

Newborn Resuscitation

A structured approach ABC(D)

FIMNCI



Objectives

- To outline an effective and structured approach to newborn resuscitation.
- To understand the causes and consequences of hypoxia during delivery
- To present global best practice.

Be prepared!

Needed for all deliveries- just in case

- Warm environment- overhead warmer if possible
- 2 Warm dry towels or cloths
- Firm stable surface & good lighting
- Bag & 2 sizes of mask (prem and term sizes)
- Wide bore sucker
- Oxygen may be needed-but start with room air
- Clock
- Pulse oximeter if available

Babies & warmth

Newborn babies are **WET** and they lose heat

- Evaporation if not dried
- Convection if not covered
- Conduction if lying on a cold surface

If a baby gets cold :

- surfactant production fails
- blood sugar falls

So we must keep them warm and dry

Keeping babies warm

DRY & CHANGE WET TOWEL
WRAP IN DRY TOWEL



Keeping babies warm

A RADIANT
WARMER IS
IDEAL FOR
RESUSCITATION

DRY AND
COVER



NEVER LEAVE A
BABY UNDER A
HEATER
UNATTENDED

Hypoxia during delivery

- Babies are well adapted to cope with temporary hypoxia during contractions
- Severe hypoxia may be due to:
 - Placental insufficiency or abruption
 - Interruption of umbilical circulation- prolapse or true knot
 - Traumatic delivery- shoulder dystocia, difficult breech extraction
 - Severe maternal anaemia

And this does have profound effects

IF placental oxygen supply is interrupted


Loss of consciousness, loss of tone

Failure of respiratory centre

Reduced oxygen supply to heart muscle

Failure of the respiratory centre

Breathing stops after 2-3 minutes



2-3
min

Then after a few minutes of primary apnoea

primitive spinal centres take over

Deep spontaneous **gasps** 6-12 times per




10-
20
min

If hypoxia continues, even gasping stops

Hypoxia in heart muscle


Heart rate falls to 60bpm

- Blood pressure maintained
- Baby is pale because of vasoconstriction



2-20
mins

Eventually heart rate falls to zero



20-30
mins

So an asphyxiated baby is:

Colour	blue or pale
Tone	floppy
Breathing	gasping or not breathing
Heart rate slow	<60bpm

