



Limi Children's
Hospital

4th ABUJA PERINATAL SYMPOSIUM

Let The Newborns Breathe!

NEONATAL RESUSCITATION

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Learning objectives

- To describe pre-resuscitation preparations by newborn team
- To define “the Golden Minute”
- To discuss, then demonstrate the standard steps in neonatal resuscitation
- To demonstrate understanding of the “corrective steps” for effective ventilation

Quiz- 1

- AT is a 37-week GA male neonate delivered via SVD through clear amniotic fluid at WXY hospital. Baby did not cry at birth. As a doctor/nurse who attended the delivery, what would be your next step?
- a) Let the nurse apply olive oil immediately.
- b) Hold the baby up-side-down and slap his back vigorously.
- c) Clear the airway and stimulate gently.
- d) Suction the pharynx as deeply as possible.

Quiz 2

- You are ventilating an asphyxiated post-date female neonate but realized that ventilation is not yielding appropriate chest rise and heart rate is not improving. What is the first thing you would do to ensure effective ventilation?
- a) Place head in neutral position
- b) Adjust/reapply mask using the 2 hand technique
- c) Quickly insert a laryngeal mask airway
- d) Suction the airway immediately

Introduction

- Assistance to begin breathing at birth;
 - 10% of all newborns
 - 1% require extensive resuscitative measures
- High risk deliveries that would require resuscitation
 - All preterm births <37 weeks GA
 - Meconium staining
 - Fetal distress
 - Known congenital malformations
 - Multiple births
 - Malpresentation
 - Maternal complications eg; pre-eclampsia/eclampsia, maternal DM, bleeding

Preparation for neonatal resuscitation

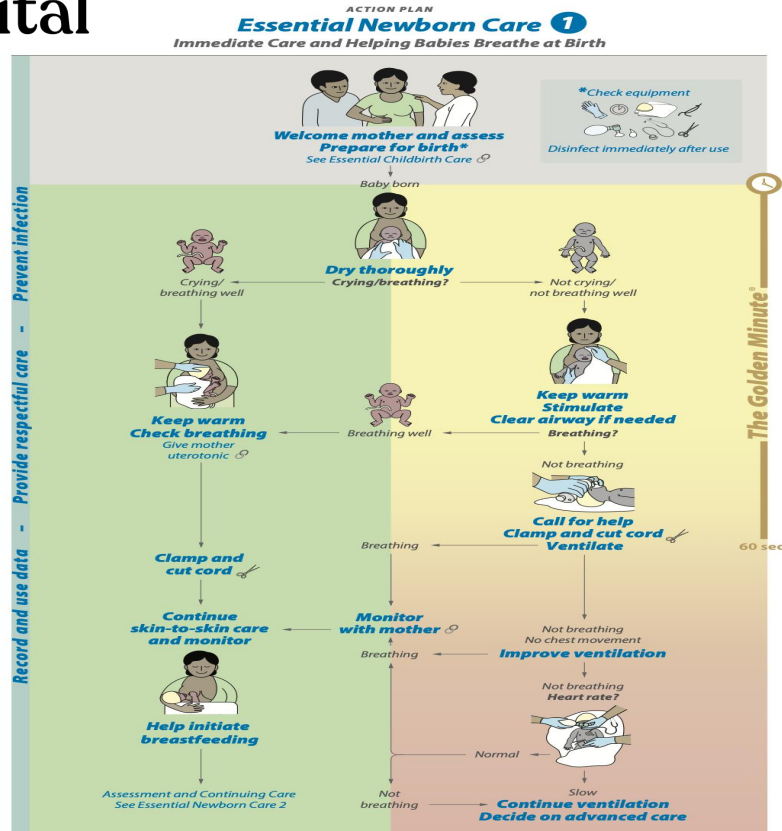
- Key questions
 - Expected GA? Liquor clear? Number of babies being delivered? Maternal risk factors (medical conditions)?
- Personnel
 - With basic resuscitation skills
 - Team work- briefing, roles, leader, effective communication
- Equipment checklist

