



# Neonatal Resuscitation Protocol For M0





# WHY LEARN NEONATAL RESUSCITATION??

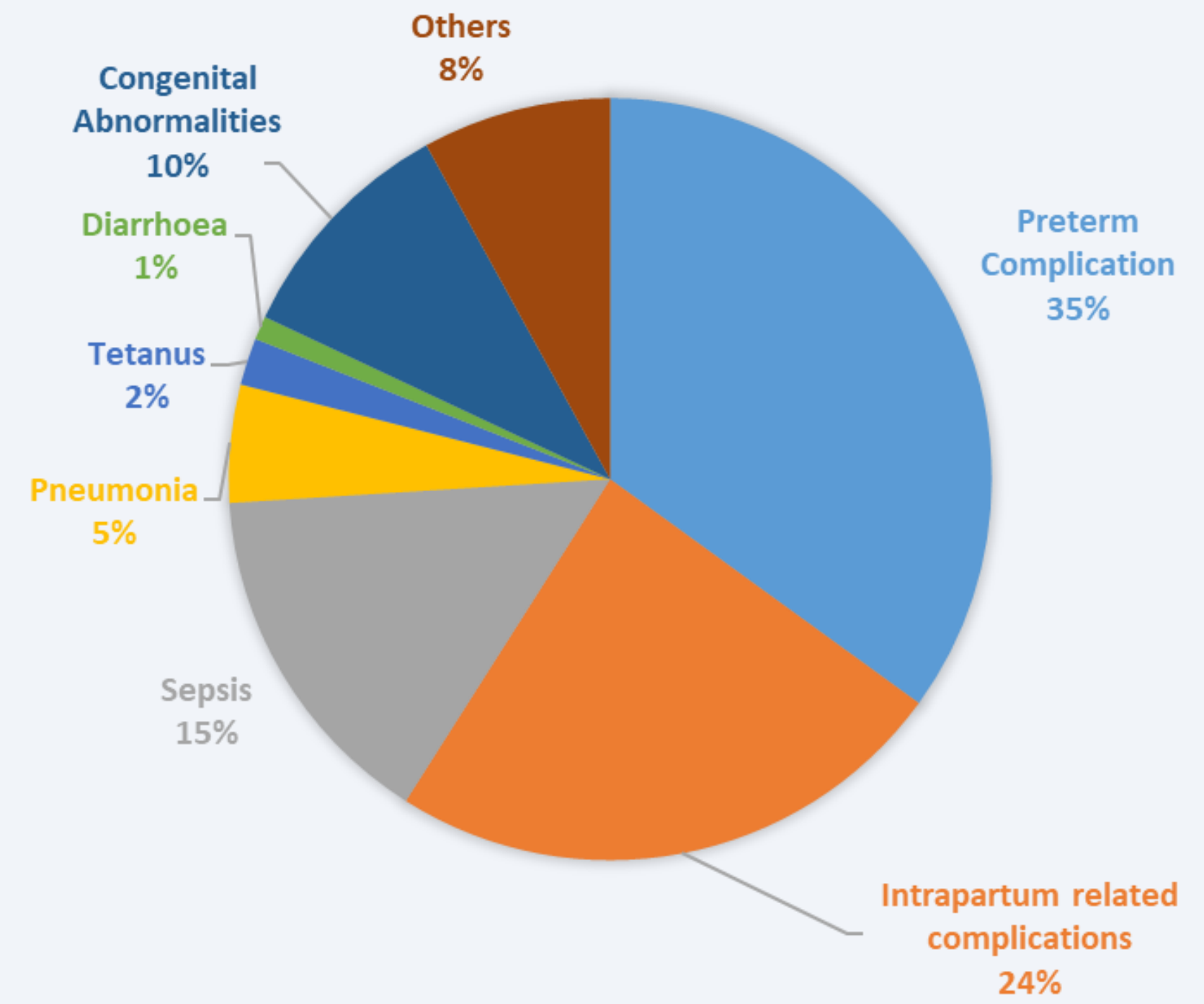
- Asphyxia - 19% of neonatal deaths
  - Many stillbirths
  - Lifelong neurological damage
- Resuscitation – can improve the outcome of 1 million babies
- 10% of babies require resuscitation
- 1% - extensive resuscitative measures