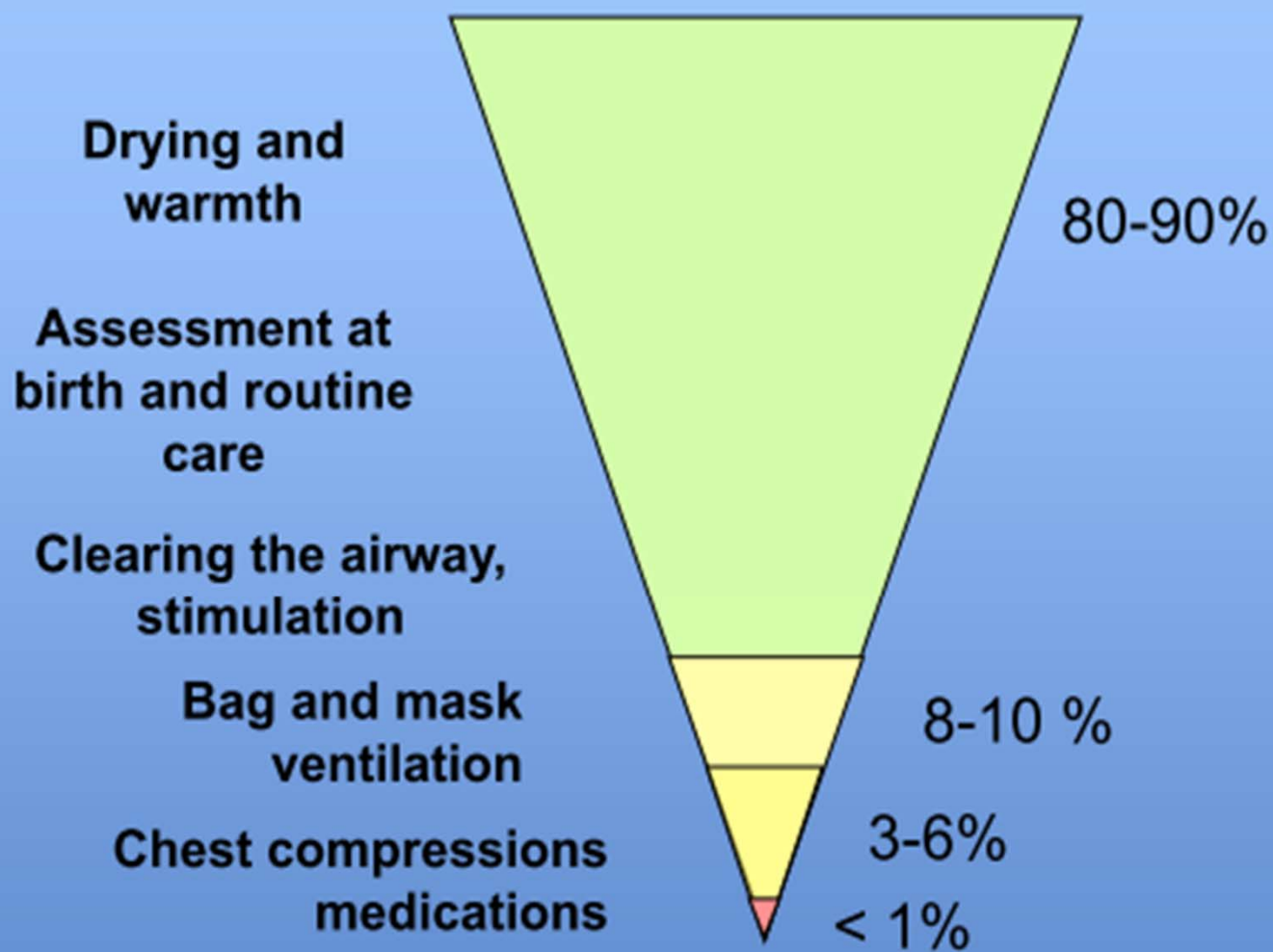


A logical approach to resuscitation

ABC

- **A** Maintain the airway
 - Often compromised because the baby is floppy and the jaw falls back
- **B** Provide effective ventilation
 - Bag mask ventilation
- **C** Ensure oxygenated blood reaches the heart muscle
 - Chest compressions

Interventions required by newborns at Birth



Initial assessment

As you are drying the baby look carefully:

- Colour
- Tone
- Breathing
- Heart rate

Does the baby look small or premature?

A healthy newborn

- Colour blue → pink
- Tone flexed, not floppy
- Breathing crying or breathing regularly
- Heart rate above 100bpm

What does this baby need?



What does this baby need?



DRY, GIVE to MUM skin to skin, COVER

Strategy for assessing and resuscitating

Prepare the equipment

CLAMP CORD
START CLOCK or NOTE TIME

DRY and STIMULATE the BABY
REMOVE wet towels and COVER

ASSESS TONE, COLOUR, BREATHING and HEART RATE

CALL FOR HELP

Assessing breathing and heart rate

Breathing

- Look listen and feel



Heart rate

- Listen with stethoscope



DO YOU NEED HELP NOW?