Equipment checklist for

Action steps	Equipment <i>(in addition to timer/clock, umbilical cord clamps)</i>
Warmth	Radiant warmer (<i>preheated</i>), warm towels/blankets, hat
Airway clearance	Bulb syringe, suction catheter (10F or 12F) <i>set at 80-100mmHg</i>
Auscultation	Stethoscope
Ventilation	PPV devise with term and preterm sized masks, cardiac monitor with leads
Oxygenation	Oxygen delivery systems, pulse oximeter
Intubation	Laryngoscope (with size 0 and 1) straight blades, ET tubes (sizes 2.5, 3.0, 3.5), measuring tape
Medications	Epinephrine (0.1mg/ml=1mg/10ml), normal saline prefilled syringes, etc

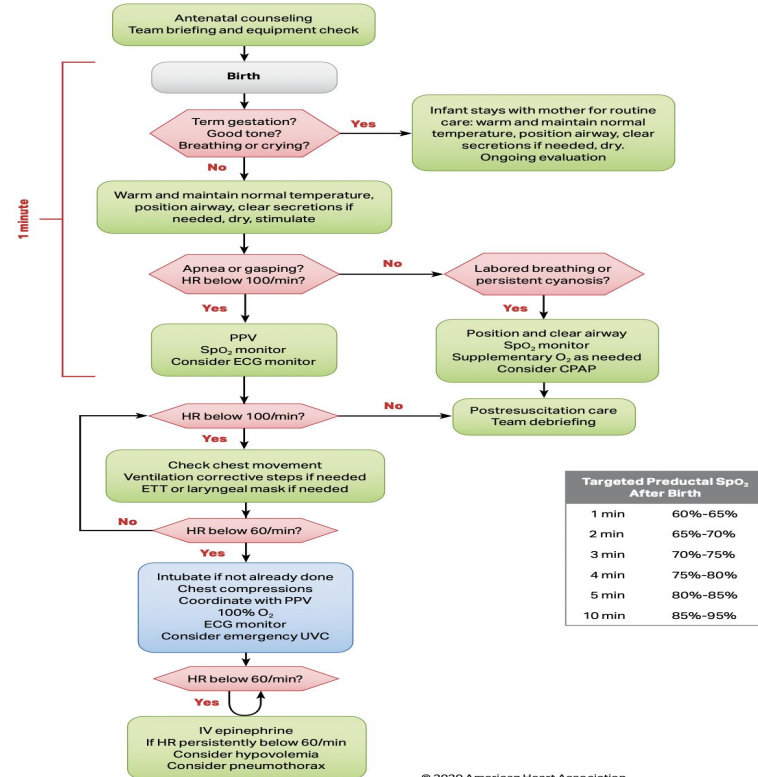
Algorithm 1

- Helping babies breathe
- Emphasis;
 - The critical **need to commence breathing** for the baby using the bag and mask within the 1st minute of birth (the Golden Minute)



Algorithm 2

- Neonatal resuscitation program steps
- Airway,
- Breathing,
- Circulation,
- Drugs,
- Endotracheal intubation

