



PAEDIATRIC BASIC LIFE SUPPORT

Resuscitation Guidelines 2000

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Definitions

An **infant** is a child under the age of 1 year.

A **child** is aged between 1 and 8 years of age.

Children over the age of 8 years will still be treated as for a younger child but may require different techniques to attain adequate chest compression.

In the following description unless specified a 'child' includes an 'infant'.

Sequence of actions

1. Ensure safety of rescuer and child

2. Check the child's responsiveness:

- Gently stimulate the child and ask loudly: "Are you all right?"
 - Infants, and children with suspected cervical spinal injuries, should not be shaken.

3A. If the child responds by answering or moving:

- Leave the child in the position in which you find him (provided he is not in further danger)
- Check his condition and get help if needed
- Reassess him regularly.

3B. If the child does not respond:

- Shout for help
- Open the child's airway by tilting his head and lifting his chin,
 - If possible with the child in the position in which you find him, place your hand on the child's forehead and gently tilt his head back
 - At the same time, with your fingertip(s) under the point of the child's chin, lift the chin to open the airway. Do not push on the soft tissues under the chin as this may block the airway
 - If you have any difficulty in opening the airway, carefully turn the child on to his back and then open the airway as described.

Avoid head tilt if trauma (injury) to the neck is suspected.

If neck injury is suspected use the jaw thrust method of opening the airway.

4. Keeping the airway open, look, listen and feel for breathing, putting your face to the child's face and looking along the chest:

- Look for chest movements and, in an infant especially, abdominal movement
- Listen at the child's nose and mouth for breath sounds
- Feel for air movement on your cheek

- Look, listen and feel for up to 10 seconds before deciding that breathing is absent.

5A. If the child is breathing normally:

- Turn the child on his side
- Send or go for help
- Check for continued breathing.

5B. If the child is not breathing or is making occasional gasps:

- Carefully remove any obvious airway obstruction
- Give 2 rescue breaths each of which makes the chest rise and fall. Up to 5 rescue breaths may be attempted to achieve 2 effective ones. Take a breath yourself between rescue breaths to maximise the oxygen you deliver.
- While performing the rescue breaths, note any gag or cough response to your action.

For a child

- Ensure head tilt and chin lift
- Pinch the soft part of his nose closed with the index finger and thumb of your hand on his forehead
- Open his mouth a little, but maintain chin lift
- Take a breath and place your lips around his mouth, making sure that you have a good seal
- Blow steadily into his mouth over about 1 - 1.5 seconds watching for his chest to rise
- Maintain head tilt and chin lift, take your mouth away from the child and watch for his chest to fall as air comes out
- Take another breath and repeat this sequence up to 5 times (a minimum of 2 effective rescue breaths must be given).

For an infant

- Ensure head tilt and chin lift
- Take a breath and cover the mouth and nasal apertures of the infant with your mouth, making sure you have a good seal. In a larger infant, if the mouth to mouth-and-nose method is difficult, try the mouth to nose technique. In this, the adult's mouth is placed over the infant's nose and rescue breathing attempted. It may be necessary to close the infant's mouth during rescue breathing to prevent air escaping.
- Blow steadily into the infant's mouth and nose over 1 - 1.5 seconds sufficient to make the chest visibly rise
- Maintain head tilt and chin lift, take your mouth away from the infant and watch for his chest to fall as air comes out
- Take another breath and repeat this sequence up to 5 times (a minimum of 2 effective rescue breaths must be given).

If you have difficulty achieving an effective breath, the airway may be obstructed

- Recheck the child's mouth and remove any obstruction
- Recheck that there is adequate head tilt and chin lift but also that the neck is not over extended. Try the jaw thrust method
- Make up to 5 attempts in all to achieve at least 2 effective breaths
- If still unsuccessful, move on to foreign body airway obstruction sequence.

6. Assess the child for signs of a circulation:

- Look for any movement including swallowing, coughing or breathing (more than an occasional breath)
- **For trained healthcare providers only check the pulse**
Child - feel for the carotid pulse in the neck
Infant - feel for the brachial pulse on the inner aspect of the upper arm
- Take no more than 10 seconds to do this.

7A. If you are confident that you can detect signs of a circulation (or a pulse over 60 beats per minute if you have been trained to do so) within 10 seconds:

- Continue rescue breathing, if necessary, until the child starts breathing effectively on his own
- Re-check regularly for signs of a circulation taking no more than 10 seconds each time
- If the child starts to breathe normally on his own but remains unconscious turn him into the recovery position. Be ready to turn him onto his back and re-start rescue breathing if he stops breathing.

7B. If there are no signs of a circulation, or you are at all unsure:

(or the pulse rate is very slow - less than one per second i.e. 60 per minute and there are signs of poor perfusion i.e. unresponsive, immobile)

- Start chest compression
- Combine rescue breathing and chest compression.

For a child

- Locate and place the heel of one hand over the lower half of the sternum (breastbone) ensuring that you do not compress on or below the

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- Lift the fingers to ensure that pressure is not applied over the child's ribs
- Position yourself vertically above the chest and, with your arm straight, press down on the sternum to depress it approximately one third to one half of the depth of the child's chest
- Release the pressure, then repeat at a rate of about 100 times a minute
- After 5 compressions tilt the head, lift the chin and give 1 effective breath
- Return your hand immediately to the correct position on the sternum and give 5 further compressions
- Continue compressions and breaths in a ratio of 5:1

In children over the age of approximately 8 years, it may be necessary to use the "adult" two handed method of chest compression to achieve an adequate depth of compression.

