

Paediatric CPR – algorithm including newborn life support

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Learning objectives

- Student will learn the individual steps of the BLS algorithm in a child.
- Student will learn how to open the child's airways.
- Student will learn the correct technique of performing chest compressions in a child.

Guidelines 2015

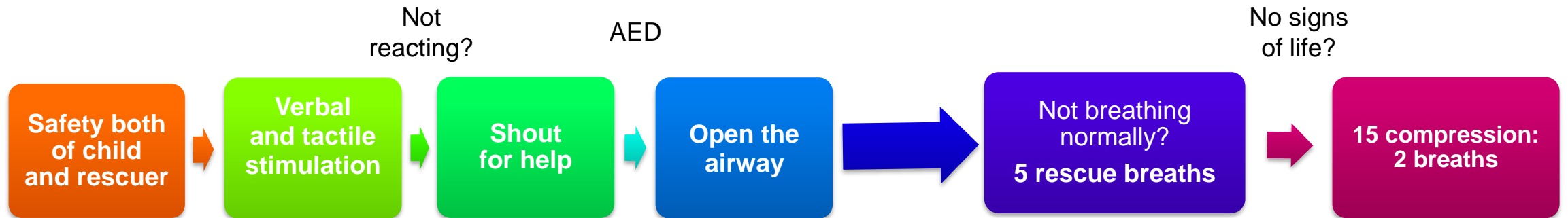
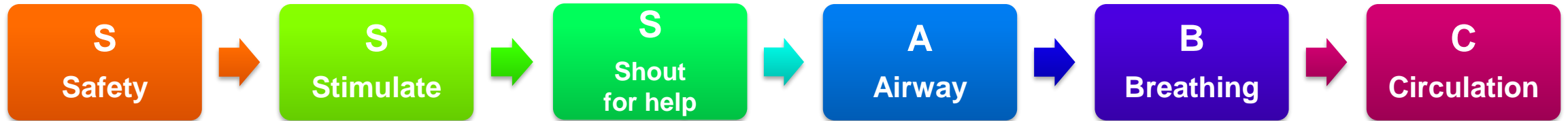
Neonate

- **NLS** – Neonatal life support (Resuscitation and support of transition of infants at birth)

Infant → **18 years**

- **PBLS** – Paediatric Basic Life Support

Basic algorithm



S

Safety

Response to a stimulation

- Verbal stimulation
- Tactile stimulation

Doesn't answer, cry or move?



Shout for help + AED



- **a lone rescuer:** immediately start CPR (in the very high likelihood of a primary shockable rhythm, if directly accessible, he or she can rapidly collect and apply an AED)
- **More than one rescuer:** 2nd rescuer immediately call for help and then collect and apply an AED (if feasible).
- **Infant and children below 8 years:** paediatric attenuator

Breathing normally?

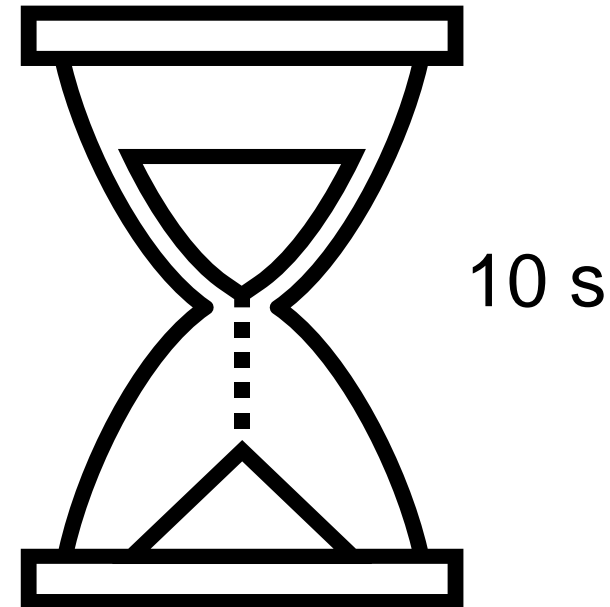
A
Airway

- Turn the child carefully on his back
- Open the child's airway by tilting the head and lifting the chin
- Neutral head position (infant)
- Place your hand on his forehead and gently tilt his head back
(Do not push on the soft tissues under the chin as this may obstruct the airway. This is especially important in infants.)

