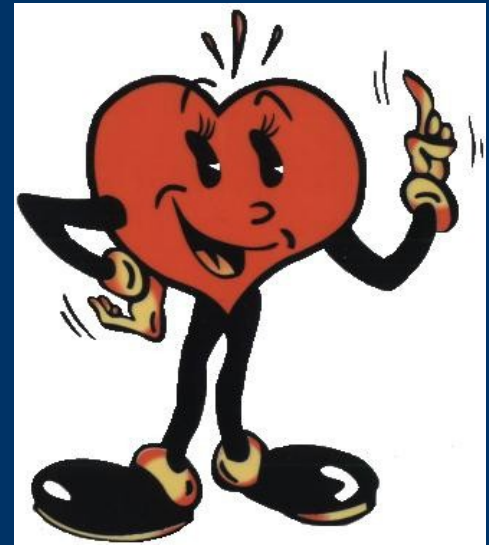


# *First Aid 2018*



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# *Run of semestr*

Lectures weekly ( ex 12.12.2018)

<https://is.muni.cz/auth/el/1411/podzim2018/aVLPO011p/index.qwar>  
p

Excerc. a 2 weeks (one topic for 2 weeks)

Test in Dec and Jan.

Oral exam in 2019:

- 2 topics
  - 1 min of BLS, AED,...
- 
-

# 3 kliniky

ARK FNUSA

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KARIM FN Brno

Malaska.Jan@fnbrno.cz

KDAR FN Brno

Stoudek.Roman@fnbrno.cz



# *How to survive?*

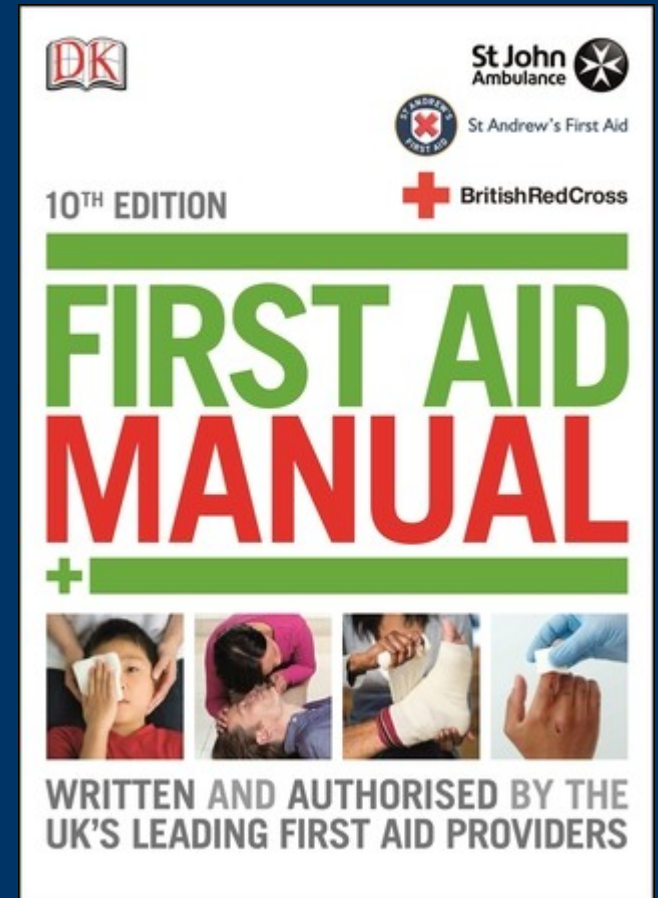
- Do not kill the patient.
- Reason of lectures
  - to pass the exam
  - to learn important information for life



# Study materials

[is.muni.cz](http://is.muni.cz)

[www.cprguidelines.org](http://www.cprguidelines.org)



# *How to survive*

- D
- R'
- S
- A
- B
- C



# *How to survive*

- Danger
  - R'esponce
  - Send for Help
  - Airways
  - Breathing
  - Circulation
- 
-

# *Danger*





# *Danger*



- to you
- to other
- to the casualty
- make sure that no one gets hurt. You will not be able to help if you are also a casualty
- only proceed if it is safe to do so.





# *Danger*

- look & listen & feel
    - vehicle on the street
    - gas in the house
    - fire
    - poison, infection
    - electricity
  - Position the patient on their back.
- 
-

## *Basic Vital signs:*

- RESPONSE = consciousness
- A+B breathing
- C circulation

Primary Survey = 20s

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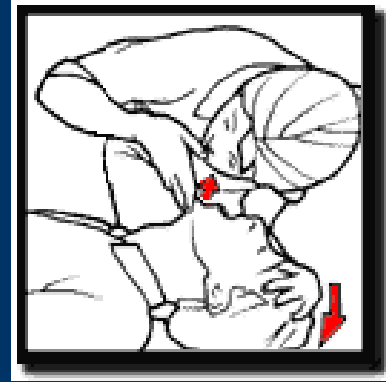
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# Responsiveness



- **S**hout ,Are You O.K.?‘, Can you hear me?' ,  
'What is your name?
  - **S**hake **S**houlder
  - opening eyes
  - movement
  - words
  - unconsciousness
- 
-

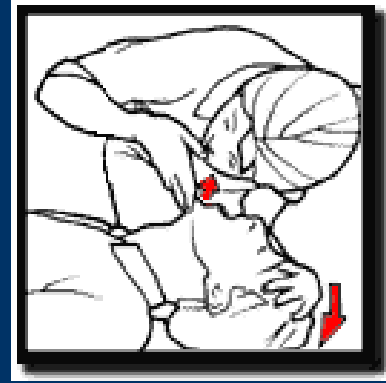
# Airway + B



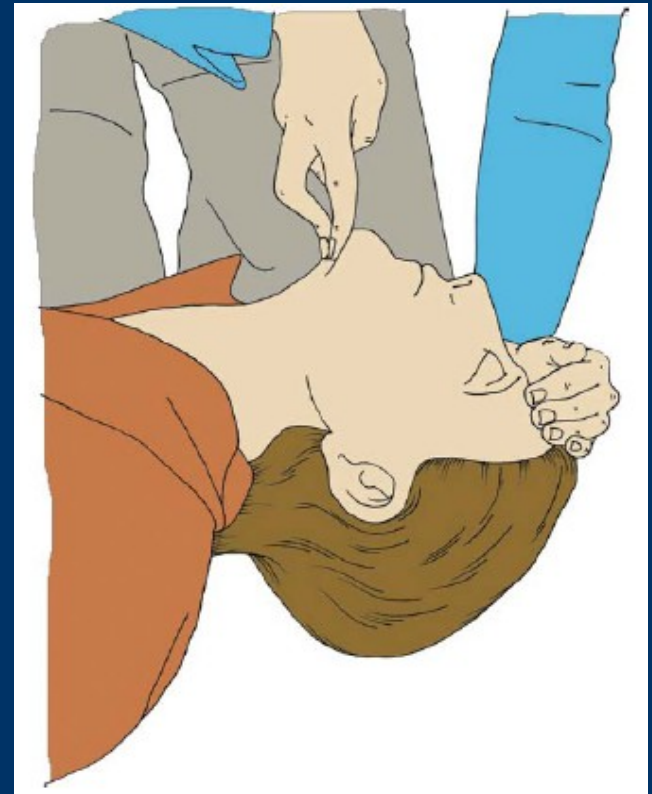
- on the back
- open it and keep it open - unconscious
- Tilt the head back



