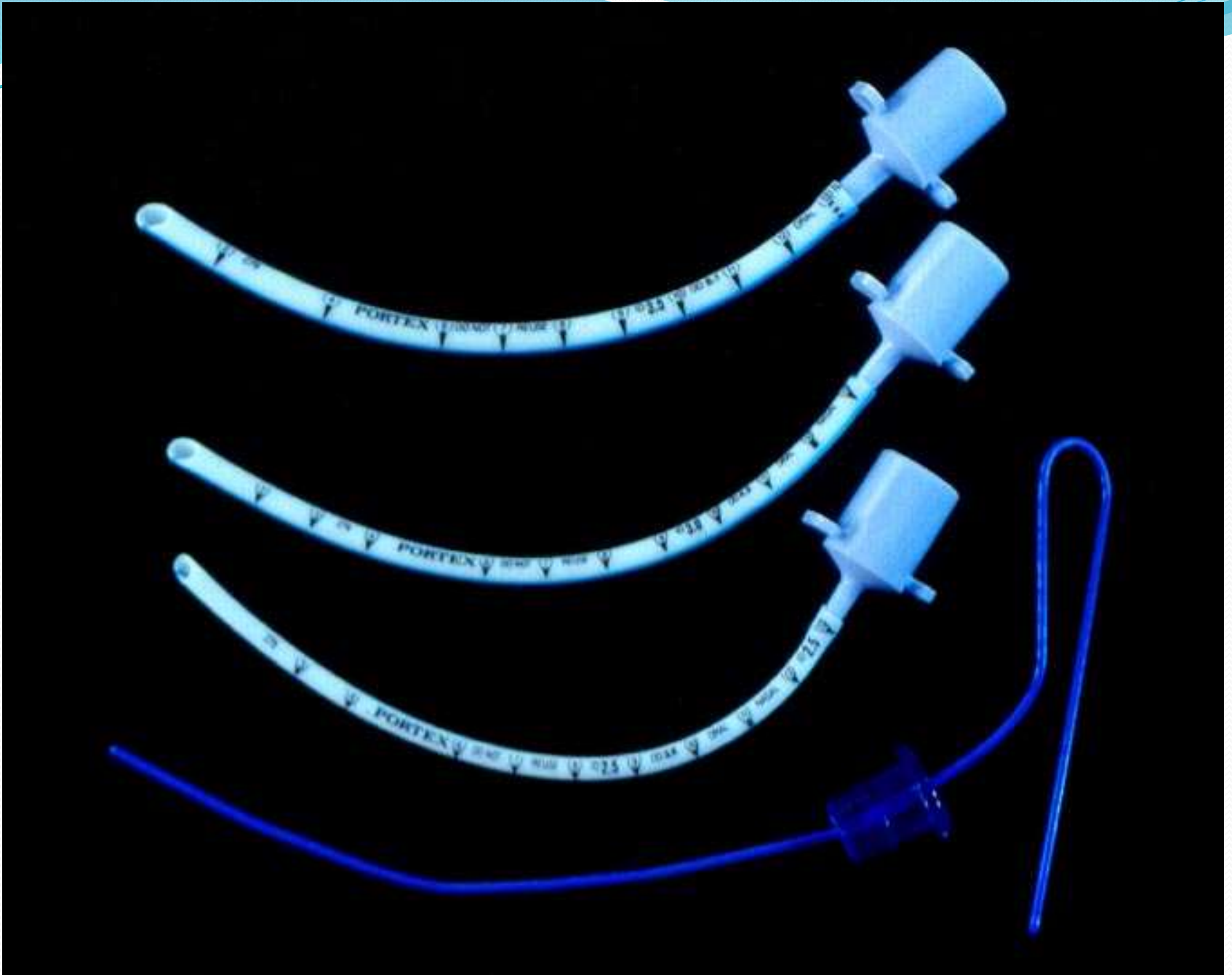
Warmer &  
Blankets

Bag,  
Mask, &  
Oxygen

Laryngoscope  
and ETT Tube







# GENERAL INSTRUCTIONS

- Identify “ RED FLAG” signs of critically ill child – changes in level of consciousness, flaccid posturing, cyanosis, severe chest retractions, grunting respiration, increased respiratory rate, shallow respiration, see saw reparation i.e., abdominal protrusion with inhalation, irregular respirations with periodic deep sighs, apnea, absent pulse, absent heart rate, absent carotid pulse, dilated pupils, unrecordable blood pressure, cold clammy skin.
- ACT Quickly! as child can go into cerebral hypoxia within 3 to 4 minutes which will lead to permanent brain damage
- Assess child (look, listen, feel) and if not breathing call for help
- Immediately start cardiopulmonary resuscitation (CPR)
- Equipment for CPR to be always accessible and in functioning condition
- All CPR equipment to be checked at beginning of each shift
- All staff to be skillful at CPR