Is the victim breathing normally?

B
Breathing

- Keeping the airway open
 - Look
 - Listen
 - Feel
- ...for normal breathing



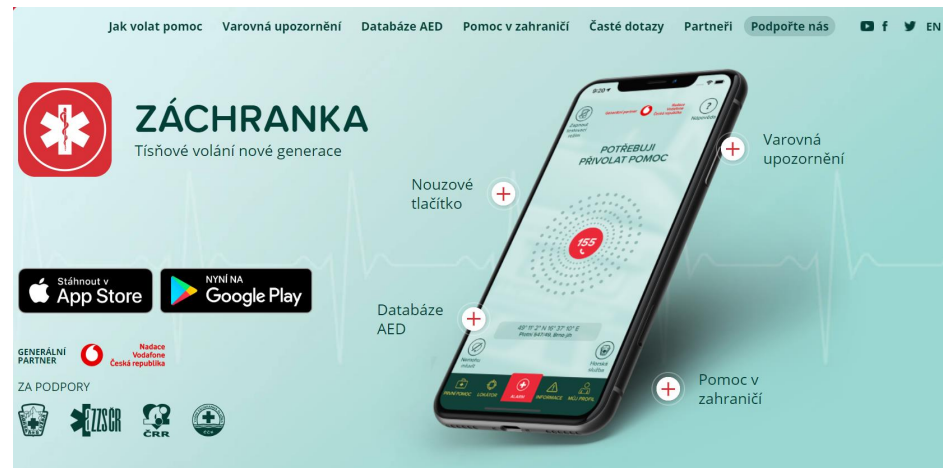
Not breathing normally?

If breathing is not normal or absent:

B Breathing

- Carefully remove any obvious airway obstruction.
- Give **five initial rescue breaths** → usually respiration ethiology of cardiac arrest

- Call EMS!



5 rescue breaths

Infant

- **Neutral head position**
- **Cover the mouth and nose of the infant with your mouth/** only mouth/ only nose in the older infant.
- Make sure you have a good seal.
- **1s**
- Watch for chest to rise up and fall with rescue breath.
- **Repeat 5 times**

Child over 1 year of age

- **Head tilt and chin lift**
- **Pinch the soft part of the nose** and place your lips around the mouth.
- Make sure you have a good seal.
- **1s**
- Watch for chest to rise up and fall with rescue breath.
- **Repeat 5 times**

For both infants and children, if you have difficulty achieving an effective breath, the airway may be obstructed:

- **Open the child's mouth and remove any visible obstruction.**
- **Reposition the head. Make up to five attempts to achieve effective breaths.**

Infant



Fig. 6.2. Mouth to mouth and nose ventilation–infant.