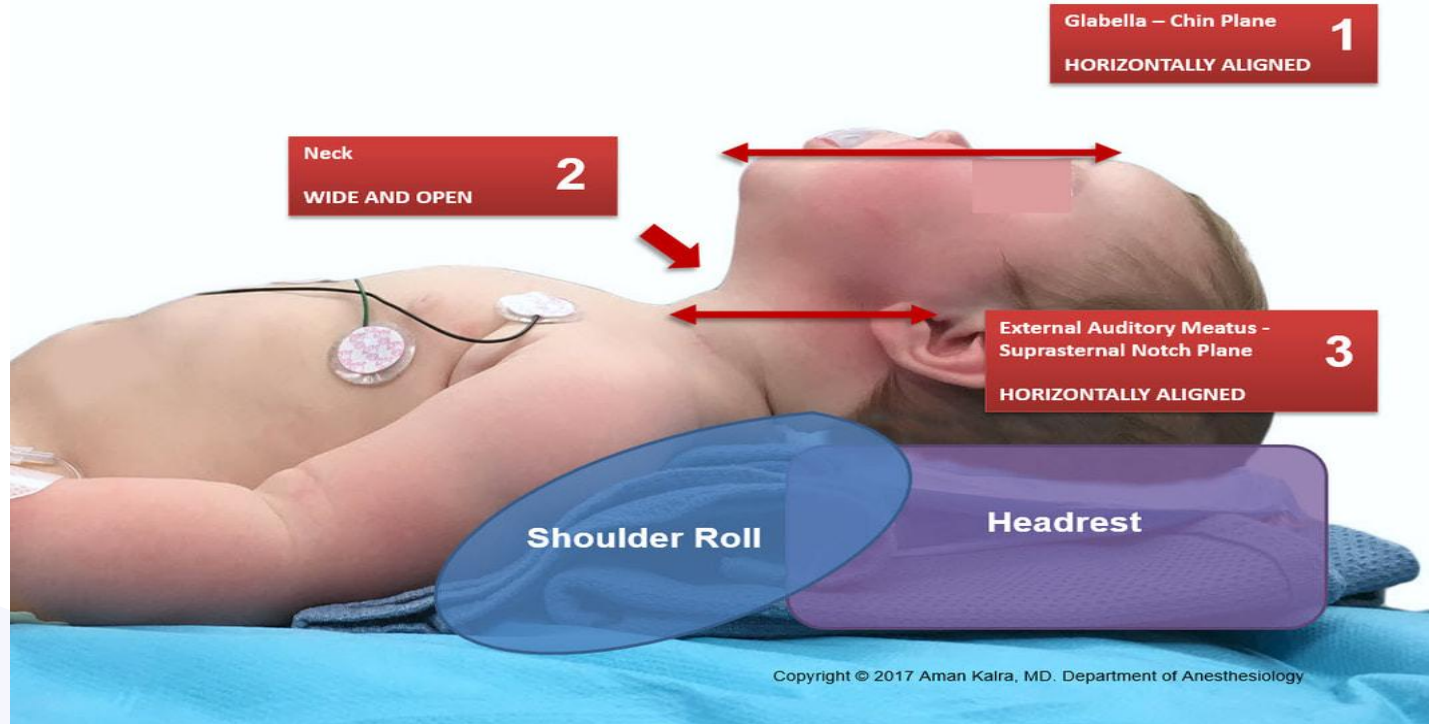


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Airway

- Warmth; provide warmth (preheated radiant warmer)
- Dry; dry baby and remove wet clothes
- Position; put baby's head in “sniffing” position to open airways
- Suction airways if secretions; mouth first, then nose
- Stimulate gently

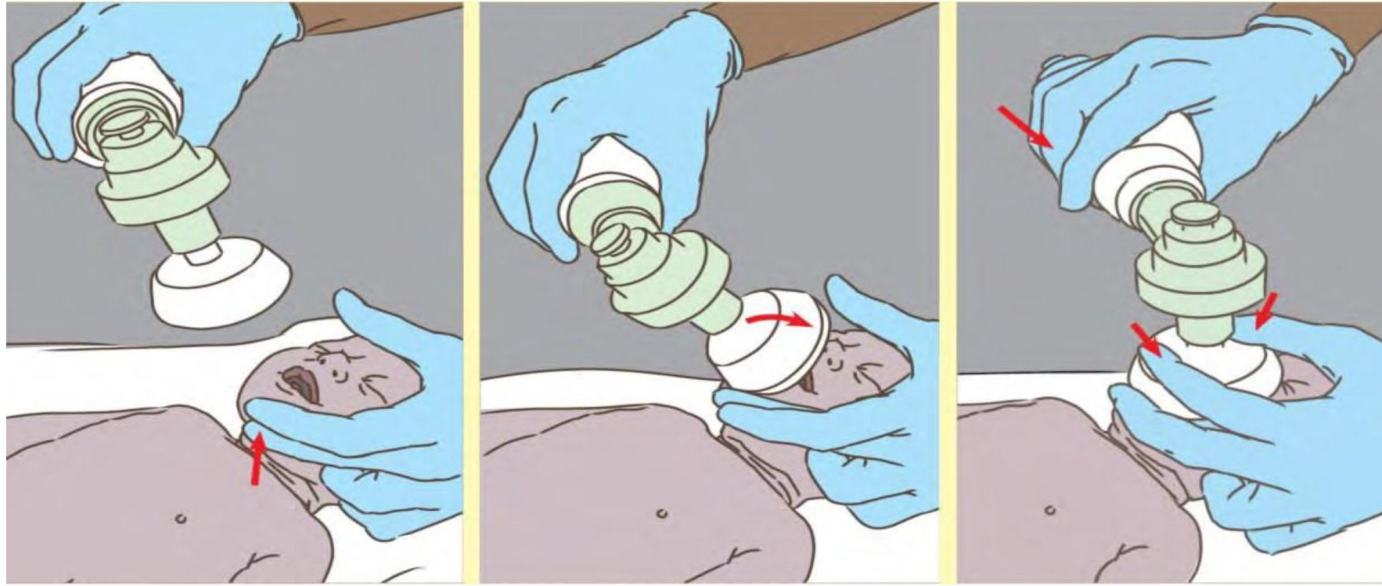
An Infant in the “Sniffing Position”