# PROCEDURE

- **AIRWAY**

- Establish patient airway by suctioning oropharynx with catheter, and deflate stomach by aspirating stomach contents
- - head tilt- chin lift method
- Jaw thrust method

- **BREATHING**

- Establish breathing by arterial ventilation. Place AMBU bag on mouth and nose, and connect to 100% oxygen
- Select ET tube using the formula
- $$\frac{\text{Age in years} + 4}{4}$$

- **CIRCULATION**

- Initiate cardiac Compression

- **Method:**

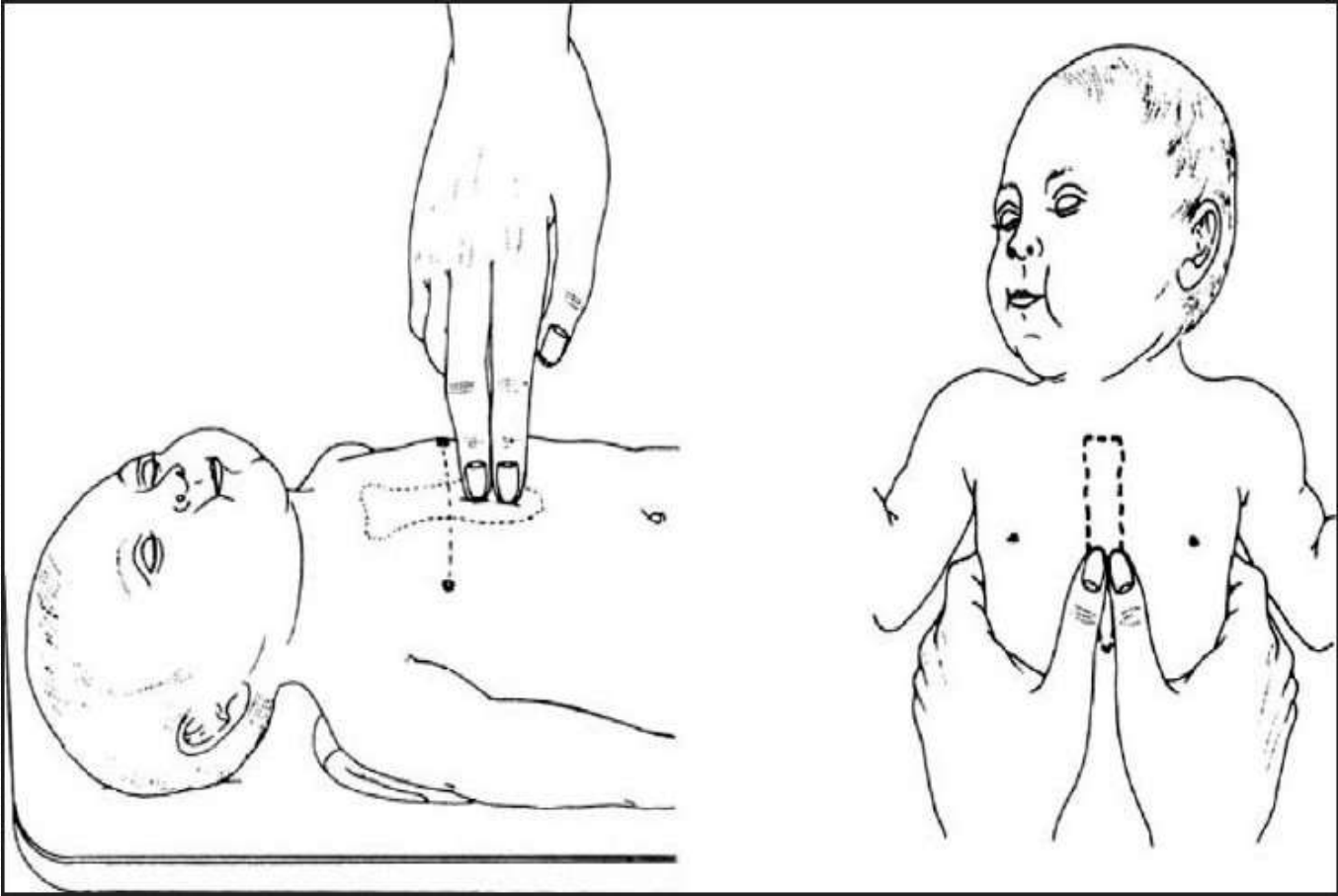
- Several rhythmic compressions of chest that help to circulate oxygen containing blood to vital organs