Child over 1 year of age

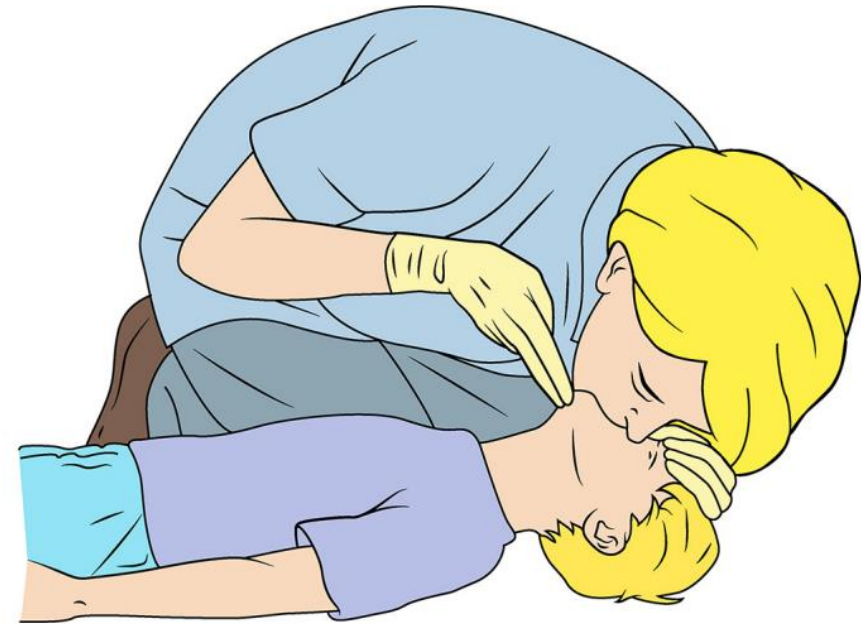
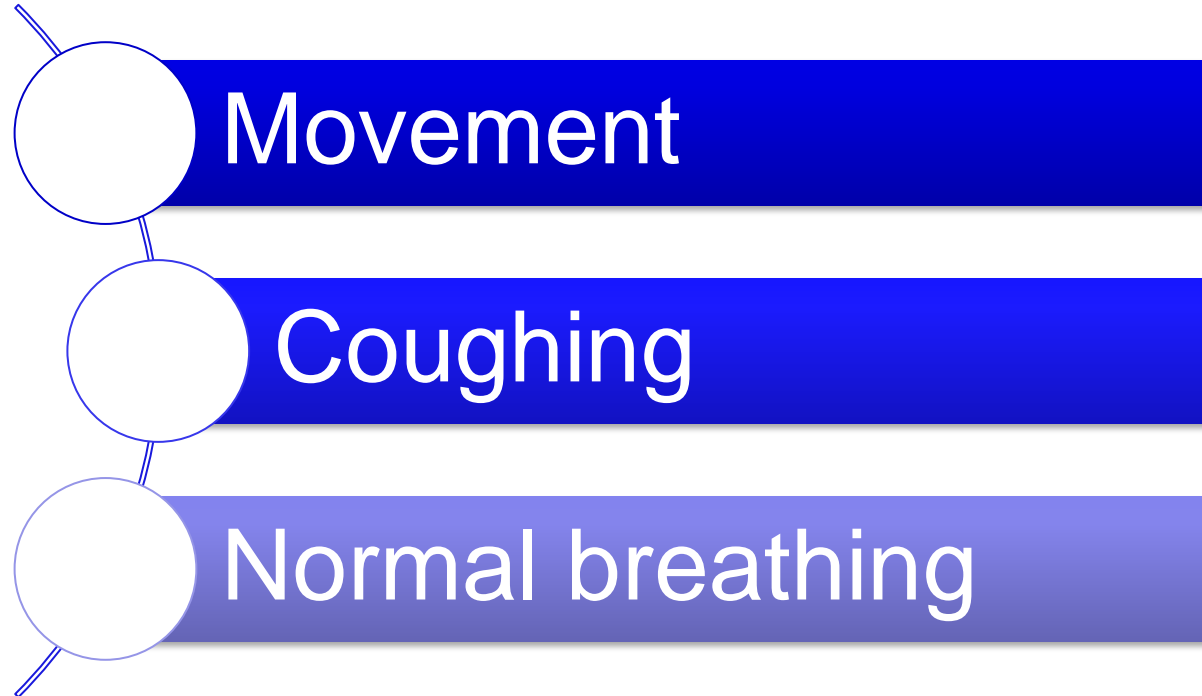


Fig. 6.3. Mouth to mouth ventilation–child.