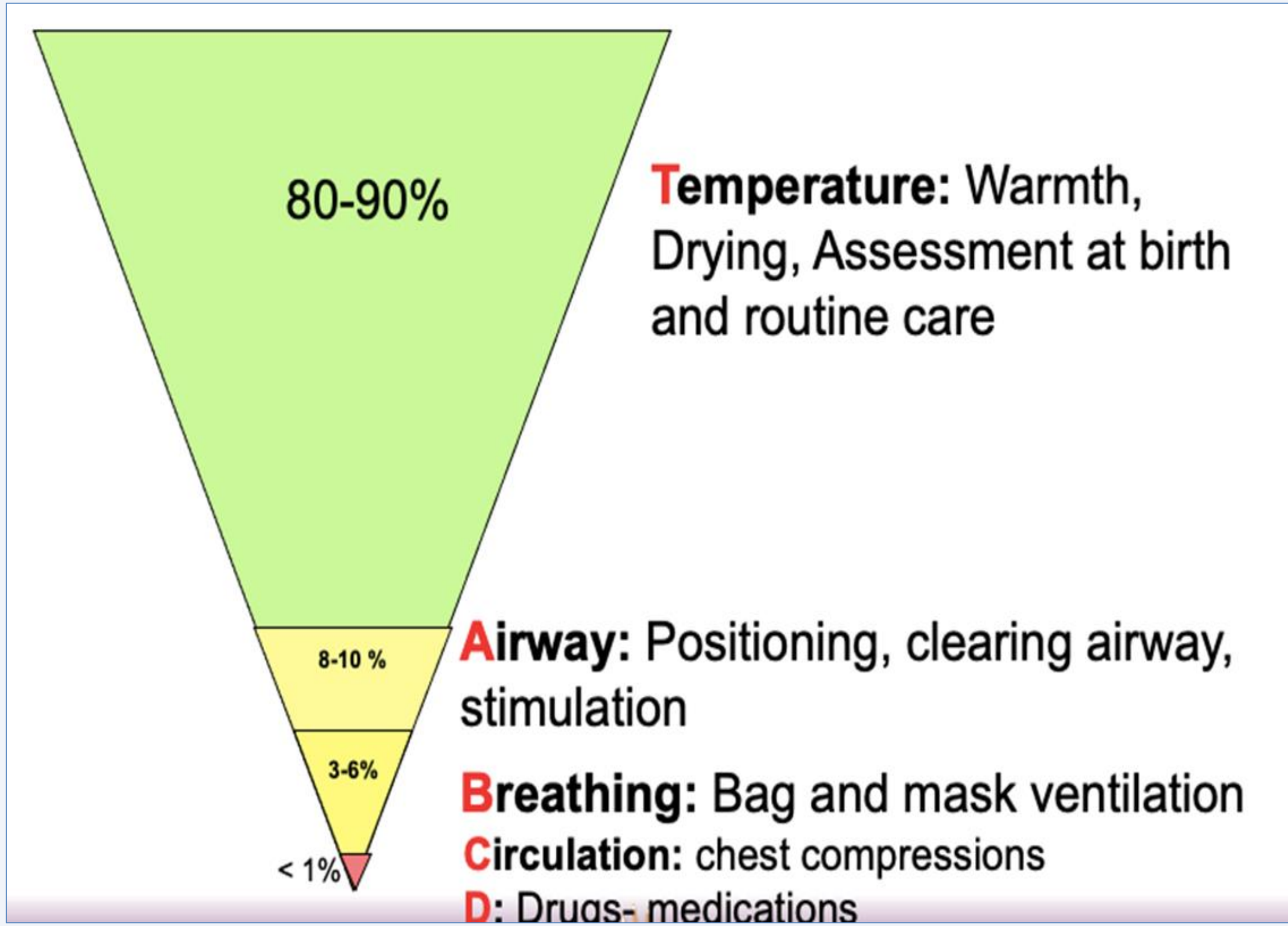
# CAUSES OF NEONATAL DEATH

- The majority of neo-natal death are related to complications during labor – time of birth
- Hence need for neonatal resuscitation protocol





# NEONATAL RESUSCITATION GOALS





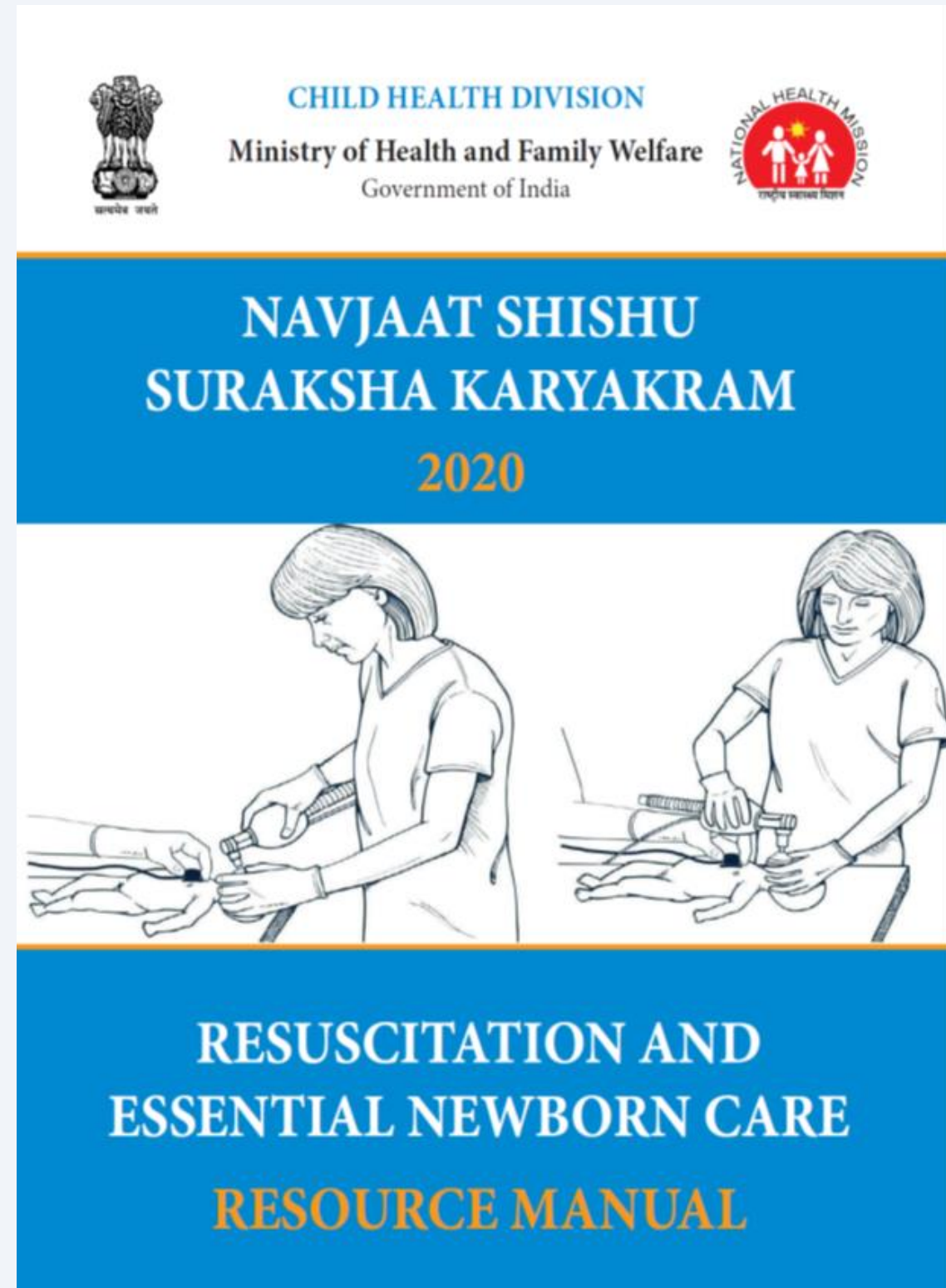
# OBJECTIVES OF NRP TRAINING

- Assess a newborn baby at birth
- Perform **basic** resuscitation of a newborn baby, if needed, using standard equipment
- “Every single newborn **MUST** get its first breath within the first golden minute of life”
- Provide after care to a baby who required help with breathing at the time of birth





# NEONATAL RESUSCITATION PROTOCOL (NRP) MANUAL





# KEY TO SUCCESSFUL RESUSCITATION

- Anticipation
- Preparation
- Call for help when needed
- Be able to work quickly in coordination (with the helper or team)
- Communicate effectively
- Be gentle, but quick
- Provide warmth, maintain hygiene, document/record





# ANTICIPATION- GATHER HISTORY

- Only about 10% require some resuscitative assistance.
- Though babies who will need resuscitation at birth can be identified by the presence of antepartum or intrapartum risk factors
- Be prepared for resuscitation at every birth.