- **Infant:**

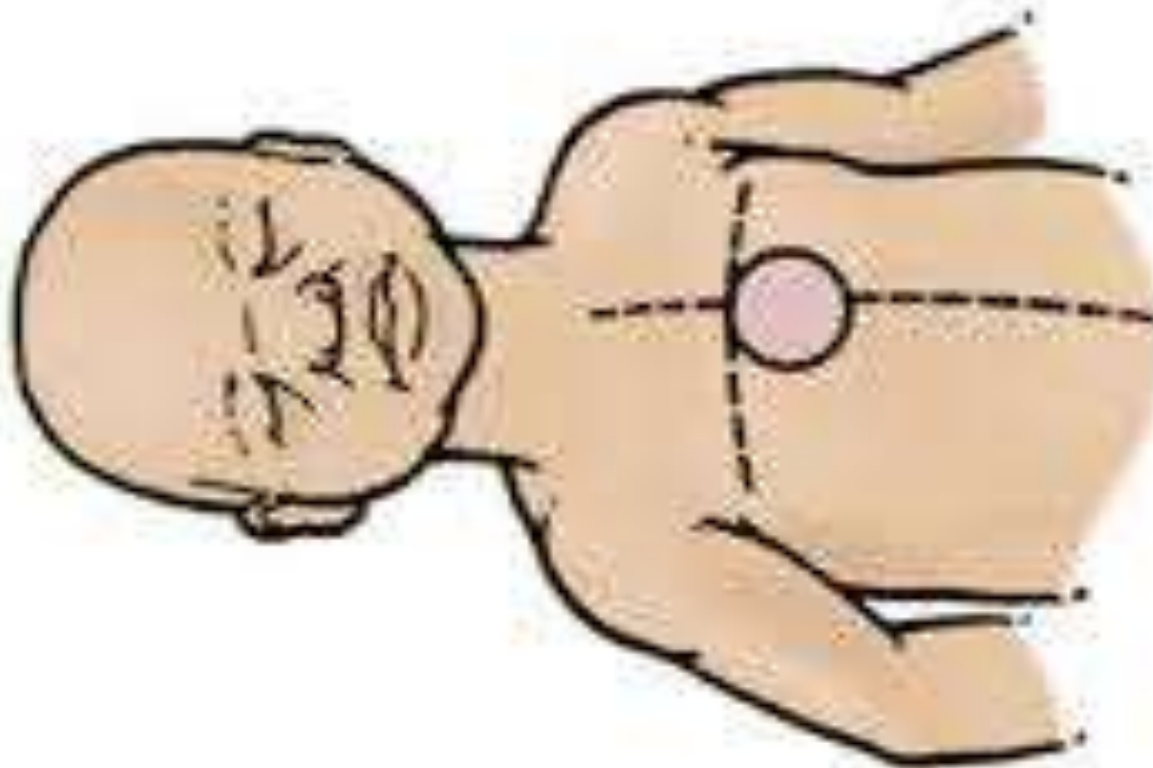
- Site – sternum: compression – below level of infants nipples
- Width one finger breadth
- Thumb technique or finger technique
- Depth  $\frac{1}{2}$  inch to 1 inch or 1 – 2cms
- Rate 100 times per minute

