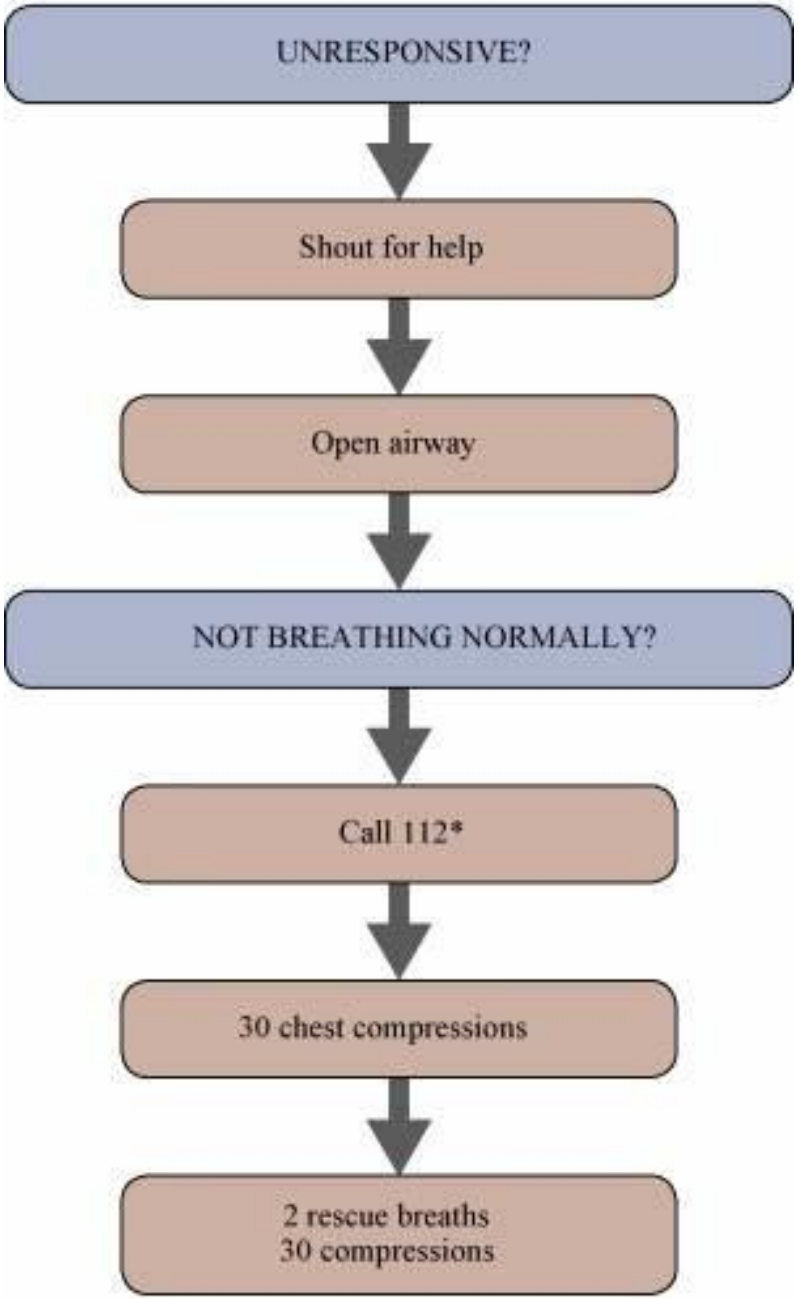
Cardio-pulmonary resuscitation guidelines 2005 Update 2010

IInd Chair and Clinic of Cardiology

Adult Basic Life Support



*or national emergency number

Patogenesis of cardiac arrest

- Ventricular fibrillation – fast and chaotic depolarisation and repolarisation of cardiac myocytes
- Asystoly – brak czynności elektrycznej i mechanicznej serca (linia izoelektryczna)
- Pulseless electric activity – maintained electric activity without an effective mechanical function of the heart muscle

Chain of survival

The vital steps necessary for effective resuscitation

- *Early recognition of cardiac arrest*
- *Early bystander CPR*
- *Early defibrillation*
- *Early advanced life support and standarised post-resuscitation period*

- The most common cause of cardiac arrest is ventricular fibrillation
- Causative treatment of choice in this case is defibrillation
- The average time between call and resuscitation team arrival is 8 minutes
- Immediate CPR may double or triple survival from VF sudden cardiac death.