# *Airway + B*

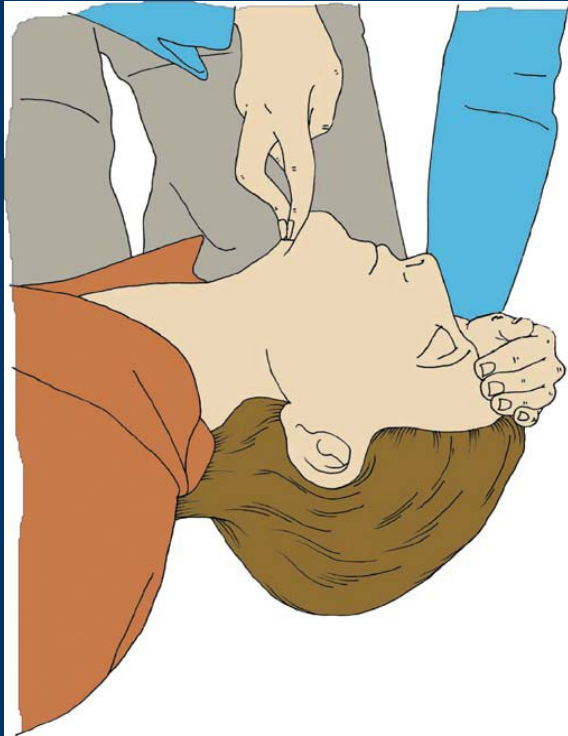


- open it and keep it open
- Tilt the head back

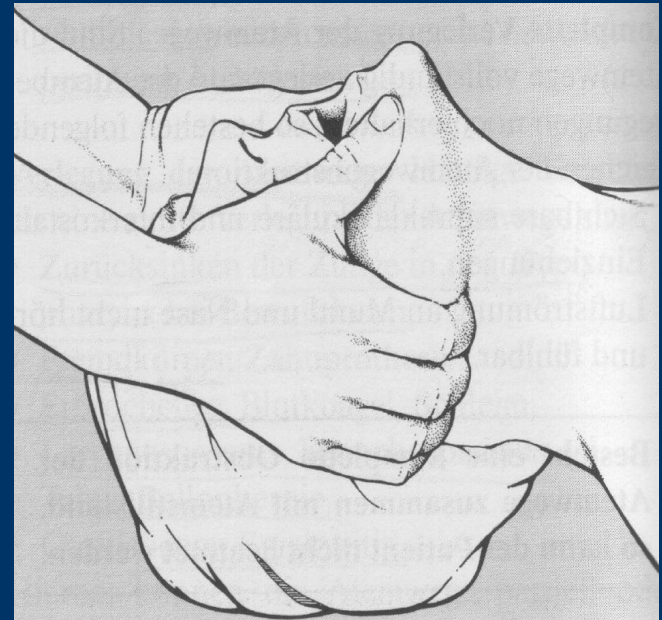


# *Keep airway open*

head tilt, chin lift



Esmarch man.





# *Clear airway if necessary*

- with the casualty supported on the side, tilt the head backwards and slightly down.
- Open the mouth and clear any foreign object. Only remove dentures if loose or broken.