### Antepartum Risk Factors

#### Maternal Risk Factors

- Mother's age <16/ >32 years
- Inadequate antenatal care
- Significant ante-partum hemorrhage (Abruptio placentae, placenta previa)
- Preeclampsia or eclampsia
- Maternal Hypertension
- Maternal medical problems (cardiac, pulmonary, renal, thyroid, anaemia, etc)
- Maternal pyrexia, infection, chorioamnionitis
- Poly-hydramnios
- Oligo-hydramnios

#### Foetal Risk Factors

- Preterm/Post term
- Previous foetal or neonatal deaths
- Intra-uterine growth restriction
- Significant malformations or anomalies in foetus
- Intrauterine infection
- Reduced foetal movements before onset of labour

### Intrapartum Risk Factors

- Meconium stained amniotic fluid
- Reduced foetal movements
- Precipitate labour, Prolonged labour
- Breach or other non vertex presentations, Forceps/vacuum deliveries
- Cord prolapse

- Chorioamnionitis
- Narcotics administered to mother within 4 hrs of delivery
- Maternal general anesthesia/sedation



# PREPARATION FOR BIRTH

- Preparation of Helper
  - Teach them HR counting
  - Give phone number of doctor/senior
  - Give phone number of ambulance & transfer plan
- Preparation of Room & Neonatal Corner
- Preparation of Self
- Preparation of Equipment



# PREPARATION OF THE ROOM & NEWBORN CORNER

- Close all the doors and windows and draw the curtains to ensure privacy
- Switch off the fans/AC & Ensure room temp of 26-28 C
- Switch on the radiant warmer
- Place two baby sheets in radiant warmer before delivery to ensure that the baby is received in a pre-warmed sheet to maintain warm chain
- Counsel OBGY & mother for delivering on abdomen



# PREPARATION OF THE ROOM & NEWBORN CORNER



# PREPARATION OF EQUIPMENT



## Equipment

- Before every delivery ensure that all essential equipment is in place and in working condition
- Equipment of the appropriate size should be always available
- If an electrical suction machine is used, the pressure should not exceed a negative pressure of 100 mmHg
- Mucus extractor and suction catheter should be discarded after single use and must be replaced with new ones
- Bag and mask, neonatal stethoscope, radiant warmer and suction machine should be disinfected prior to each use





# EQUIPMENT AND SUPPLIES

- Baby tray with two clean, warm towels/sheets, mucous extractor (Dee Lee's), gloves, cord clamp/tie, cotton swabs, Needle (26 gauge), and syringe (1ml.), Inj. Vitamin K-1
- Clean cord-cutting equipment (sterile or boiled scissors and if not available then a new blade)
- Wall clock with seconds hand
- Functional self-inflating bag (250 & 500 mL); infant masks in two sizes: size '1' for normal weight baby and '0' for small baby
- A functional radiant warmer
- Oxygen source
- Stethoscope



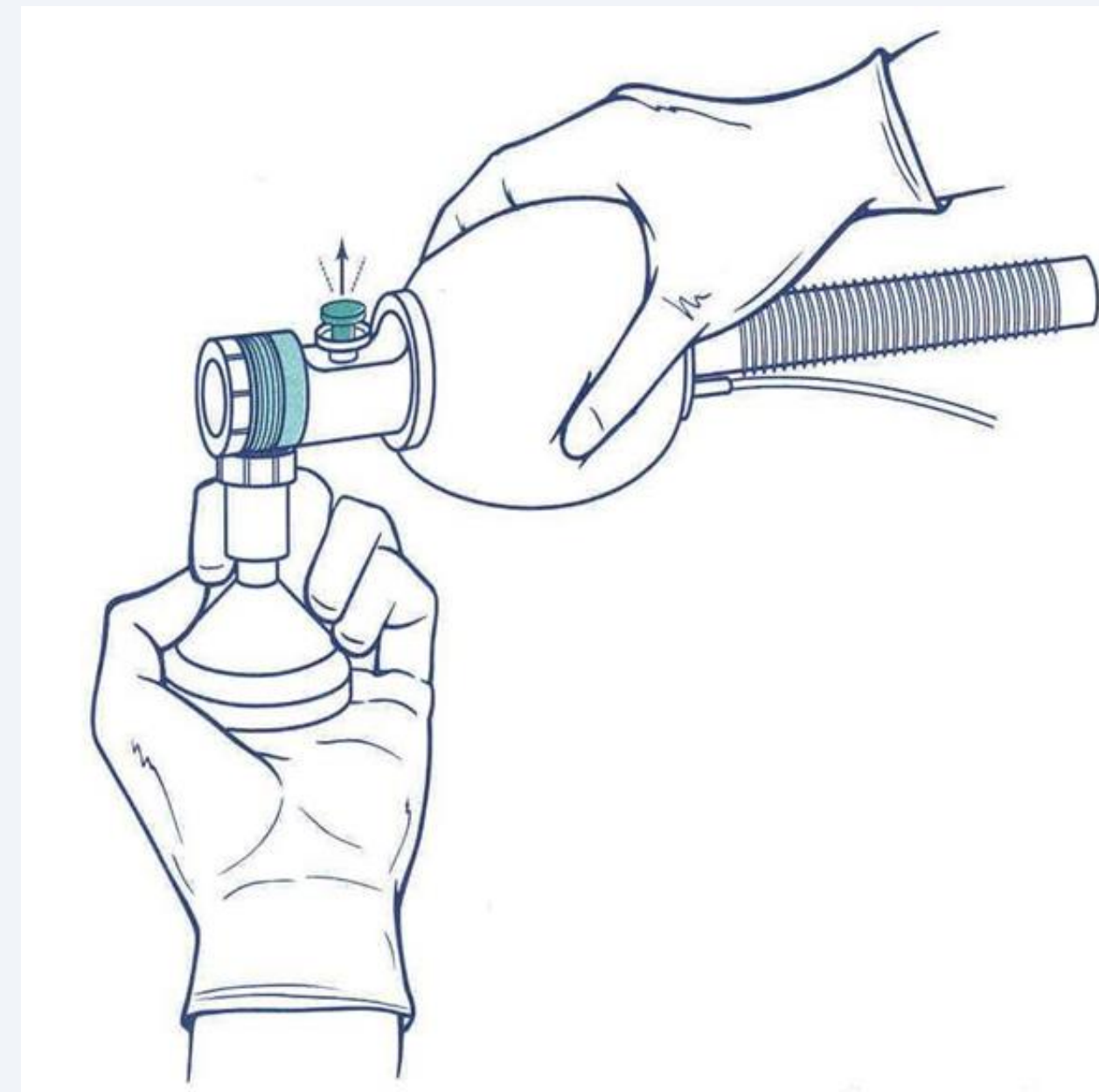
- Suction machine (electrical/foot-operated) (suction pressure 80-100 mmHg) and suction
- Catheters 10 and 12 F
- A folded piece of cloth to be used as shoulder roll during resuscitation (1/2 to 3/4th inches thick)