Basic life support – BLS

- Make sure you, the victim and any bystanders are safe
- Check the victim for a response

Gently shake his shoulders and ask loudly: “Are you all right?”

Basic life support – BLS

If he/she responds

- Leave him in the position in which you find him, provided there is no further danger
- Try to find out what is wrong with him and get help if needed
- Reassess him regularly

Basic life support – BLS

If he does not respond

shout for help

turn the victim onto his back and then open the airway using head tilt and chin lift

Basic life support – BLS

Keeping the airway open, look, listen and feel for breathing

- ✓ Look for chest movement
- ✓ Listen at the victim's mouth for breath sounds;
- ✓ Feel for air on your cheek

If you have any doubt whether breathing is normal, act as if it is not normal.

2010-update

- It was emphasized that cardiac arrest is associated not only with asphyxia but also single irregular gasps.
- Pulse assessment– only professional rescuers
- In children pulse assessment only by skilled professional rescuers
- Single rescuer, after diagnosig cardiac arrest performs resuscitation for one minute before calling for help – only in children.

Basic life support – BLS

If he is breathing normally

- Turn him into the recovery position
- Send or go for help
- Continue to reassess the victim

Basic life support – BLS

If the breating is not normal or absent

- Send for help or if you are on your own cal or go for help yourself
- Start chest compression

Basic life support – BLS

Chest compression

- Kneel by the victim
- Place the heel of one hand on another hand in the centre of the victim's chest
- Interlock the fingers of your hands and ensure that pressure is not applied over the victim's ribs
- Position yourself vertically above the victim's chest and press down on the sternum at least 5 cm **(2010 – 5-6 cm)**
- 100 compressions/minute **(2010 - 100-120/min)**
- Compression and release should take equal amounts of time
- After each compression, release all the pressure on the chest without losing contact between your hands and the sternum

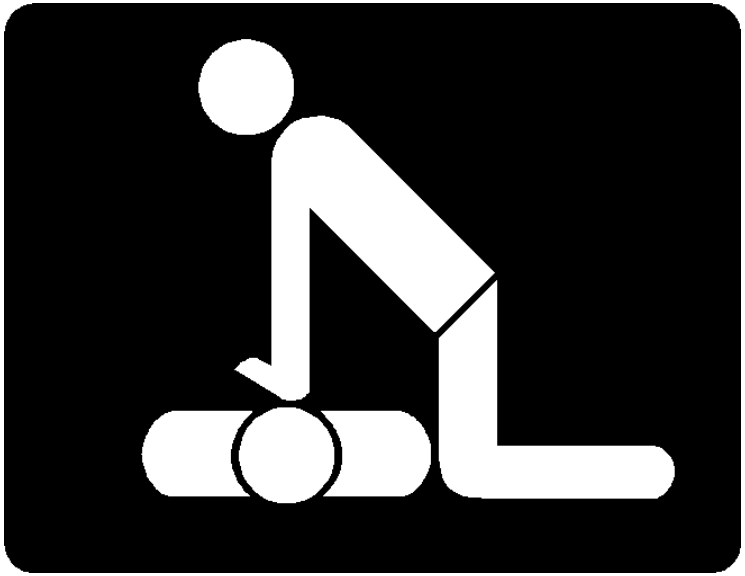
Basic life support – BLS

Rescue breaths

- After 30 compressions open the airway again
- Pinch the soft part of the nose closed, using the index finger and thumb of your hand and allow tha mouth to open
- Take a normal breath and place your lips around his mouth, making sure that you have a good seal.
- Blow steadily into the mouth during 1 sec.while watching for the chest to rise
- Maintaining head tilt and chin lift, take your mouth away from the victim and watch for the chest to fall as air comes out
- After the second breath continue with chest compressions and rescue breaths in a ratio of 30:2.