Breathing (stimulate & provide PPV)

- **Indications**
 - Apnoea, gasping, bradycardia <100bpm
- **Steps; must be commenced by 1st 60 seconds of life latest**
 - Bag-valve-mask ventilation; rate 40-60 breaths/min
 - **Breath 2, 3; breath 2, 3; breath 2,3...**
 - Auscultate for HR & breath sounds
 - **Watch for chest movement with each breath + pulse oxymetry (pre-ductal) for oxygenation adequacy**
- **Additional steps; REASSESS-**
 - Desaturating?
 - Oxygen administration
 - Laboured breathing?
 - CPAP

Positioning and commencing BMV within Golden Minute



Circulation

- Assessment of circulation/pulse
 - Palpate umbilical pulsations or auscultate for 6 seconds (and multiply by 10)
- Indication for intervention
 - Severe bradycardia despite assisted ventilation (BMV) ie HR < 60/min after 30-45 secs of effective ventilations?
- Steps
 - Give 3 compressions + 1 breath every 2 seconds.
 - **1 & 2 & 3 & breath...**
- Note
 - Compress 1/3rd of anterior-posterior diameter of the chest

Effective ventilation

- What if ventilation does not yield appropriate chest rise and heart rate is not improving?

Corrective steps for effective ventilation

	Corrective steps	Actions
M	Mask adjustment	Reapply mask. Use the 2-hand technique
R	Reposition airways	Place head neutral or slightly extended
		<i>Try PPV & reassess chest movement</i>
S	Suction mouth & nose	Use a penguin suction or suction catheter
O	Open mouth	Open the mouth and lift the jaw forward
		<i>Try PPV & reassess chest movement</i>
P	Pressure increase	Increase pressure in 5 -10cm H ₂ O increments. Max 40cm H ₂ O
		<i>Try PPV & reassess chest movement</i>
A	Alternative airway	Place an ET tube or laryngeal mask
		<i>Try PPV & reassess chest movement</i>

Drugs

- **Indication**

- HR persists < 60 beats/minute after 45-60 seconds of chest compressions and BMV

- **Steps**

- Administer adrenaline

- **Note**

- ET & IV routes dosage of adrenaline are dissimilar!
- Adrenaline @ 1mg/ml or 1:1,000 is a high-dose solution that can cause bradycardia and asystole
- Dilute to standard dose of 0.1mg/ml or 1:10,000 before use by mixing 0.1ml of 1:1,000 adrenaline with 0.9ml of sterile water/saline

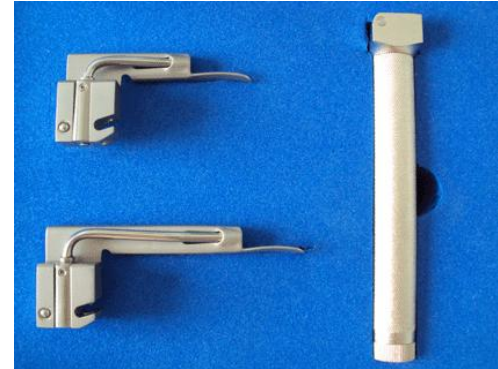
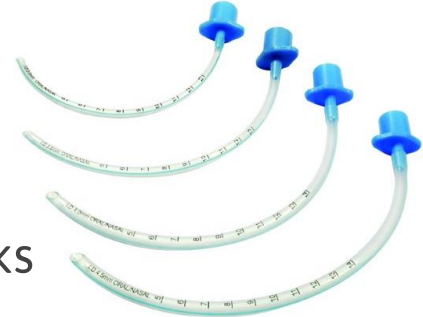
Adrenaline routes/dosages

- IV Adrenaline (diluted to 1:10,000 solution) via UVC
 - 0.1 to 0.3 ml/kg
 - Give rapidly. Repeat every 3-5 minutes if HR <60/min with chest compressions
- ET Adrenaline (diluted to 1:10,000 solution)
 - 0.5 to 1ml/kg!