# TEST THE FUNCTION OF BAG AND MASK

- Pressure against your hand
- Pressure-release valve opens
- Check that the bag re-inflates quickly







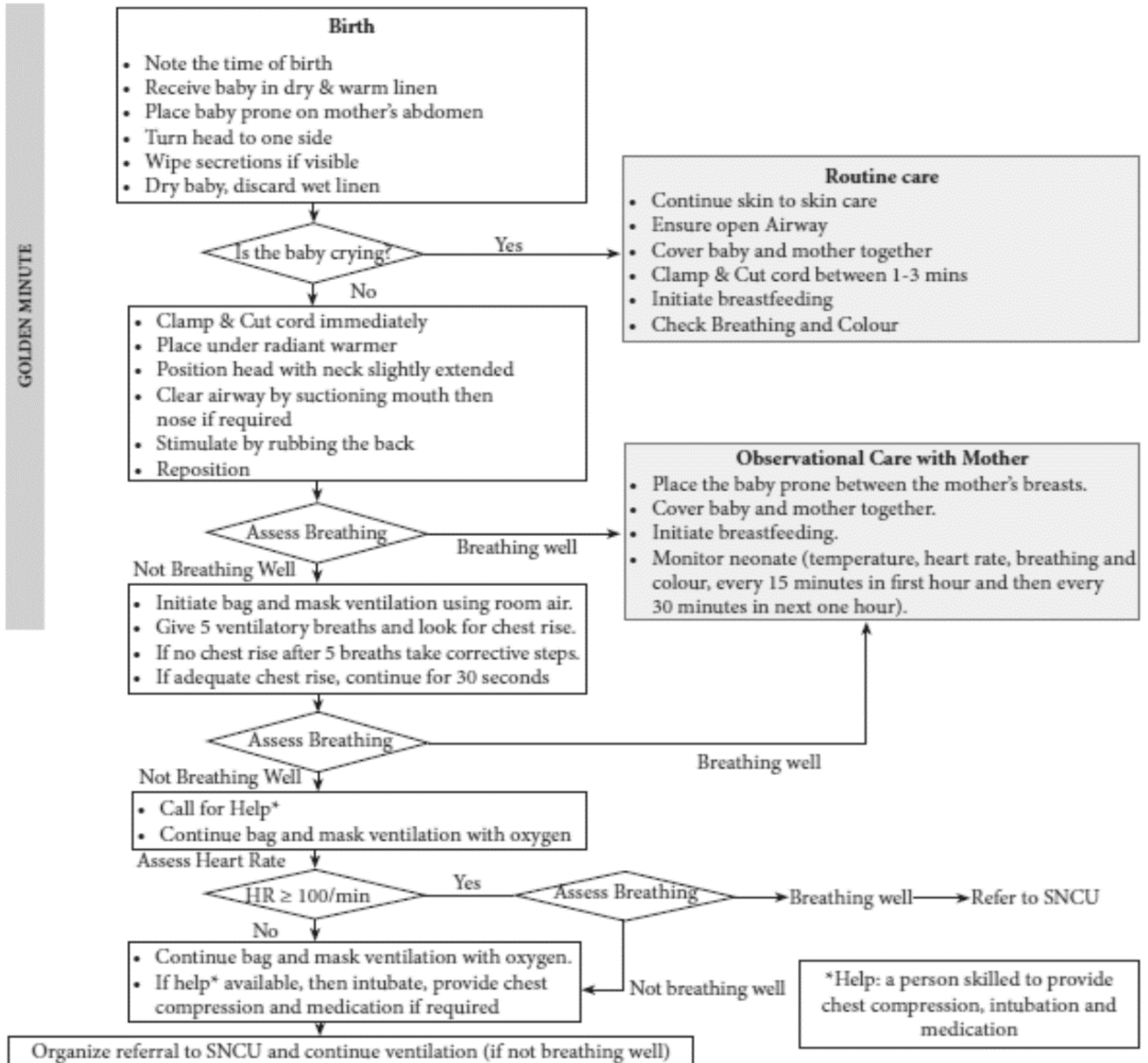
# PREVENTION OF INFECTION

World Health Organization (WHO) promotes “six cleans”

- Clean hands
- Clean perineum
- Clean delivery surface
- Clean cord-cutting instrument
- Clean cord tie
- Clean cord care



# ALGORITHM FOR NRP





# ACTIONS AT BIRTH

**“Golden Minute” –time by which baby starts breathing well or is receiving effective ventilation.**



# CONTD...

- Note the time of birth
- Receive baby in dry & warm linen
- Place baby prone on mother's abdomen
- Turn head to one side
- Wipe secretions, if visible
- Dry baby, discard wet linen



Assessment	Decision
Baby is crying	No need for resuscitation or suctioning. Provide routine care.
Baby is not crying, but is breathing regularly between 40 to 60 times in a minute	No need for resuscitation or suctioning. Provide routine care.
Baby is gasping/not breathing	Resuscitate immediately.