2010

People without training in BLS are advised to perform chest compression without rescue breaths



2010

- In children, medical professionals use 2 breaths/30 compressions proportion after initial 5 rescue breaths
- Single rescuer in children uses 2/30 proportion
- 2 breaths should last no more than 5 seconds

Basic life support – BLS

Rescue breaths

- Stop resuscitation only to recheck the victim or if he starts to breath properly

If your initial rescue breath does not make the chest rise as in normal breathing:

- ✓ Look into the victim's mouth and remove any obstruction
- ✓ Recheck that there is adequate head tilt and chin lift
- ✓ Do not attempt more than two breaths each time before returning to chest compressions

Basic life support – BLS

- If there are two rescuers they should change places every 2 minutes of resuscitation
- Breaks in the resuscitation should be as short as possible

Do not interrupt resuscitation until:

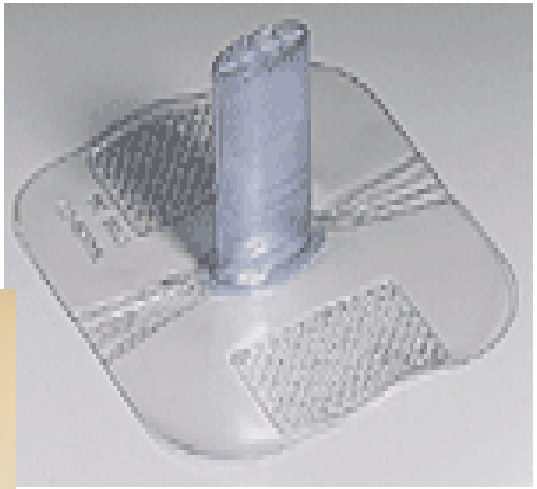
- Do not interrupt resuscitation until:
professional help arrives and takes over
- or
the victim starts to wake up: to move, open eyes and to breathe normally
- or
you become exhausted

Safety

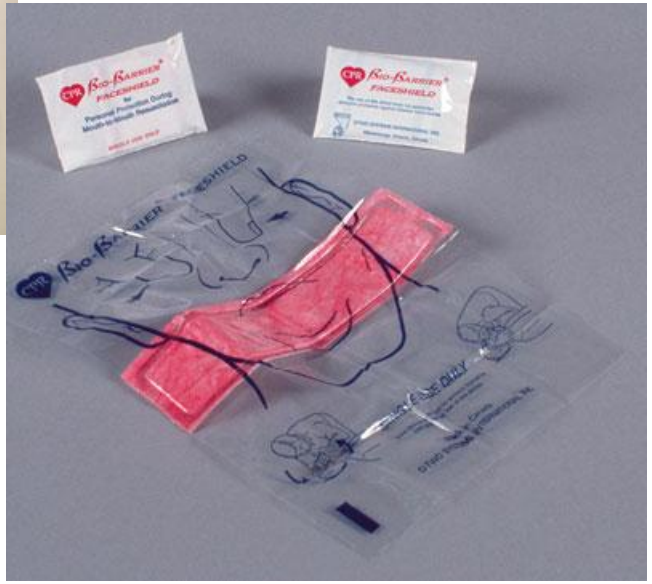
- There were only very few cases of tuberculosis and SARS transmission during performing CPR
- There is no report on HIV transmission
- Barrier devices and one-way valves devices may diminish the risk of bacterial transmission

Resuscitation mask with a filter


CPR
FACE SHIELD




CPR
CPR Face Shield
CPR Pocket Sizzee Shield


Bio-Barrier
FACESHIELD

Additional remarks

Opening the airway

The jaw thrust is not recommended for lay rescuers. The lay rescuer should open the airway using a head-tilt-chin-lift manoeuvre for both injured and non-injured victims.

Recognistion of cardiorespiratory arrest

- Healthcare professionals, as well as lay rescuers, have difficulty determining the presence or absence of adequate or normal breathing
- Agonal gasps are present in up to 40% of cardiac arrest victims
- Begin CPR if the victim is unconscious (unresponsive) and not breathing normally