Endotracheal intubation

- **ET tube size (internal diameter in mm)**
 - Size 2.5; if baby is <1,000g or <28 weeks
 - Size 3.0; if baby is 1,000 – 2,000 or 28-34 weeks
 - Size 3.5; if baby is >2,000g or >34 weeks
- **ET tube depth in cm**
 - = 6 + weight (in Kg)
- **Caution**
 - Use straight laryngoscope blades
 - Do not curve the ET tubes



Post resuscitation care

- Aim of post resuscitation care;
 - To optimize ventilation and circulatory function
 - To preserve organ & tissue function
 - Maintain recommended recommended plasma glucose levels
 - To maintain normothermia
- Supportive organ/system specific care
- It is strongly recommended post resuscitation that newborns with $SPO_2 < 90\%$ be given oxygen therapy

Summarily...

- Neonatal resuscitation is teamwork
- The golden minute is LIFE for the newborn
- The neonatal resuscitation algorithm is easy to understand, but only mastered by practice
- MR SOPA is your sure lifeline when “the chest fails to rise” during ventilation

Quote

- *Sometimes it's okay if all you did today was breath...*

Author unknown

***Thank you for your
participatory listenership***



Who is Limi Children Hospital? _____

The Limi Children's hospital is an arm of the Limi Hospital Group located at **No. 39 Ademola Adetokunbo Crescent, Wuse 2, Abuja**, A designated specialty hospital for pediatrics, neonatology and general medical care for children.

Under the auspices/system of the **>40yr old Limi Hospitals** founded in 1982.

The Limi Children's Hospital was commissioned by the Honorable Minister of the FCT in October 2017 amidst glowing commendations and accolades for the vision and contribution to healthcare delivery

World class Healthcare, All Day, Everyday



"...A healthy child is a happy child"



What are the Limi Children Hospital's services?



The Limi Hospitals
Reversing Medical Tourism

We provide **24/7 world-class healthcare solutions** for patients, hospitals, and their doctors in:

- General Paediatrics
- Paediatric Haematology
- Paediatric Dermatology
- Paediatric Neurology
- Paediatric Cardiology
- Paediatric Endocrinology
- Paediatric Gastroenterology
- Paediatric Otorhinolaryngology (ENT)
- Emergency Medicine
- Child and Adolescent Psychiatry



OUR SERVICES

- ◆ General Pediatrics
- ◆ Pediatric Cardiology
- ◆ Pediatric Endocrinology
- ◆ Pediatric Neurology
- ◆ Radio-diagnostics
- ◆ Infectious Diseases
- ◆ Neonatology & Neonatal ICU Care
- ◆ Pediatric Hematology
- ◆ Pediatric Dermatology
- ◆ Child & Adolescent Psychiatry
- ◆ Emergency Services
- ◆ Online Consultation



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How to refer patients to Consider The Limi Children Hospital?

1. Give a standard referral letter & preferably attach any available results
2. **Call:** 08090599994, 09081841655
3. **WhatsApp:** 09024294618
4. **Email:** Limichilrenhospital@gmail.com
5. **Visit:** **No. 39 Ademola Adetokunbo Crescent, Wuse 2, Abuja,**
6. Kindly indicate Doctor's name, & email/phone number especially if you wish to receive a medical report afterwards.



 **Limi Children's Hospital**

We accept referrals of neonates from any delivery facility in Abuja.

Transport incubator and ambulance available pickup.

OUR SERVICES

- | | |
|------------------------|---|
| ➤ Neonatology | ➤ Paediatric Cardiology |
| ➤ Paediatric Surgery | ➤ Emergency Paediatrics |
| ➤ General Paediatrics | ➤ Paediatric Endocrinology |
| ➤ Ambulance Services | ➤ Neonatal Intensive Care - Unit (NICU) |
| ➤ Paediatric Neurology | |

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