### Remember-

- Meconium presence does **NOT** change any care pathways.
- Tracheal suction is **NOT** recommended currently



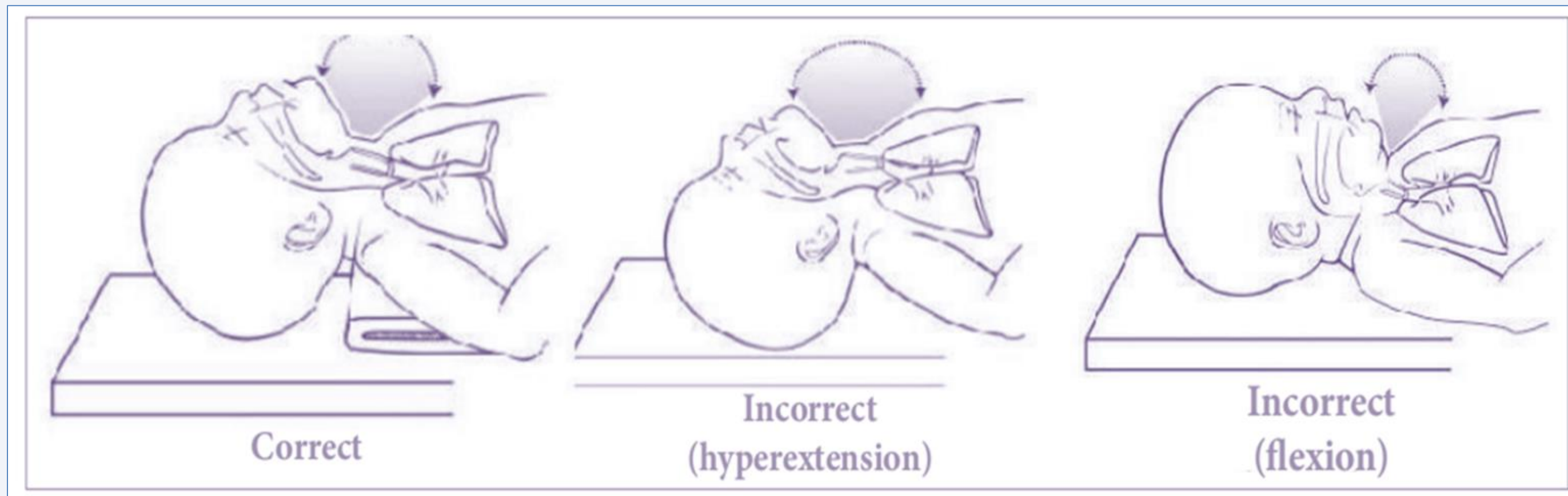
# BABIES WHO CRY AT BIRTH

- Continue skin to skin care
- Ensure open Airway
- Cover baby and mother together
- Clamp & Cut cord between 1-3 mins
- Initiate breastfeeding
- Check Breathing and Colour



# BABIES WHO DO NOT CRY/ BREATHE

- Clamp & cut cord immediately
- Place under radiant warmer
- Position head with neck slightly extended



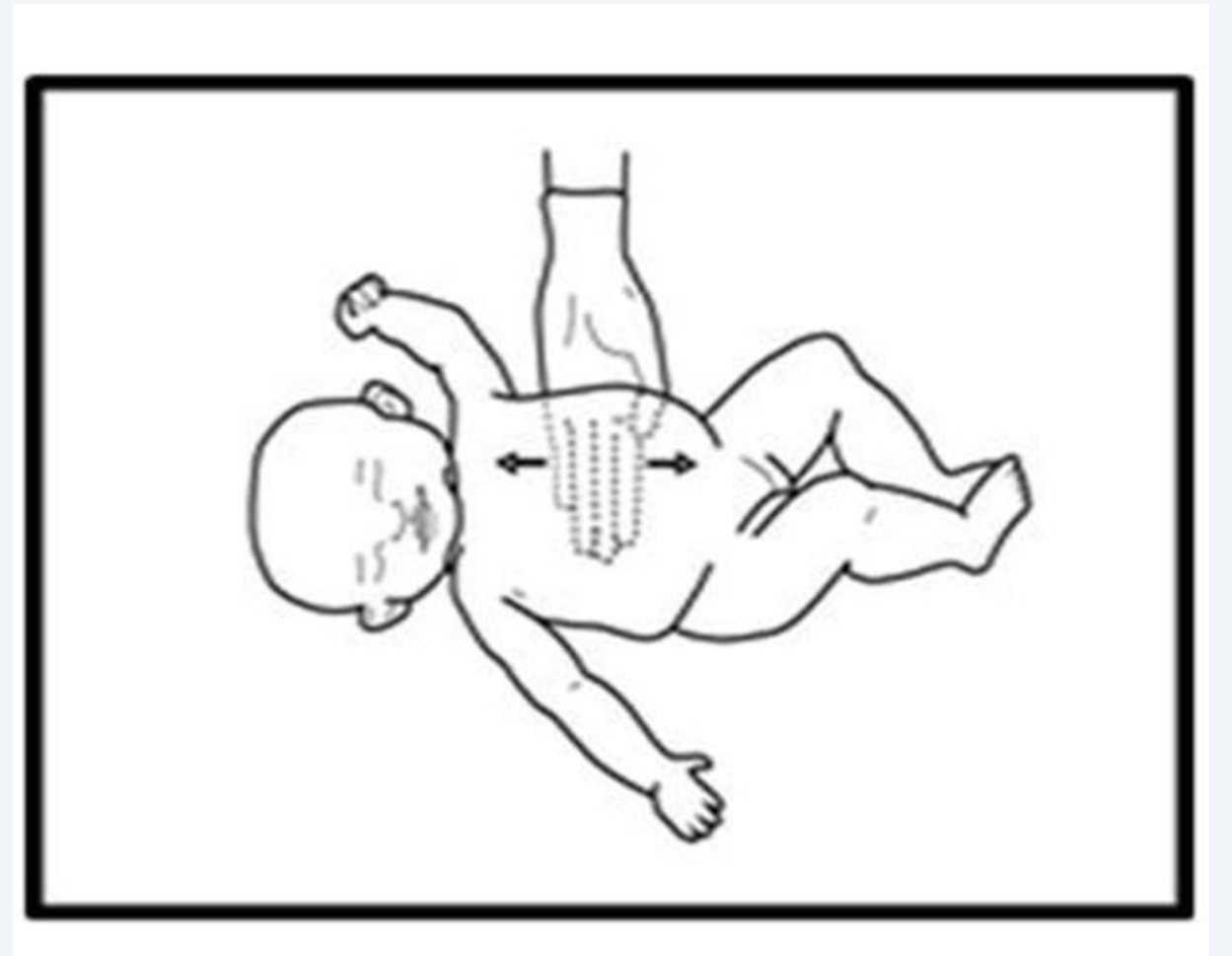


- Clamp & cut cord immediately
- Place under a radiant warmer
- Position head with the neck slightly extended
- Clear airway by suctioning mouth & then the nose, if required
  - M before N
  - < 5 cm in Mouth, < 2 cm in Nose)
- Clamp & cut cord immediately
- Place under a radiant warmer