Airway

If GASPING or NOT BREATHING

OPEN AIRWAY



Sniffing position



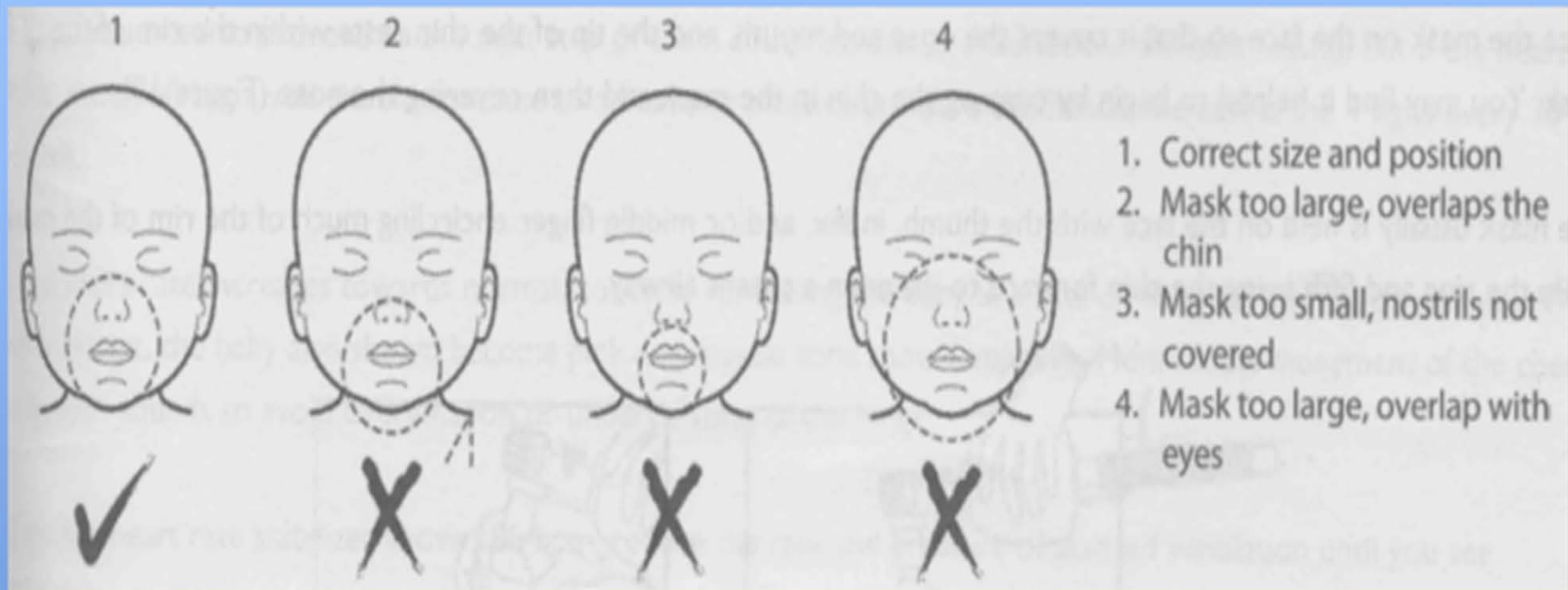
Jaw thrust

A Maintaining the airway

- Do not suction if the baby is breathing
- Do not suction “just in case”
- Only suction if you can see blood or meconium blocking the airway
- Suction only what you can see



B Breathing- ventilation



Choose the right size mask

Holding the mask



“C grip”

Hold the stem
of the mask

Support the
angle of the
jaw

Squeeze bag
firmly and
steadily

Ventilate for 30 secs with steady effective breaths

Aeration of the lungs



Fluid replaced with air very rapidly

B

If GASPING or NOT BREATHING
OPEN AIRWAY, SNIFFING POSITION
GIVE EFFECTIVE VENTILATION BREATHS
for 30 seconds
Consider oxygen saturation monitoring



Acceptable oxygen saturations

(Right hand)

2 min 60%

3min 70%

4min 80%

5min 85%

10 min 90%

If GASPING or NOT BREATHING
OPEN AIRWAY, SNIFFING POSITION
GIVE EFFECTIVE VENTILATION BREATHS
for 30 seconds
Consider oxygen saturation monitoring

REASSESS BREATHING and HEART RATE
Look for CHEST WALL MOVEMENT

IF CHEST WALL IS NOT MOVING
AND HEART RATE NOT IMPROVING
recheck position, apply jaw thrust,
Consider suction, guedel airway,
double handed jaw thrust
REPEAT EFFECTIVE BREATHS
Observe chest wall movement

Other ways of supporting the airway

Guedel airway



Two handed jaw thrust



Remember: get the air into the lungs

Do not go on to chest compressions until you have effectively got air into the lungs