# Position





## Skill Drill 20-2 Giving Chest Compressions to an Infant



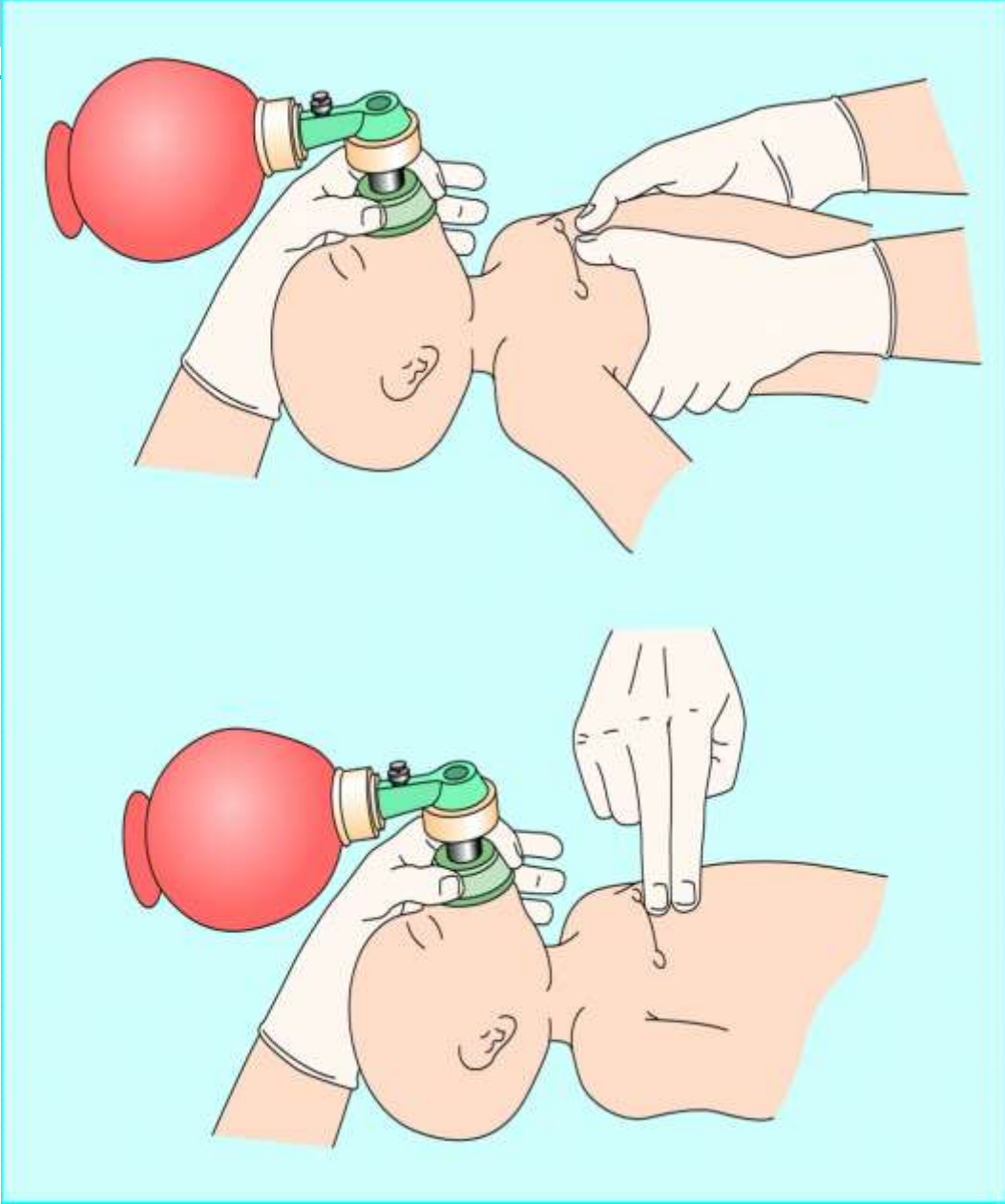
**Skill Drill 20-2**  
Giving Chest Compressions to an Infant

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- **Child:**

- Site: Lower margin of child's rib cage to notch where ribs and sternum
- Avoid compression over notch
- Place heel of nurse's hand over lower half of sternum (between nipple line and notch)
- Depth – 1 inch to 1 ½ inches
- Rate – 100 times per minute
- Ratio of cardiac compression to ventilation
- 2 persons – 5:1
- 1 person – 15:2

## • DRUGS

### • Administration of Drugs

#### • 1. Inj. Epinephrine (Adrenaline)

Initial IV or Intra Osseous dose is 0.01 ml/ kg (1:10,000 dilutions)

Doses as high as 0.2 mg / kg may be beneficial. Adrenaline administration to be repeated every 3- 5 mts during resuscitation

- 2. Sodium bicarbonate (8.4% solution) : 2-4 ml/ kg body weight. This has to be diluted with equal amount of any IV fluid
- 3. Atropine sulphate: 0.02 mg /kg with a minimum dose of 0.1 mg for child and 1.0 mg for adolescent. This dose may be repeated after 5mts. Max. dose 1.0 mg for child, 2.0 mg for adolescent
- 4. Calcium chloride 10%: 5 to 7 mg /kg of elemental calcium, (0.2 to 0.25 ml /kg calcium will deliver 5- 7 mg /kg
- 5. Prostaglandin E: 0.05 to 0.10 mg /kg
- 6. Dopamine 2 – 20 mg /kg /minute through infusion pump

- **ECG**
- Monitor electrocardiogram for any changes
  - **FIBRILLATIONS**
- Observe for ventricular fibrillations and defibrillate if needed.
  - **GAUGING**
- Continuously monitor and observe general condition of child which includes level of consciousness, vital signs like temperature, pulse, respiration, blood pressure, oxygen saturation, signs of electrolyte imbalance, dehydration.
  - **HYPOTHERMIA / HYPERTHERMIA**
- Treat hypo /hyperthermia
- Hypothermia: Check temperature of child. Use radiant warmer to keep child warm and maintain body temperature as it is important to reestablish cardiovascular functioning.

## ● INTENSIVE CARE UNIT

- Transfer child to Paediatric Intensive care unit where child can be nursed by Paediatric Intensive care unit team
- Monitor: Air entry, airway, respiratory status, ventilatory support, carotid artery pulsation, heart rate, peripheral pulse, blood pressure, papillary reaction to light, skin color, temperature
- Observe for complications: Fracture of ribs, Injury to lungs, pneumothorax, laceration of liver and spleen