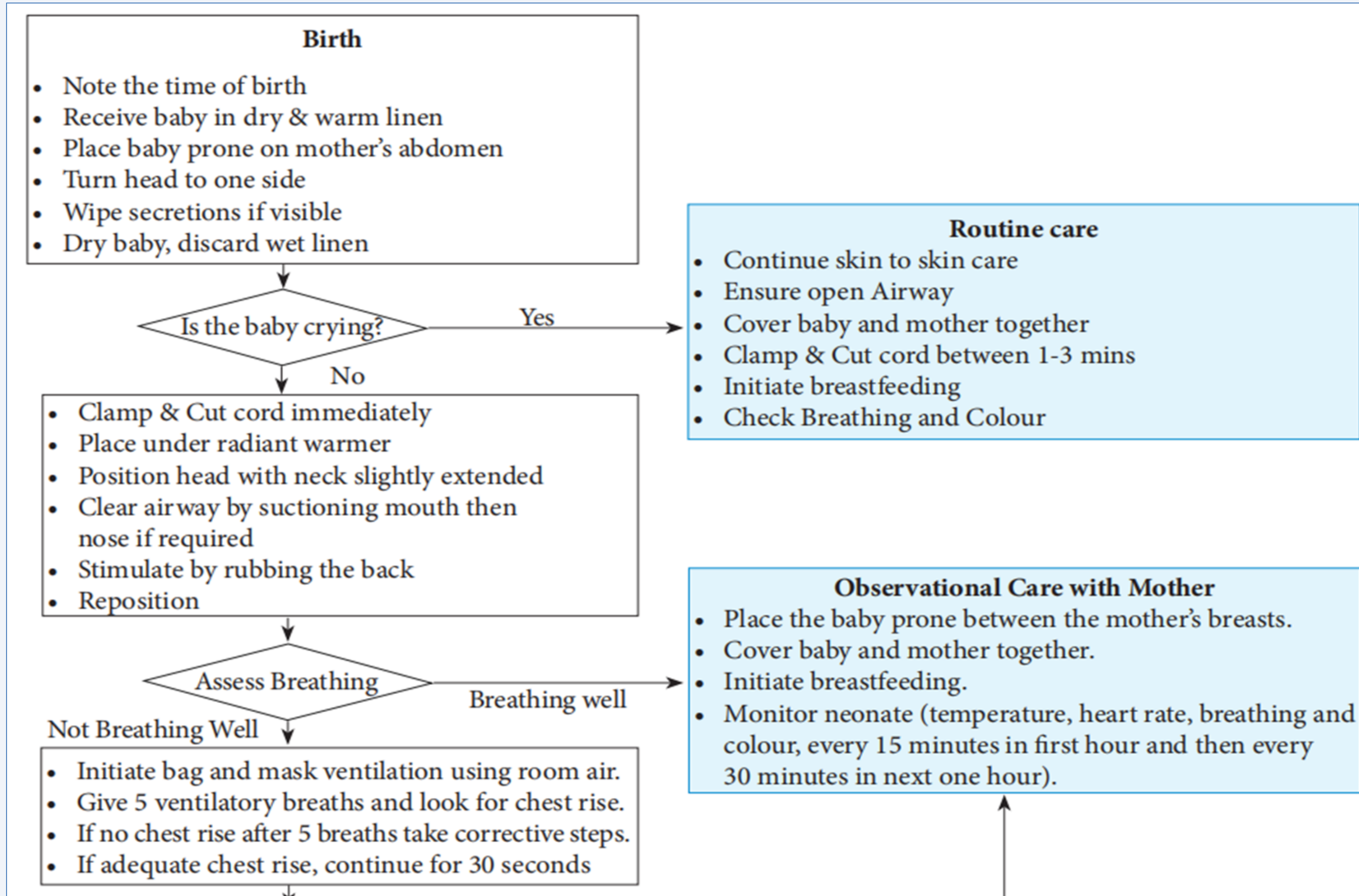




- Position head with the neck slightly extended
- Clear airway by Suctioning mouth & then nose, if required
  - M before N
  - < 5 cm in Mouth, < 2 cm in Nose)
- Stimulate by rubbing the back
- Reposition
- P-S-S-R



# AFTER INITIAL STEPS



# AFTER INITIAL STEPS-BABY BREATHING WELL

## Observational Care with Mother

- Place the baby prone between the mother's breast
- Cover baby and mother together
- Initiate breastfeeding
- Monitor neonate (temperature, heart rate, breathing, and color, every 15 minutes in the first hour and then every 30 minutes in the next one hour).



# BABY IS STILL NOT BREATHING WELL/APNOEIC

Initiate bag and mask ventilation using room air. Choose the correct mask size.