That is- until you have seen chest wall movement

C

REASSESS BREATHING and HEART RATE

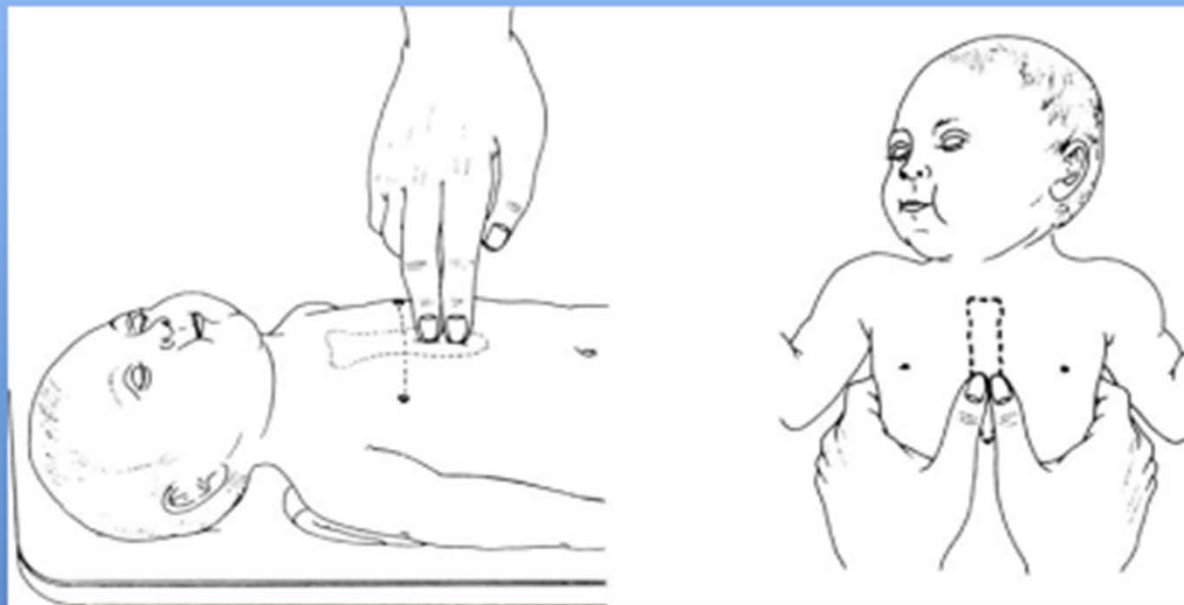
IF/ WHEN THE CHEST WALL IS MOVING

CONTINUE VENTILATION 40 bpm

If heart rate is not detectable or slow (<60bpm)

START CHEST COMPRESSIONS

3 compressions :1 breath



REASSESS HEART RATE and Breathing
EVERY 30 seconds

If Heart rate remains slow <60bpm consider venous
access and epinephrine/adrenaline

If Heart rate recovers stop chest compressions
continue ventilation
until baby is breathing regularly

OBSERVE CAREFULLY
CHECK temperature, saturations, glucose

What about meconium?

- If the baby has already cried then **do not suck** unless there is something visible in the airway
- If the baby has **never taken a gasp or cried** then check the airway **before drying** and suction the oropharynx 'to where you can see' - **then dry the baby**
- Routine suction of the lower airway is not recommended
- If there is **no meconium** then the first action is **to dry the baby**

Drugs and Oxygen

- Always use **air** for initial resuscitation
 - Immediate resuscitation with oxygen can cause harm.
 - Some resuscitated babies may need oxygen after 4-5 minutes of resuscitation. Use pulse oximeter if you can.
- Priority is **ventilation** – do not stop resuscitation to look for oxygen.
- Drugs are **not recommended** except where expert advice is available

For a hospital providing advanced care

Extra equipment which may be used:

- Laryngoscope with paediatric blade

- ET tubes sizes 2 – 4

- Scissors and tape

- Adrenalin 1 in 10,000 (0.1-0.3 ml/kg iv)

- 10% dextrose

- Plastic bag for premature babies

- Emergency blood (O negative)

There is NO place for using sodium bicarbonate, aminophylline, hydrocortisone or dextrose solution stronger than 10%

QUESTIONS?

Summary

Be prepared!

- Keep the baby dry and warm
- A open and support airway
- B provide effective ventilation using bag and mask. Make sure the chest moves
- C If the heart rate is < 60 bpm give chest compressions 3:1

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