# Breathing ?

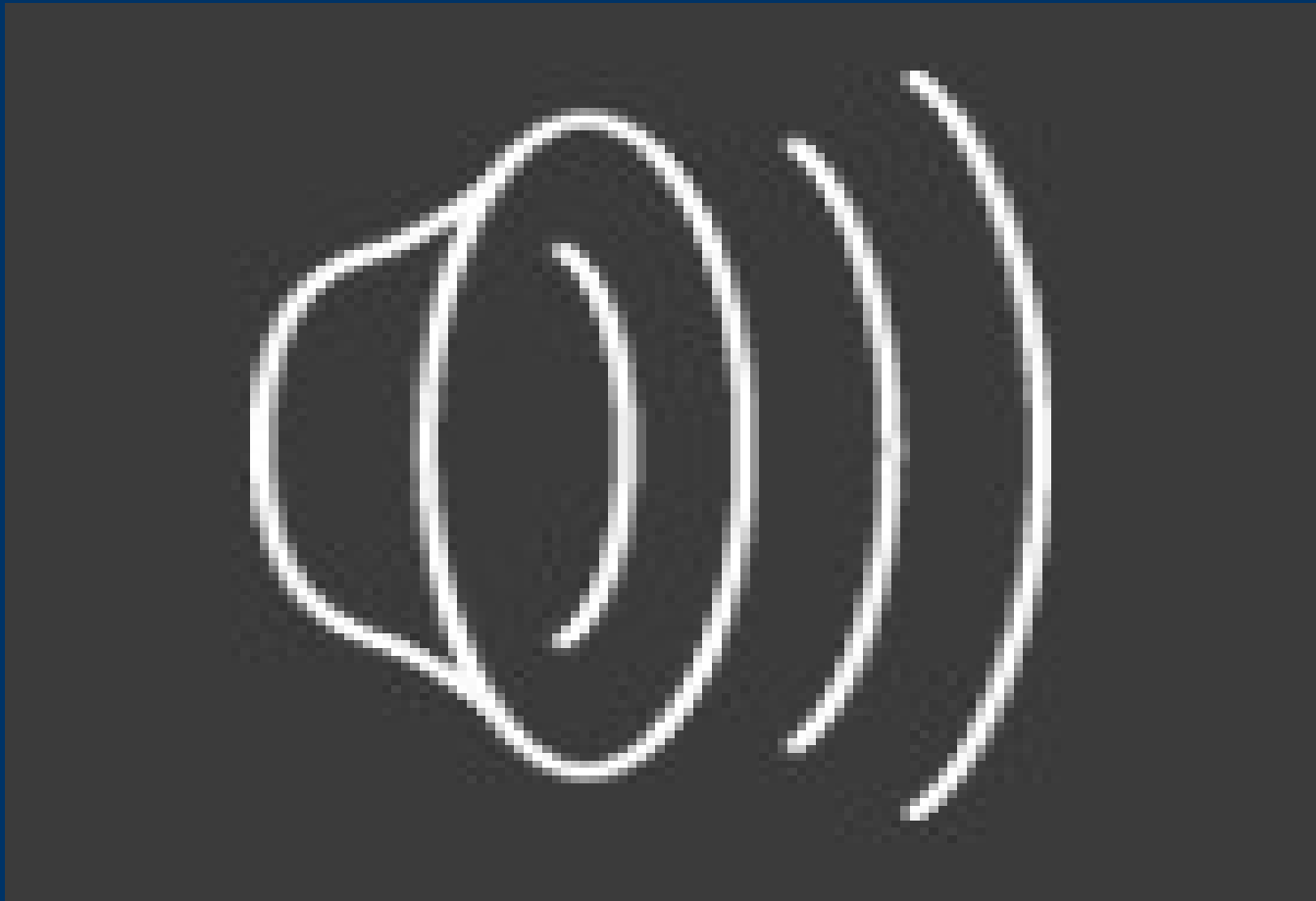


- Normal = look & listen & feel
    - movement of chest wall [reg., 10-20/ min]
    - air flow
  - abnormal breathing - "agonal respiration" and is the result of the brain's breathing center sending out signals even though circulation has ceased.  
**The key point** - sound like grunting, gasping or snoring. It disappears in 2-3 minutes.
  - No breathing
- 
-

*A+B:*



# *Gasping during ACLS*



# *Circulation*

## Signs:

- normal consciousness
- normal breathing
- movement
- cough
- only for living victims  
{pulsations are checked by two fingers on  
a.carotis}
- ~~Any doubt = NO circulation~~

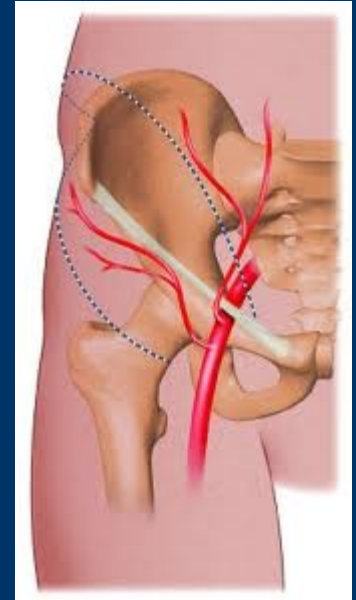
# *Puls on neck artery*



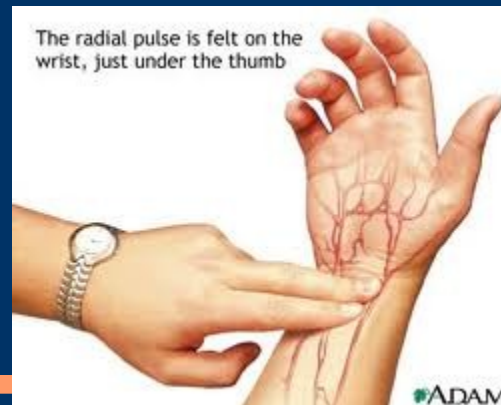
# Puls

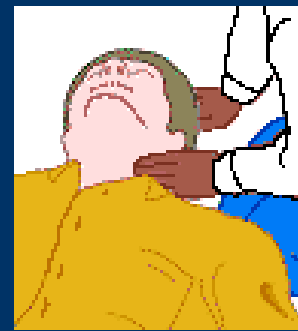


– neck / femoral a.



– radial a.





# *Circulation - puls*

- i/regular
- frequency (beat per 10s \* 6 = beats/ min)
- signs of shock ...





# Capillary refill time

compress the skin 5s, release pressure

Time needed for refill of blood

Finger = periphery / Chest – central

- less than 2s
- useful in children



# *ABC – stable and what next?*

managing life-threatening problems -  
bleeding, recovery position

- look for

- bleeding

- burns

- fractures. Note any tenderness, swelling, wounds or deformity

... Secondary Survey



# *Examine the casualty*

## ... Secondary Survey

- in the following order:
  - head and neck
  - chest (including shoulders)
  - abdomen (including hip bone)
  - upper limbs
  - lower limbs
  - back
- call medical aid as soon as possible



***No consciousness + No breathing  
= No circulation***

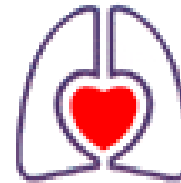
Sudden Cardiac Arrest

CardioPulmonary Resuscitation

- Basic Life Support
  - Advanced Cardiac Support (ACLS)
- 30:2



# Guidelines 2015



**E**uropean  
**R**esuscitation  
**C**ouncil

- [www.cprguidelines.eu](http://www.cprguidelines.eu)

Resuscitation 95 (2015) 81–99



**ELSEVIER**

Contents lists available at [ScienceDirect](http://ScienceDirect)

## Resuscitation

journal homepage: [www.elsevier.com/locate/resuscitation](http://www.elsevier.com/locate/resuscitation)



EUROPEAN  
RESUSCITATION  
COUNCIL

# *Sudden Cardiac Arrest*

- arrhythmia during Myocardium infarction = no puls, no flow
  - hypoxia – breathing disorder
  - hypovolemia = bleeding
  - hypothermia → arrhythmia
  - ion disorders – internal environment
  - intoxication
  - trauma of Thorax / heart (Pneumothorax / Tamponade)
  - pulmonary embolism
- 
-