*Incorrect*

Too large: covers eyes and extends over chin



*Incorrect*

Too small: does not cover nose and mouth well



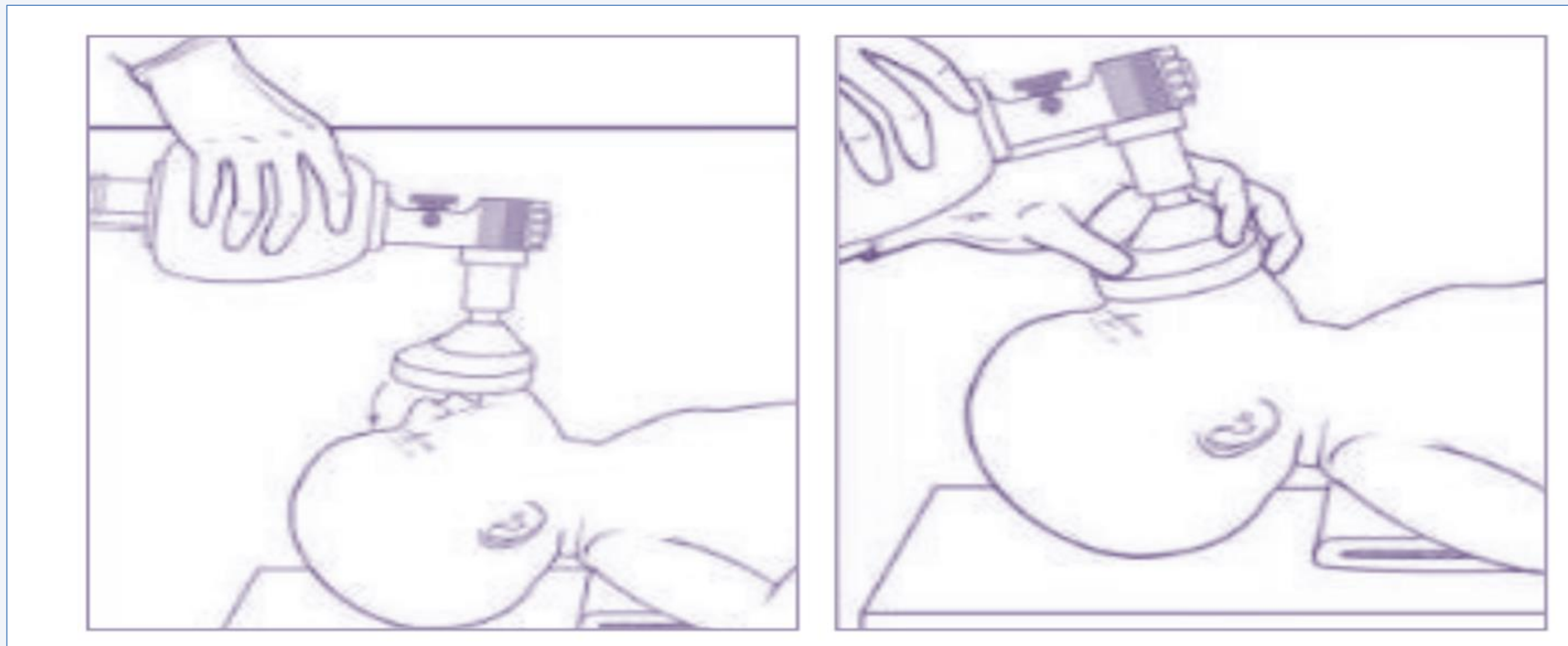
*Correct*

Covers mouth, nose, and chin but not eyes

# BAG – MASK VENTILATION

Initiate bag and mask ventilation using room air

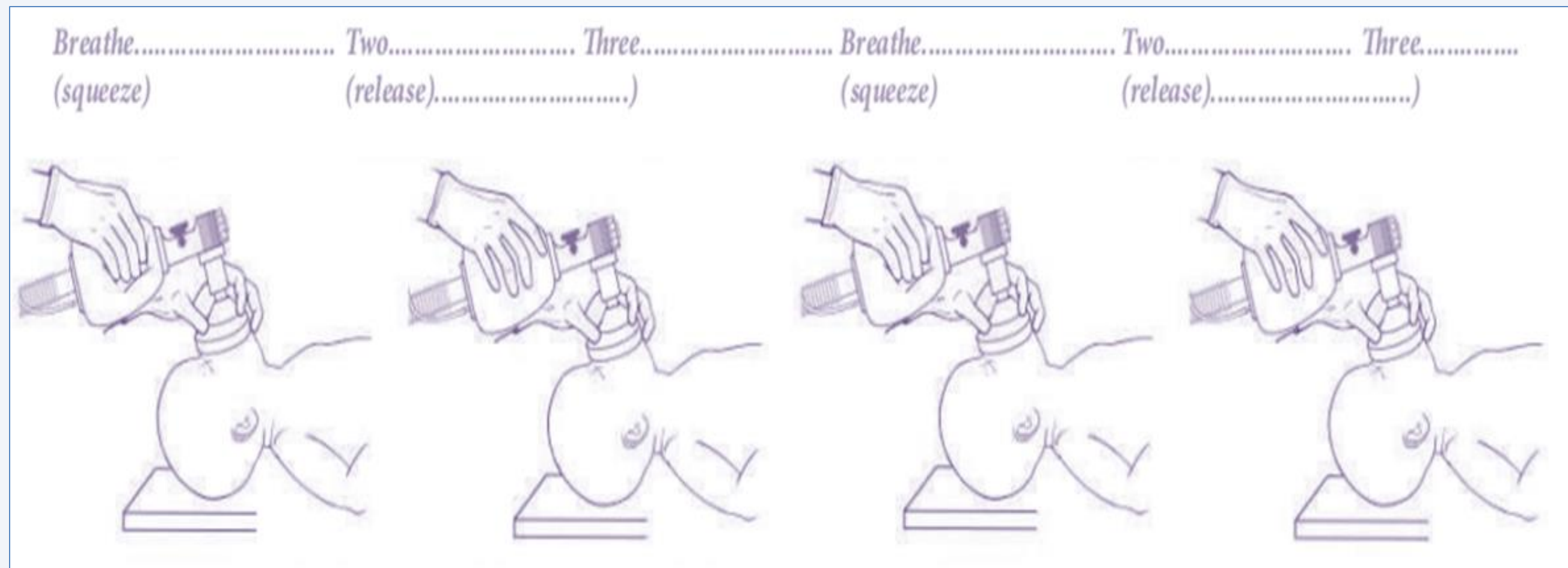
- Choose the correct mask size
- Position the head and the mask





# Initiate bag and mask ventilation using room air

- Choose the correct mask size
- Position the head and the mask
- Stand at the head end or side of the baby
- Use the count – “Breathe – two – three”





Initiate bag and mask ventilation using room air

- Give 5 ventilatory breaths and look for chest rise
- If there is adequate chest rise, continue for 30 seconds
- If no chest rises after 5 breaths **take corrective steps**

**Remember-**

**“Ventilation** of the lungs is the single most important step in the resuscitation of a newborn”



# CORRECTIVE STEPS-IF THERE IS NO CHEST RISE

Reasons for inadequate or absent chest movements are:

- The seal is inadequate
- The airway is not open/blocked
- Not enough pressure is being given

If no chest rise after initial 5 breaths, take the following two corrective steps together:

**Step 1-** Mask- Reapply the mask to the face and try to form a better seal. The most common place for a leak to occur is between the cheek and bridge of the nose.

**Step 2-** Reposition Check the baby's position and ensure that there is slight neck extension.

**Corrective Steps: MR**





Give five ventilatory breaths again and look for chest rise, if still there is no chest rise, take the following 2 additional corrective steps and look for chest rise:

**Step 3-** Suction Check the mouth for secretions, suction the mouth and nose, if necessary.

**Step 4-** Pressure

- Use a little more pressure on the rim of the mask and lift the jaw a little more forward
- Increase the pressure by squeezing the bag with more force, until there is visible movement of chest.