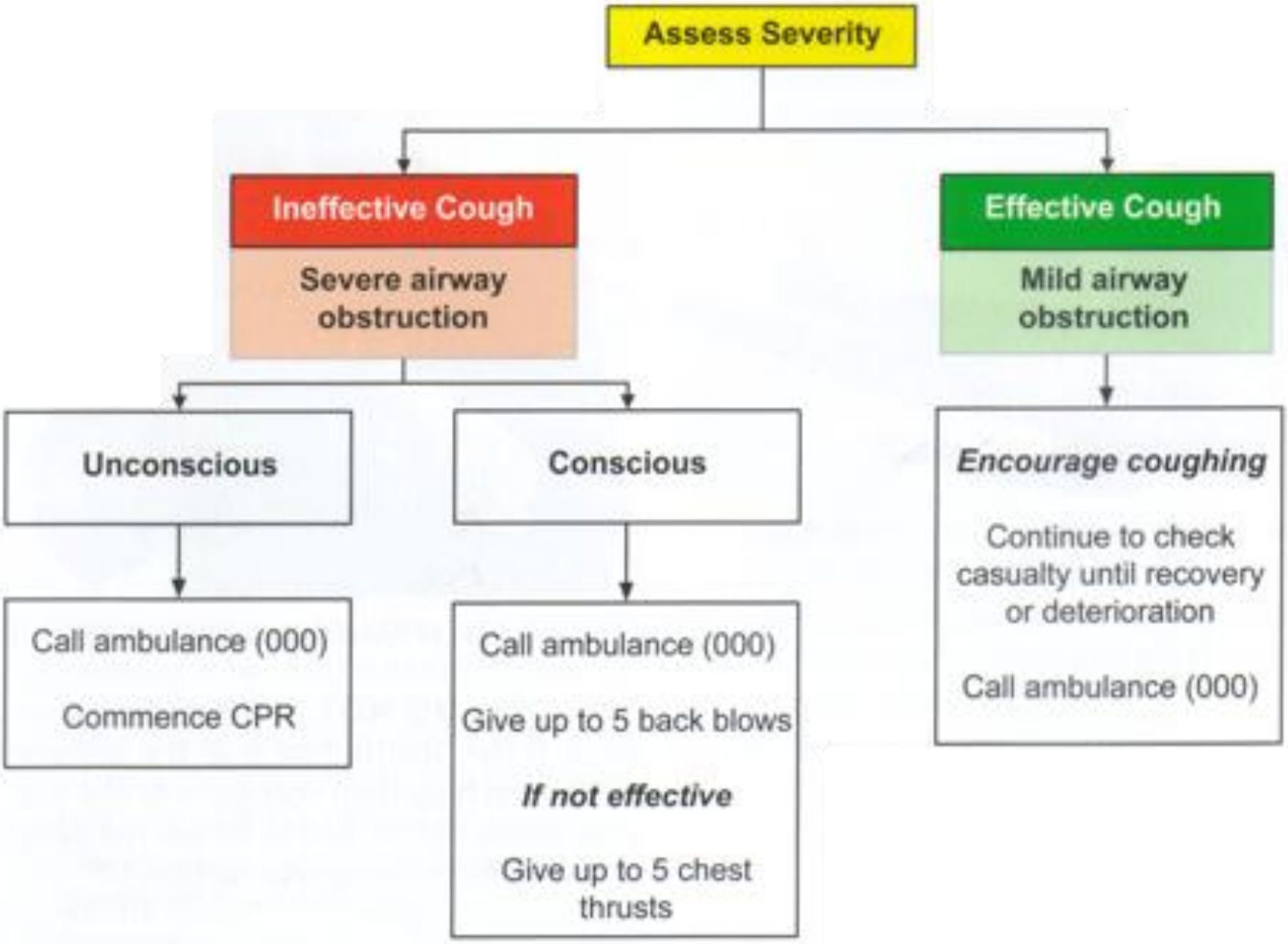
Ventilation

- Hyperventilationshould be avoided because it increases intrathoracic pressure, which decreases venous return to the heart and reduces cardiac output. Survival is consequently reduced
- Mouth-to-nose ventilation is acceptable if the victim's mouth is seriously injured or cannot be opened or a mouth-to-mouth seal is difficult to achieve.

Foreign-body airway obstruction (choking)

Mild obstruction – can speak, cough, breathe

Severe obstruction – cannot speak or breathe
wheezy breathing/silent attempts to cough/unconsciousness



Choking Flow Chart

Resuscitation of children

- Give 5 initial rescue breaths before starting chest compressions
- A lone rescuer should perform CPR for approximately 1 min before going for help
- Compress the chest by at least one third of its depth; use 2 fingers for an infant under 1 year; use 1 or 2 hands for a child over 1 year as needed to achieve an adequate depth of compression.