**SCA → survival = 20%**

## Chain of survival

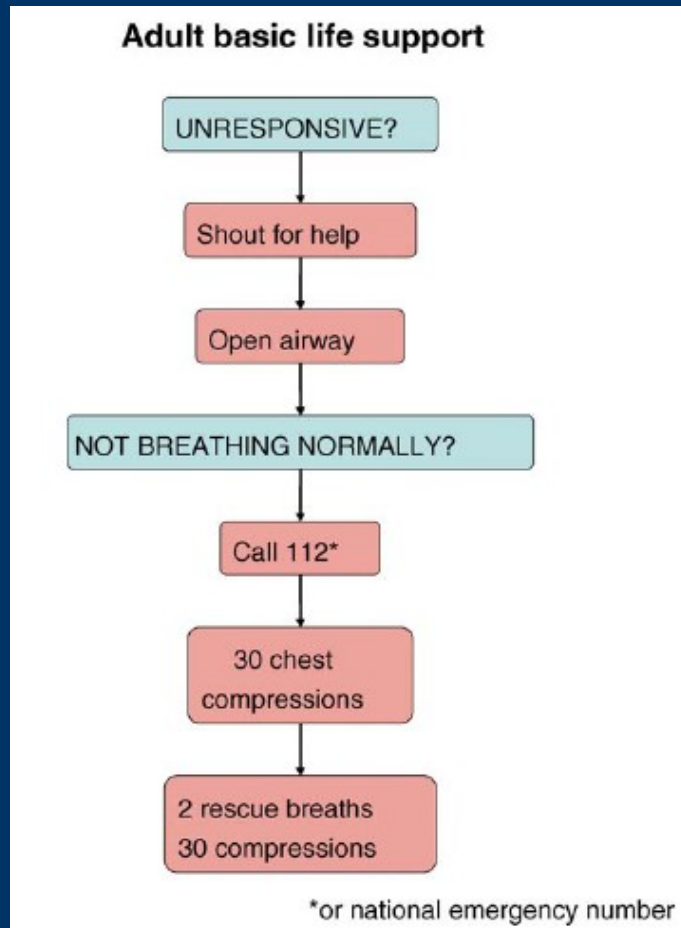


- **Early**





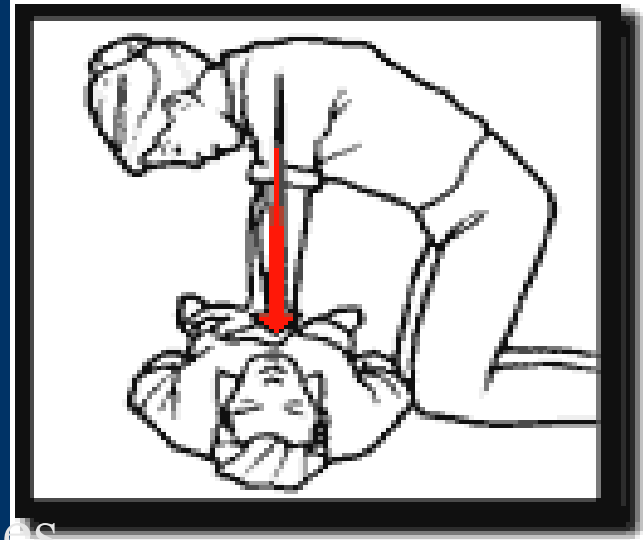
# Adult basic life support



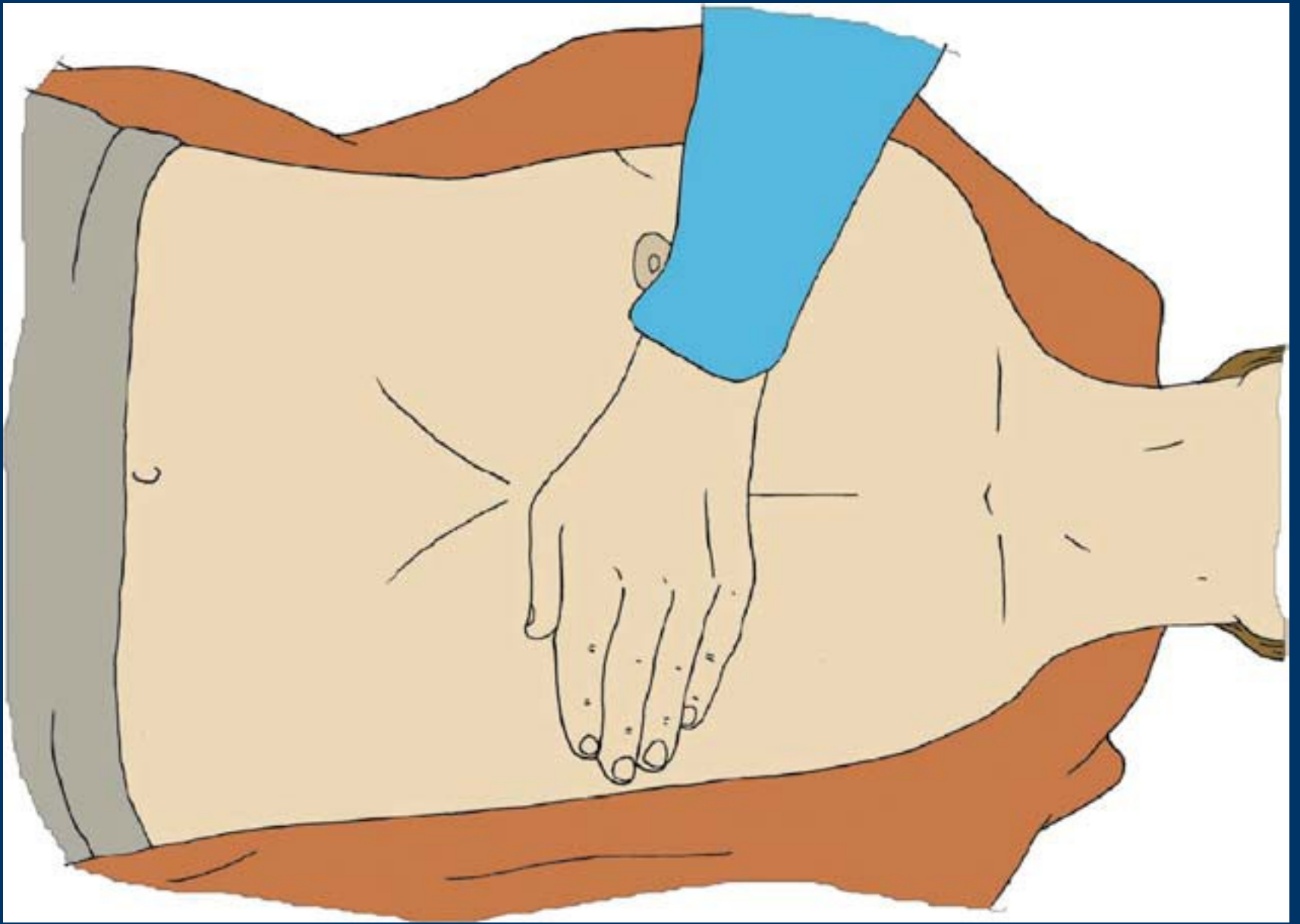
- Medical Emergency Service

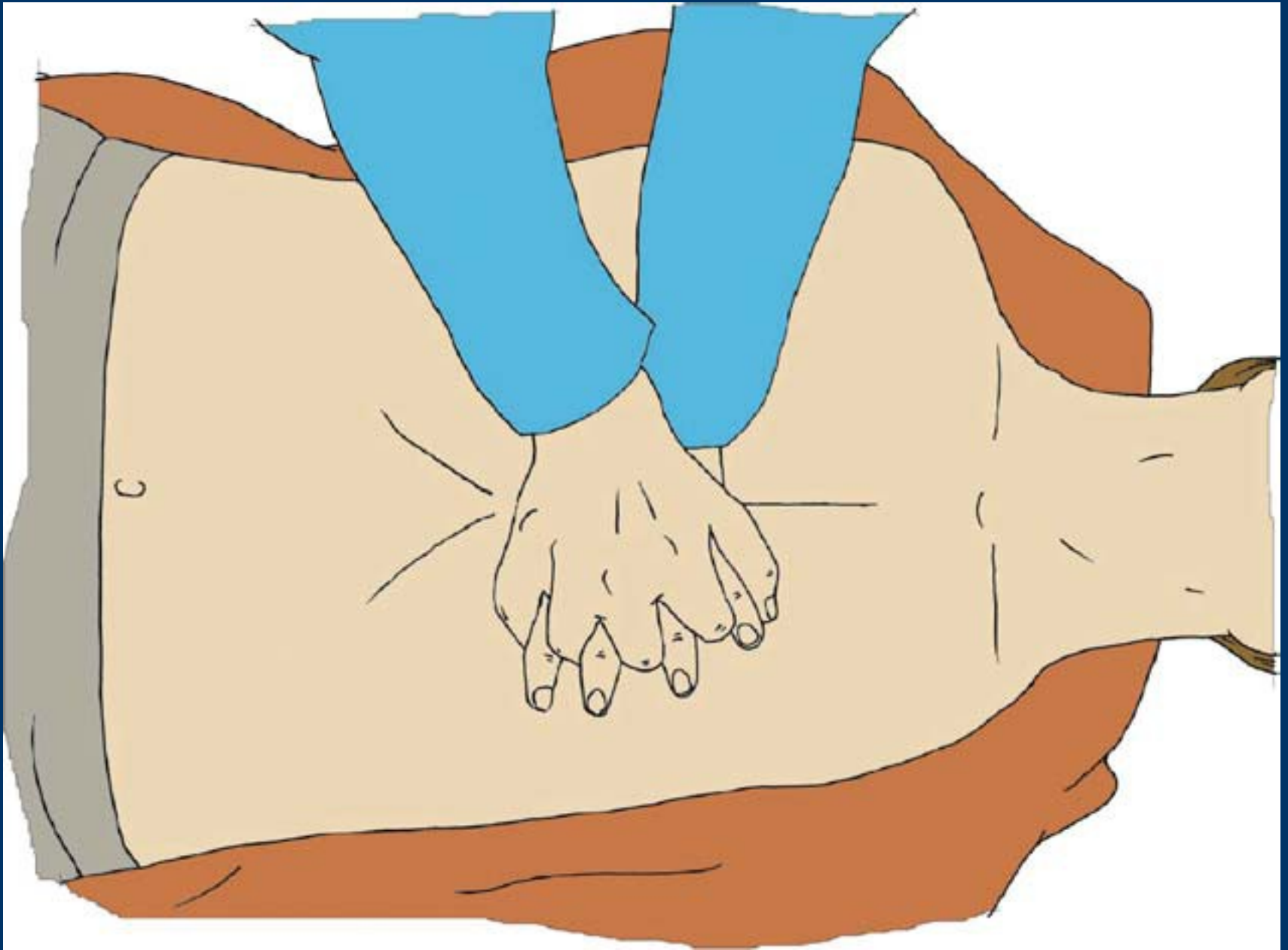
155

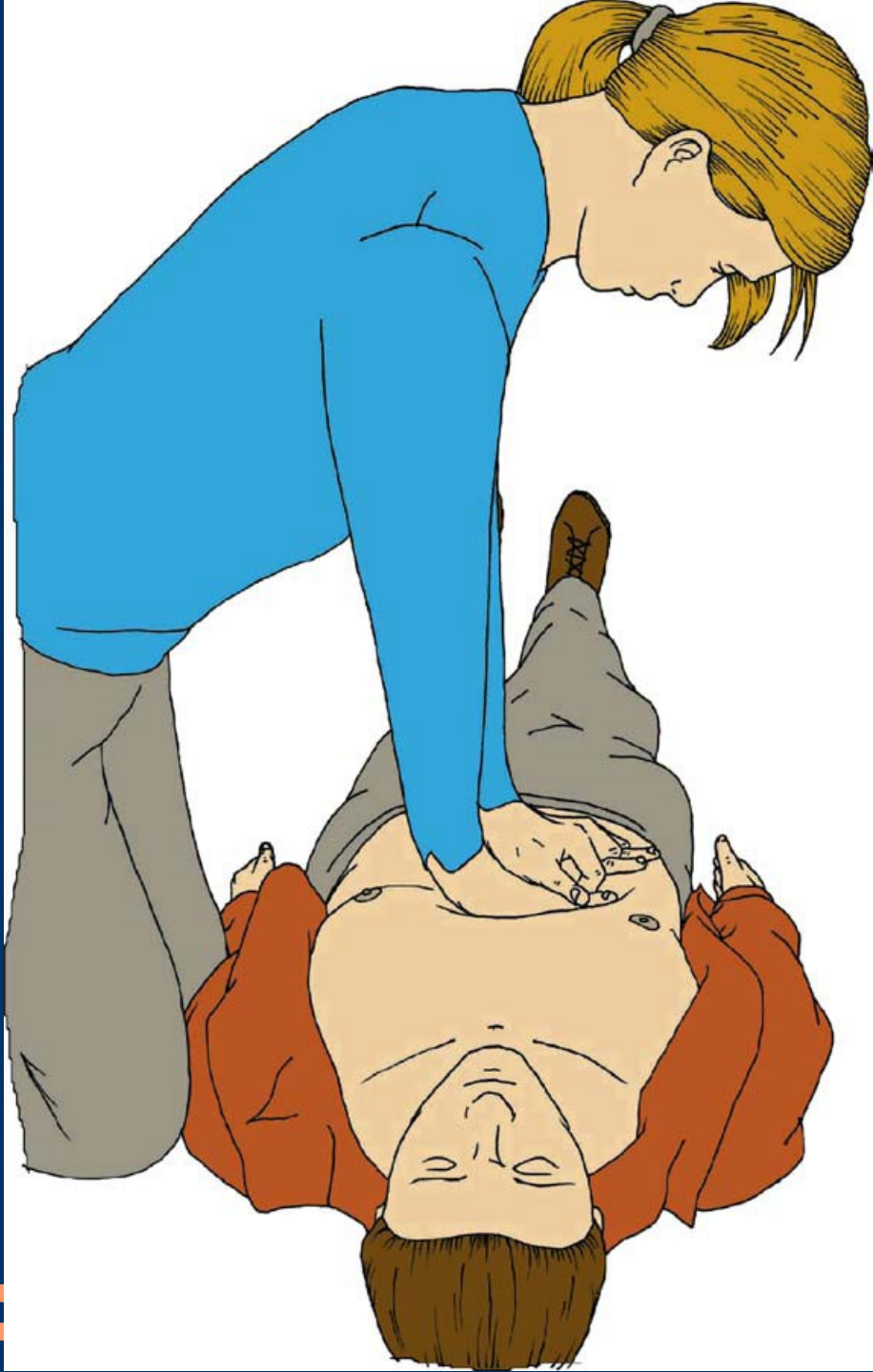
# Chest compressions



- Place the heel of one hand on the breastbone -- right between the nipples.