**Corrective Steps: MR - SP**

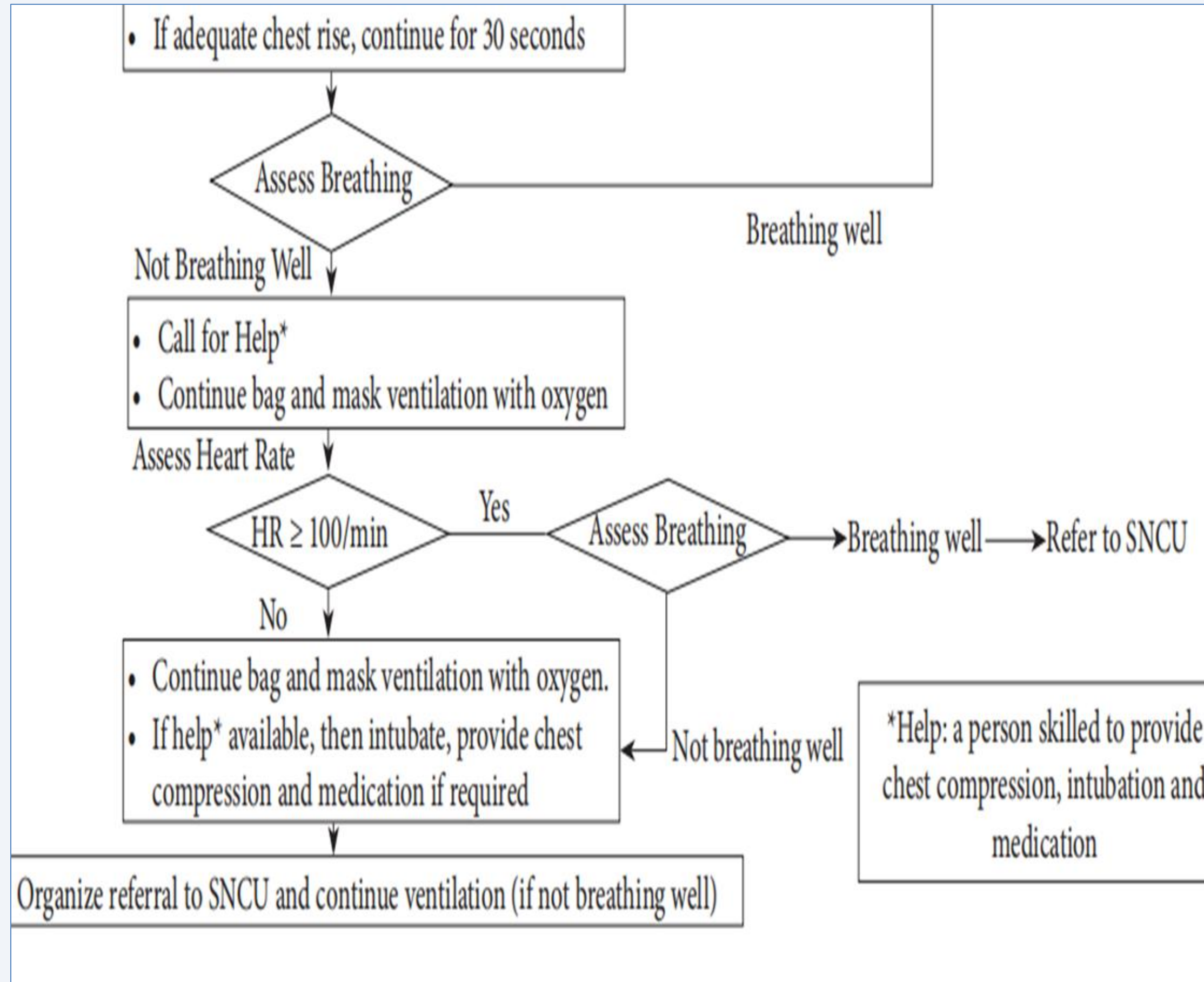


# BAG – MASK VENTILATION

**Do NOT forget to complete 30 seconds of effective PPV after  
adequate chest rise is achieved!**



# AFTER 30 SEC OF EFFECTIVE PPV





# If Not Breathing Well even after 30 seconds of Effective Ventilation

**D**octor



CALL FOR HELP\*

**O**xygen



CONTINUE BAG AND MASK VENTILATION WITH OXYGEN

**H**eart Rate = **HOD**



ASSESS HEART RATE (HEART RATE MAY BE ASSESSED BY USING A STETHOSCOPE AND COUNTING IT FOR 6 SECONDS AND MULTIPLYING BY 10)

# ASSESS HEART RATE (HR)



If HR > 100/minute and baby is not breathing well-

- Ventilate at 40-60 breaths / min (Breathe-two-three...)
- Check HR every 30 sec

If HR < 100/minute and baby is not breathing well-

- Take corrective steps and continue providing effective bag and mask ventilation with oxygen
- If heart rate is < 60/minute and trained help is available, then provide chest compression, intubation and medication.
- If heart rate is < 60/minute and trained help is NOT available, arrange for urgent referral while continuing BMV with Oxygen





# HR PERSISTENTLY SLOW & BABY NOT BREATHING

Arrange for referral if advanced care is not available. These babies require to be cared for at the Special New-born Care Unit (SNCU) or a similar unit equipped to handle such cases and baby should be transferred to such a unit. Ventilation should continue uninterrupted during the transport process



# SUMMARY

- Every newborn must receive its first breath in the **first minute of life**
- Preparation for birth is very crucial & includes
  - Focused History taking
  - Assembling the team & Handwashing
  - Preparation of room & newborn corner
  - Preparation of equipment
- Neonatal resuscitation is a systematic sequential process addressing T, A, B, C, D in an orderly fashion
- Meconium does **NOT** change the resuscitation algorithm. Intratracheal suctioning is **NOT** recommended.





## Temperature

- Delivering on abdomen & Skin to skin
- Dry thoroughly
- Delay cord clamping
- Radiant warmer

## Initial Steps- (Airway & Breathing) (P-S-S-R)

- Head position
- Suctioning of airway if needed
- Stimulate
- Reposition





## Breathing

- Bag & Mask Ventilation for 30 sec
- Corrective steps - **(MR-SP)** if no chest rise

## Circulation

- After 30 sec of effective PPV, if no breathing-
  - HR Assessment
  - Continue BMV with Oxygen
  - Call for help



- If HR > 100/min

- Continue BMV at 40-60 breaths / min
- Check HR every 30 sec

- If HR < 100/min

- Corrective steps and continue providing effective BMV with oxygen
- HR < 60/min and trained help is available, then provide chest compression, intubation and medication.
- HR < 60/min and trained help is NOT available, arrange for urgent referral while continuing BMV with Oxygen





# Thank You