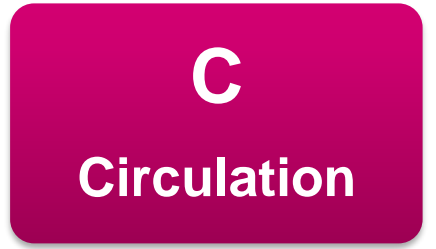
Rescue breaths for a child over 1 year of age (Fig. 6.3):

I.K. Maconochie et al. / Resuscitation 95 (2015) 223–248

Look for signs of life



No signs of life



- In BLS **do not check the pulse!**
- Unconscious child, not breathing normally = start chest compressions
- In all children continue with 15 : 2 ratio
(compression : ventilations) till the ambulance come

Chest compressions

C

Circulation

Infant

- Lower half of the sternum
- Depress the sternum by at least one third of the anterior–posterior diameter of the chest (4 cm)
- Preferred encircling technique with two thumbs (alternative technique for the lone rescuer: tips of two fingers)
- Rate: **100-120/min**
- **15:2**

Child over 1 year of age

- Lower half of the sternum
- Depress the sternum by at least one third of the anterior–posterior diameter of the chest (5 cm)
- Place the heel of one hand on the sternum, lift the fingers, your arms straight, place yourself above the victim's chest
- Rate: **100-120/min**
- **15:2**

Chest compressions

C

Circulation

Infant

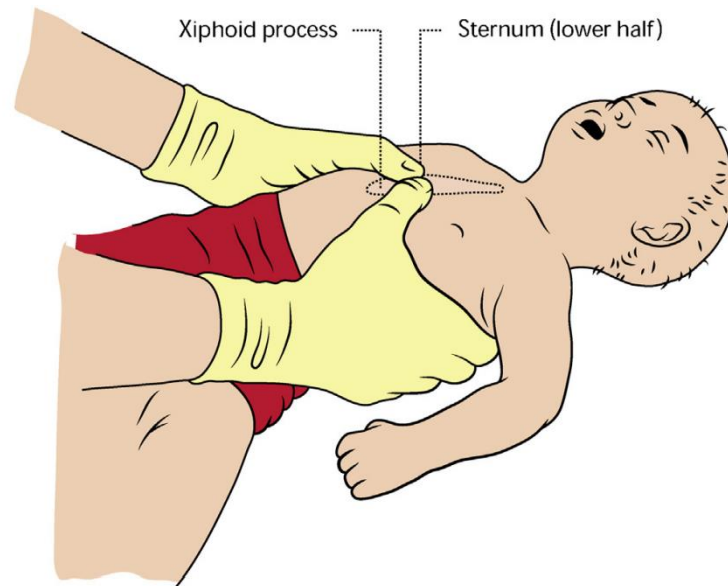


Fig. 6.4. Chest compression—infant.

Child over 1 year of age



Fig. 6.5. Chest compression with one hand—child.

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Call for ambulance

A lone rescuer

- With mobile phone - **call help first** (and activate the speaker function) immediately after the initial rescue breath

- If no phone is readily available perform 1 min of CPR before leaving the child.

More than one rescuer

- one start the CPR, second call the ambulance **immediately** and then collect and apply an AED

Jak volat pomoc Varovná upozornění Databáze AED Pomoc v zahraničí Časté dotazy Partneři Podpořte nás f t EN

ZÁCHRANKA
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ZA PODPORY

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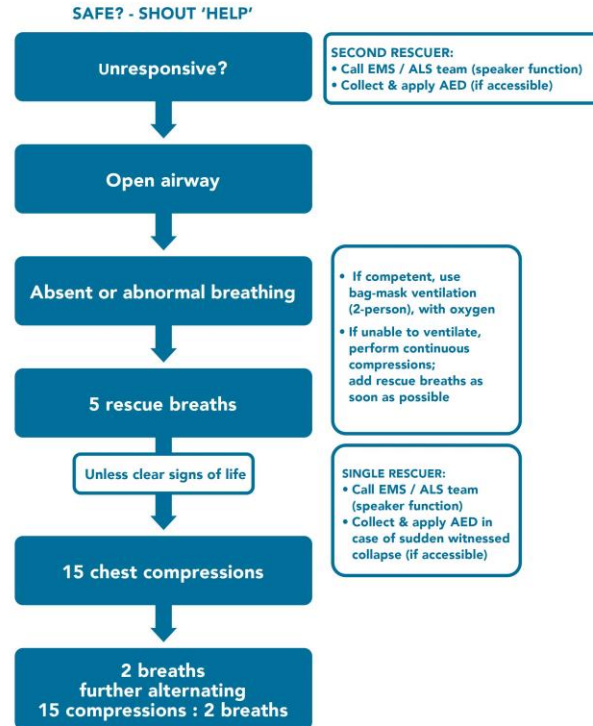
Do not interrupt resuscitation until