- **In the centre of the chest**
- Place the heel of your other hand on top of the first hand.
- Position your body directly over your hands. Your shoulders should be in line with your hands. DO NOT lean back or forward.
- Give 30 chest compressions. at least 100/minute (not more than 120/min)
- Press down on the sternum at least 5 cm, not more than 6cm

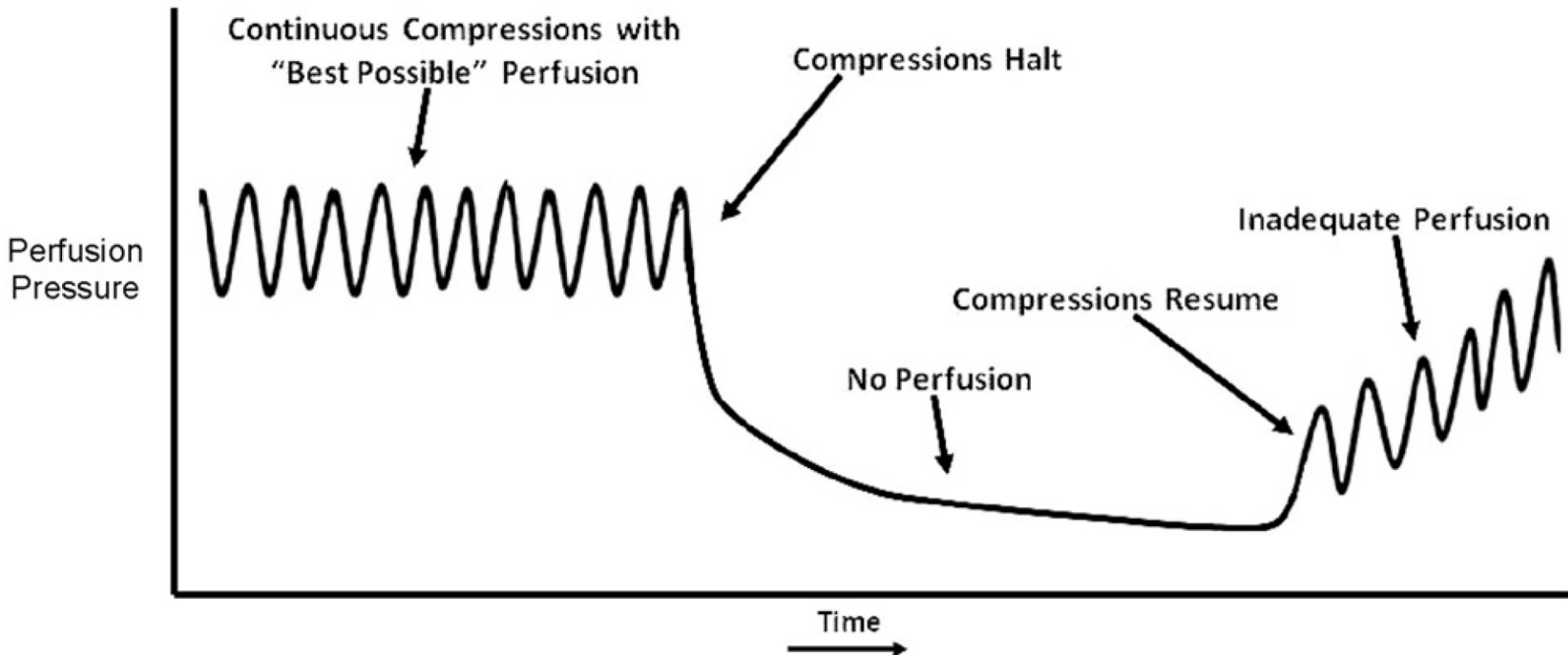






# *Do not stop compression ...*

## Chest Compressions During Cardiac Arrest Magnitude of Perfusion Resulting from Chest Compressions

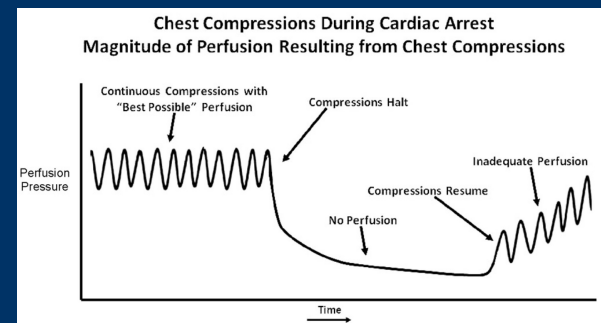


# Stop compressions

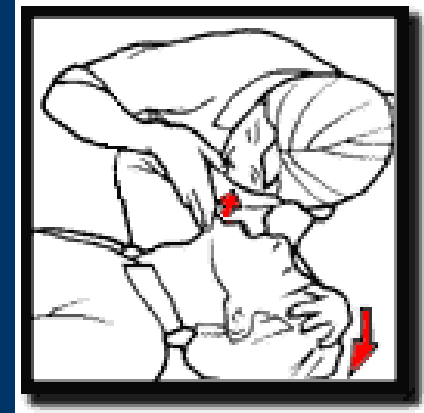
2 rescue breath

(AED to check the rhythm and to defibrilate)

There is no routine „halt“ to check restorations of life.