- Locate the lower half of the sternum (breastbone) and place the heel of one hand there, with the other hand on top
- Interlock the fingers of both hands and lift them to ensure that pressure is not applied over the child's ribs
- Position yourself vertically above the child's chest and, with your arms straight, press down on the sternum to depress it approximately one third to one half of the depth of the child's chest
- Release the pressure, then repeat at a rate of about 100 times a minute
- After 15 compressions tilt the head, lift the chin and give 2 effective breaths
- Return your hands immediately to the correct position on the sternum and give 15 further compressions
- Continue compressions and breaths in a ratio of 15:2

For an infant

For a single or non-professional rescuer:

- Locate the sternum and place the tips of two fingers, one finger's breadth below an imaginary line joining the infant's nipples
- With the tips of two fingers, press down on the sternum to depress it approximately one third to one half of the infant's chest
- Release the pressure, then repeat at a rate of about 100 times a minute
- After 5 compressions tilt the head, lift the chin and give 1 effective breath
- Return your hands immediately to the correct position on the sternum and give 5 further compressions
- Continue compressions and breaths in a ratio of 5:1

For more than one professional rescuer, the following technique is used where practicable. Place both thumbs over the lower half of the sternum one finger's breadth below the inter-nipple line. Encircle the infant's chest with the hands, supporting the infant's back with the fingers. Depress the sternum with the thumbs to one half to one third of the depth of the chest at the rate and ratio given above. A second rescuer manages airway and breathing.

8. Continue resuscitation until:

- The victim shows signs of life (spontaneous respiration, pulse)
- Qualified help arrives
- You become exhausted.

When to go for assistance

It is vital for rescuers to get help as quickly as possible when a child collapses.

- When more than one rescuer is available, one should start resuscitation while another rescuer goes for assistance.
- If only one rescuer is present, he should perform resuscitation for about **1 minute** before going for assistance. It may be possible to take the infant or small child with you whilst summoning help.
- If the victim is a child with known heart disease and the collapse was sudden, and not caused by trauma or poisoning, go for help immediately. An arrhythmia is likely.

Recovery position

An unconscious child whose airway is clear, and who is breathing spontaneously, should be turned on his side into the recovery position. This prevents the tongue falling back to obstruct the airway, and reduces the risk of inhalation of stomach contents. There are a number of different recovery positions, each of which has its advocates. The important principles to be followed are:

- The child should be in as near a true lateral position as possible with his mouth dependant to allow free drainage of fluid
- The position should be stable. In an infant this may require the support of a small pillow or rolled up blanket placed behind the infant's back to maintain the position
- Any pressure on the chest that impairs breathing should be avoided
- It should be possible to turn the child onto his side and to return him back easily and safely, having particular regard to the possibility of cervical spine injury
- Good observation and access to the airway should be possible.

Obstructed airway

- If you have difficulty achieving an effective breath:
 - Recheck the child's mouth and remove any obvious obstruction
 - Recheck that there is adequate head tilt and chin lift but also that the neck is not over extended
 - Make up to 5 attempts in all to achieve at least 2 effective breaths
 - If still unsuccessful, move on to foreign body airway obstruction sequence.

Foreign body obstruction sequence

There are a number of different foreign body obstruction sequences each of which has its advocates.

If the child is breathing spontaneously his own efforts to clear the obstruction should be encouraged. Intervention is necessary only if these attempts are clearly ineffective and breathing is inadequate.

- Do not perform blind finger sweeps of the mouth or upper airway as these may further impact a foreign body or cause soft tissue damage
- Use measures intended to create a sharp increase in pressure within the chest cavity, an artificial cough

1. Perform up to FIVE back blows

- Hold the child in a prone position and try to position the head lower than the chest with the airway in an open position
- Deliver up to five smart blows to the middle of the back between the shoulder blades
- If this fails to dislodge the foreign body proceed to chest thrusts.

2. Perform up to FIVE chest thrusts

- Turn the child into a supine position, again with the head lower than the chest and the airway in an open position
- Give up to five chest thrusts to the sternum:
 - The technique for chest thrusts is similar to that for chest compressions.
 - Chest thrusts should be sharper and more vigorous than compressions and carried out at a rate of about 20 per minute.

3. Check mouth

- After five back blows and five chest thrusts check the mouth
- Carefully remove any visible foreign bodies.

4. Open airway

- Reposition the airway by the head tilt and chin lift (jaw thrust) manoeuvre
- Reassess breathing.

5A. If the child is breathing

- Turn the child on his side
- Check for continued breathing

5B. If the child is not breathing:

- Attempt up to 5 rescue breaths to achieve 2 effective breaths each of which makes the chest rise and fall.
The child may be apnoeic or the airway partially cleared, in either case the rescuer may be able to achieve effective ventilation at this stage
- If the airway is still obstructed repeat the sequence as follows:

For a child

- Repeat the cycle (1-5 above) but substitute 5 abdominal thrusts for 5 chest thrusts
 - Abdominal thrusts are delivered as 5 sharp thrusts directed upwards towards the diaphragm
 - Use the upright position if the child is conscious; kneel behind a

small child

- Unconscious children should be laid supine and the heel of one hand placed in the middle of the upper abdomen
- Alternate chest thrusts and abdominal thrusts in subsequent cycles
- Repeat the cycles until the airway is cleared or the child breathes spontaneously.

For an infant

- Abdominal thrusts are not recommended in infants because they may rupture the abdominal viscera
- Perform cycles of 5 back blows and 5 chest thrusts only
- Repeat the cycles until the airway is cleared or the infant breathes spontaneously.

PBLS algorithm

The [Paediatric Basic Life Support algorithm](#) is available in Adobe PDF format.

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