- The child shows signs of life.
- Ambulance arrive and také over the CPR
- You become exhausted

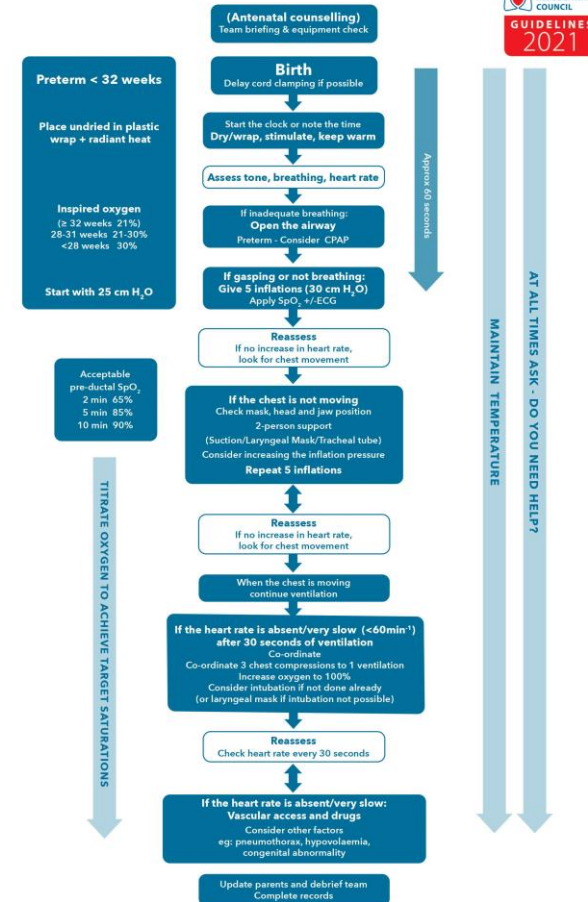


Paediatric CPR

PAEDIATRIC BASIC LIFE SUPPORT



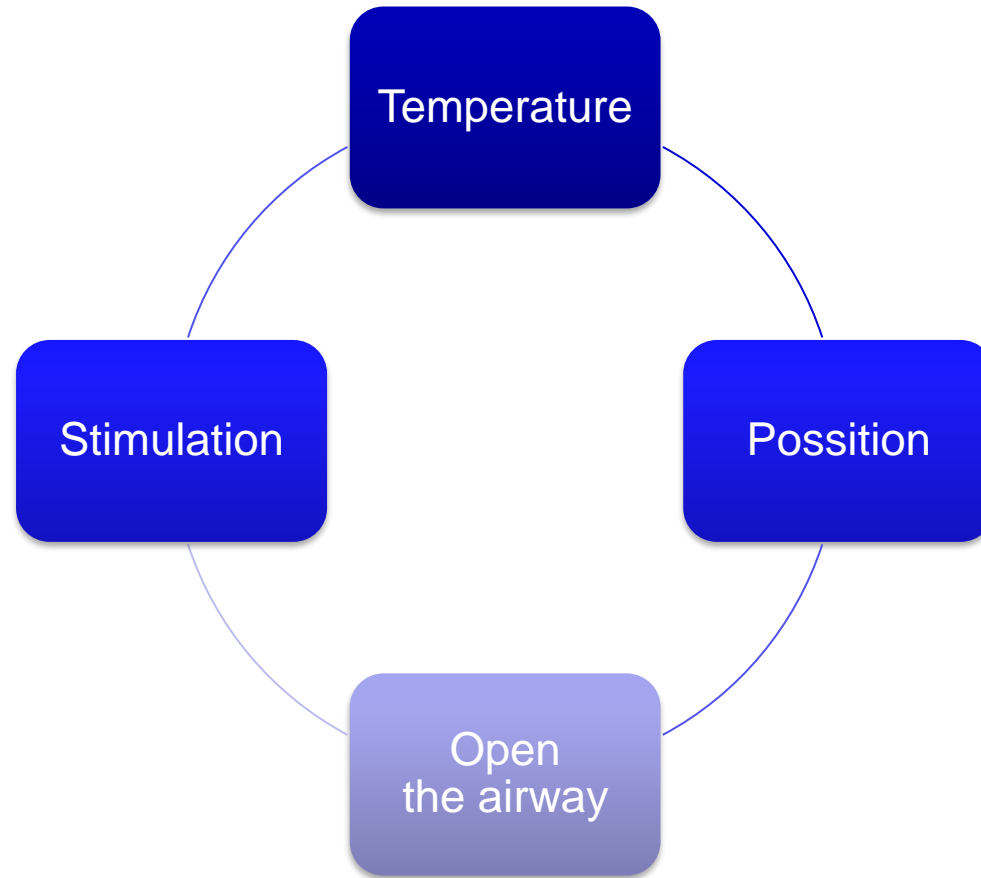
Newborn Life Support



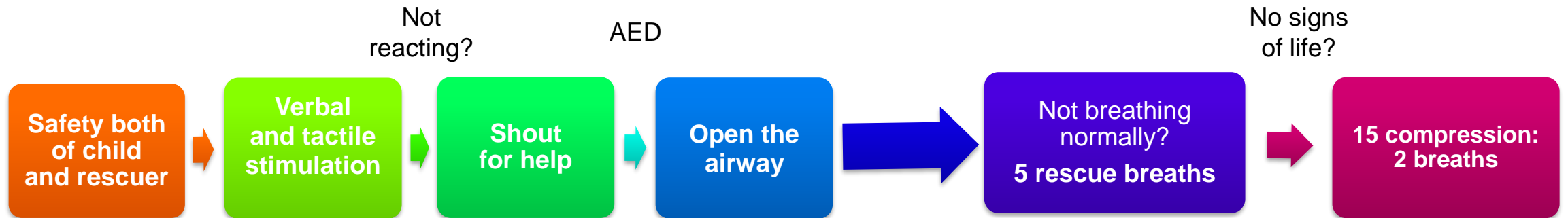
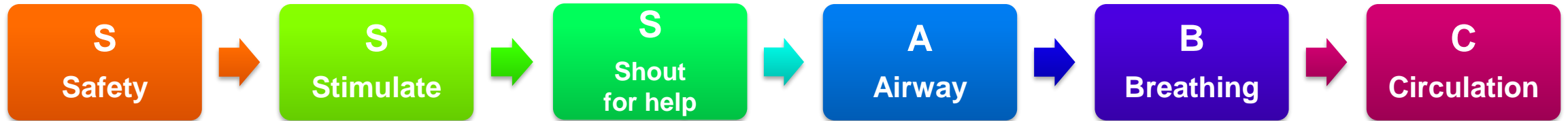
Newborn Life Support

- Algorithm for resuscitation and support of transition of infants at birth
- **Facilitation of the fetal-to-neonatal transition (The absorption of lung fluid, the aeration of the lungs, the initiation of air breathing, and cessation of the placental circulation)**
- 6-10 % of newborns require some help in transition in first minutes after the birth
- 85% of babies born at term initiated spontaneous respirations within 10 to 30 s of birth
- An additional 10% responded during drying and stimulation
- 3% initiated respirations following positive pressure ventilation
- Only 0.1% received chest compressions and/or adrenaline

Basics from NLS



Basic algorithm



Learning outcomes

- Student is able to describe the technique of performing rescue breaths in children of all ages.
- Student is able to name the individual steps of the BLS algorithm in a child.
- Student is able to describe the differences in the CPR of a child and an adult.

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