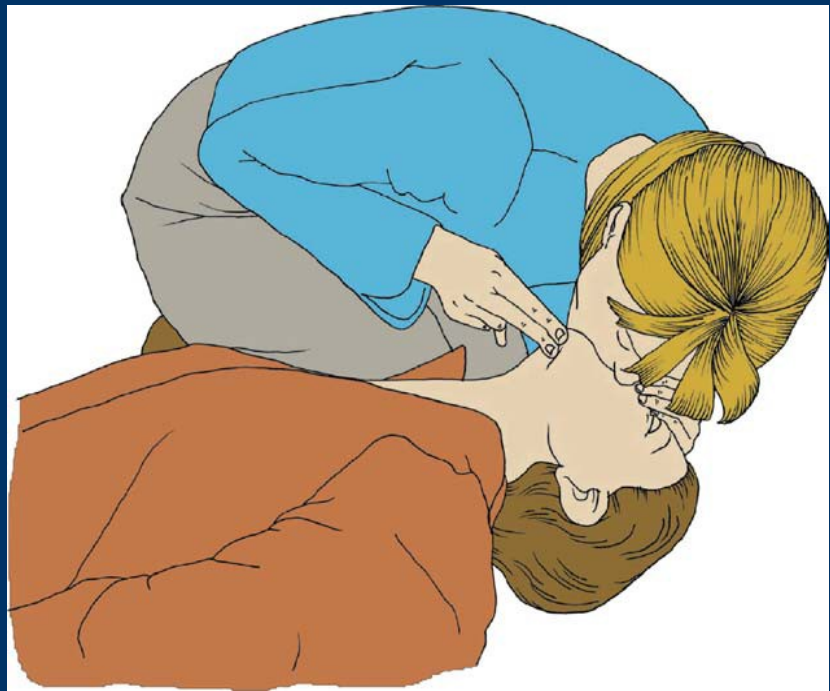
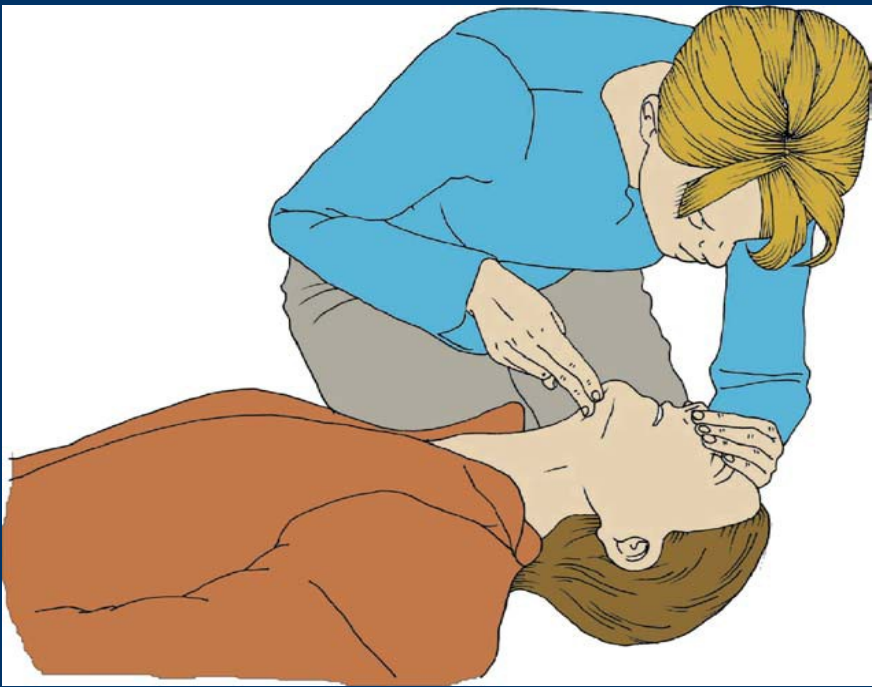


# *mouth-to-mouth breathing*



1. Knee beside the head of casualty.
  2. Keep the casualty's head tilted back.
  3. Pinch the casualty's nostrils with your fingers
  4. Lift the jaw forward with your other hand.
  5. Take a normal breath and open your mouth wide.
  6. Place your mouth firmly over the casualty's mouth making an airtight seal.
  7. Breathe into the casualty's mouth.
  8. Remove your mouth and turn your head to **observe the chest fall** and listen or feel for exhaled air.
  9. If the chest does not rise and fall, check head tilt position first, then check for and clear foreign objects in the airway.
  10. Give 2 breaths, then go back to 30 compressions
- 
-





# *Mouth to nose*

- the victim's mouth is seriously injured
- cannot be opened,
- the rescuer is assisting a victim in the water,
- a mouth-to-mouth seal is difficult to achieve.

There is no published evidence on the safety, effectiveness or feasibility of mouth to-tracheostomy ventilation, but it may be used for a victim with a tracheostomy tube or tracheal stoma

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## *3 things are the most important:*

- Compressions
- Compressions
- Compressions



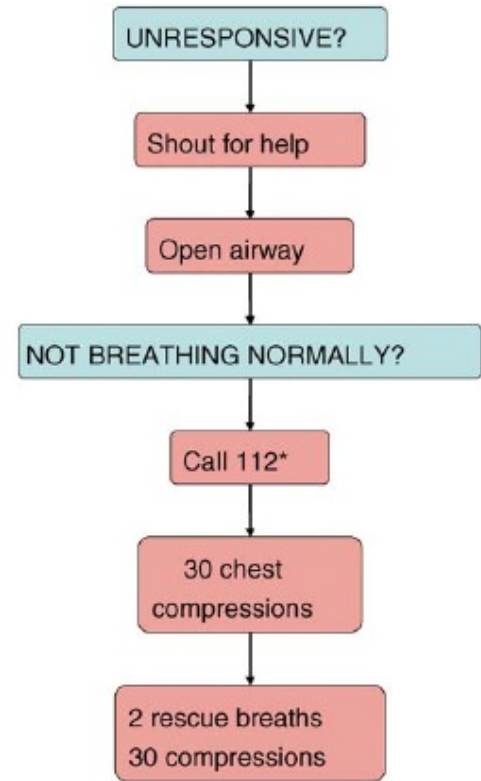
# BLS

## When to start BLS:

- always when victim is unconsciousness, no breath

## When not to start:

- end stage disease, no prognosis
- trauma with no hope for life (decapitation)
- signs (indication) of death (patch)
- time factor (15 – 30 minutes from stop of circulation)





## *When ...*

When to stop CPR:

- restoring vital functions  
(normal breathing, movement) → recovery pos.
- EMS takes care of victim
- no power to continue with CPR
- new danger



# *Do not stop BLS*

compression only / 30:2  
... continue ...

Stop to recheck the victim only if he starts breathing normally; otherwise do not interrupt resuscitation.



# *Risk to the rescuer*

The safety of both rescuer and victim are paramount during a resuscitation attempt.

There have been few incidents :

- tuberculosis,
- meningitis
- severe acute respiratory distress syndrome (SARS)



# *Risk to the rescuer*

Transmission of HIV nor Hepatitis has never been reported.

Barrier devices with one-way valves, prevent oral bacterial transmission from the victim to the rescuer during mouth-to-mouth ventilation.





# Barrier Devices



Can increase dead space  
can increase resistance of airways

Can protect you  
can **increase will to ventilate**

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# „*Top-less*“

Chest-compression-only CPR may be used as follows:

- If you are not able or are unwilling to give rescue breaths, give **chest compressions** only continuous, at a rate of  $100 \text{ min}^{-1}$

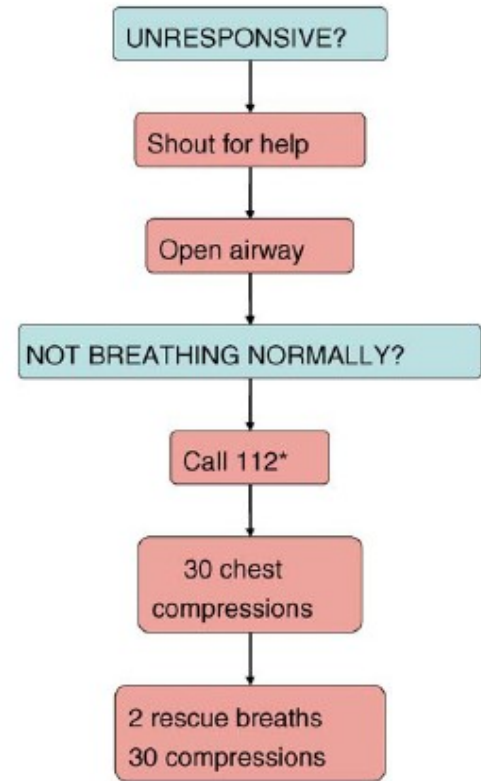


# *Precordial thump*

Not part of BLS reserved :

- witnessed cardiac arrest when no defibrillator is immediately available

## Adult basic life support



# *Emergency Call*



Introduce yourself

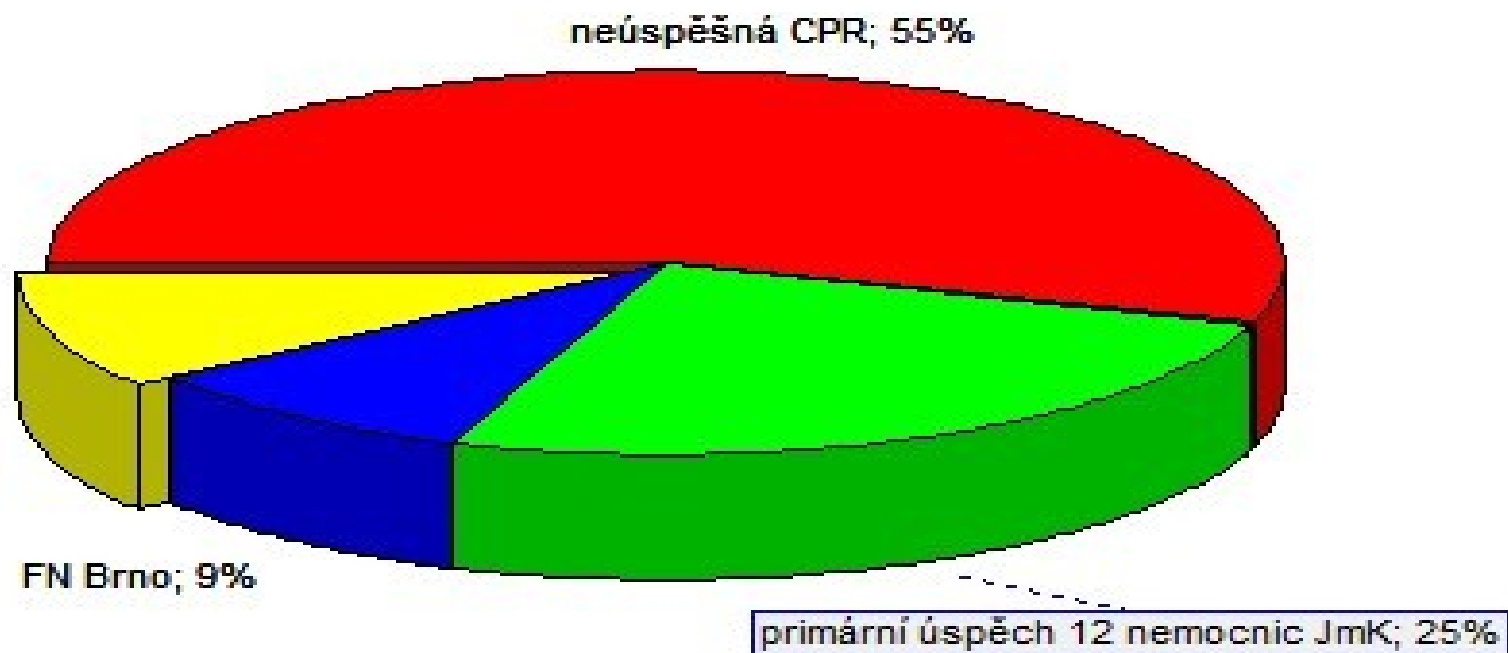
- Where
- what
- when
- how many
- severity of injuries
- **Do not hang up!!**

155 (112)



# EMS Brno 2008..2009

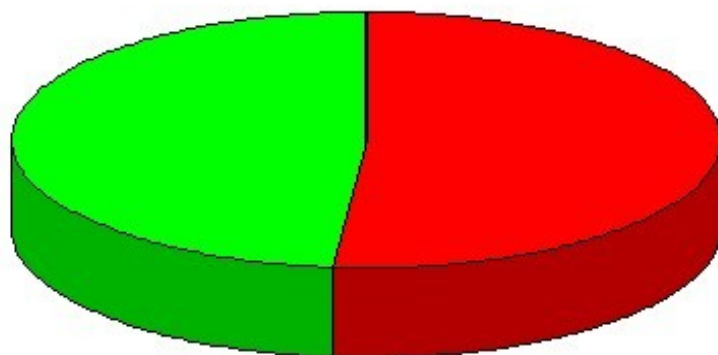
Výjezdy RZP spojené s resuscitací



# First aid before arrival

BLS před příjezdem RZP

Ano; 49%



Ne; 51%

Vliv laické resuscitace na přežití komorové fibrilace

