

CPR

Katarina Zadrazilova, FN Brno, September 2011

First aid - literature

- Lectures + practice
- First aid manual 9th revised edition
- European resuscitation council guidelines for resuscitation 2010
www.erc.edu



Cardiopulmonary resuscitation



The top 5 causes of death

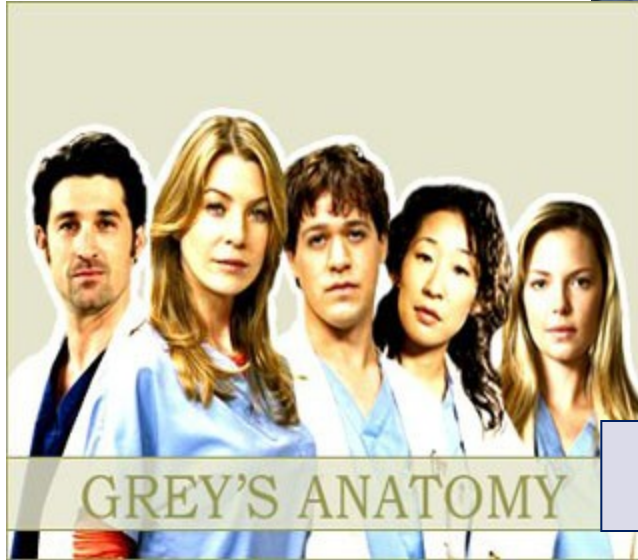
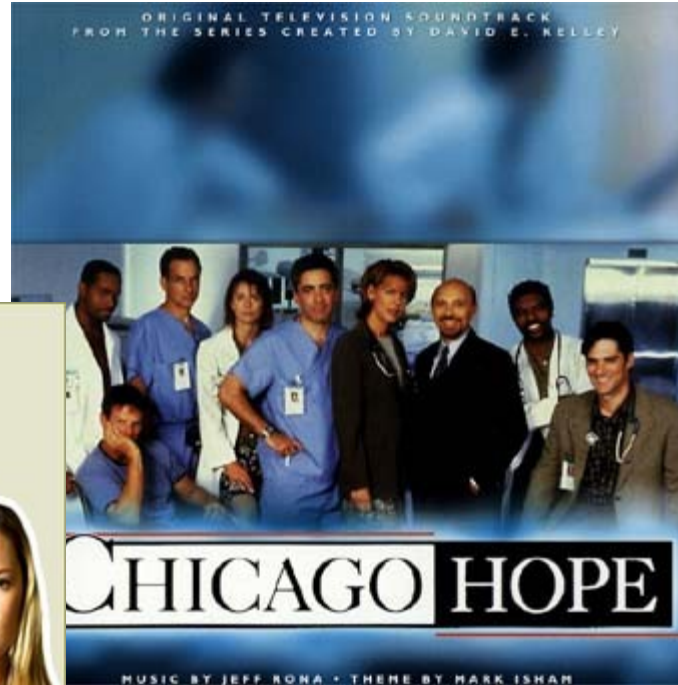
1. **Ischemic heart disease**
2. Cancer
3. Stroke
4. Chronic lower respiratory disease
5. Accidents



Ischemic heart disease

- Sudden cardiac arrest is a leading cause of death in Europe
- 700 000 Europeans a year
- 40 % of SCA victims have VF
- Immediate CPR can double or triple survival

ER



CPR Success rate 77 % !

...reality only 25%

Overview

- Adult **Basic Life Support** sequence
- Foreign-body airway obstruction/choking

- Airway management
- Ventilation

Basic life support

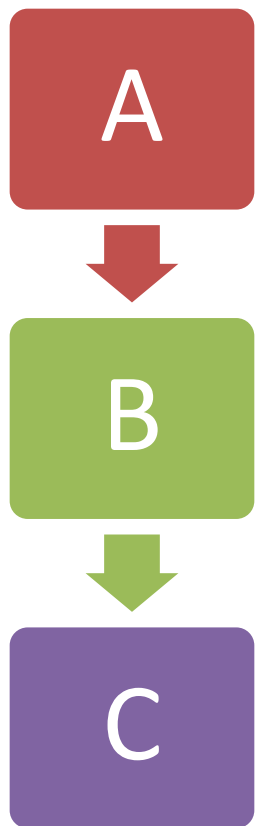
Maintaining airway patency and supporting breathing and the circulation without the use of equipment other than a protective device



Chain of survival

- Early recognition
- Early bystander CPR
- Early defibrillation
- Early Advanced life support





SAFE?



UNRESPONSIVE ?



SHOUT FOR
HELP

Make sure the victim and bystanders are safe



OPEN AIRWAY



NOT BREATHING NORMALY ?



CALL 112



30 CHEST
COMPRESSIONS



2 RESCUE BREATHS,
30 COMPRESSIONS

SAFE?



UNRESPONSIVE ?



SHOUT FOR HELP



AIRWAY



BREATHING NORMALLY ?



CALL 112



CHECK FOR BREATHS AND PULSES



GIVE BREATHS AND COMPRESSIONS

ARE YOU ALL RIGHTH ?
JSTE V POŘÁDKU ?



SAFE?



UNRESPONSIVE ?



SHOUT FOR HELP



AIRWAY



BREATHING NORMALLY ?



CALL 112

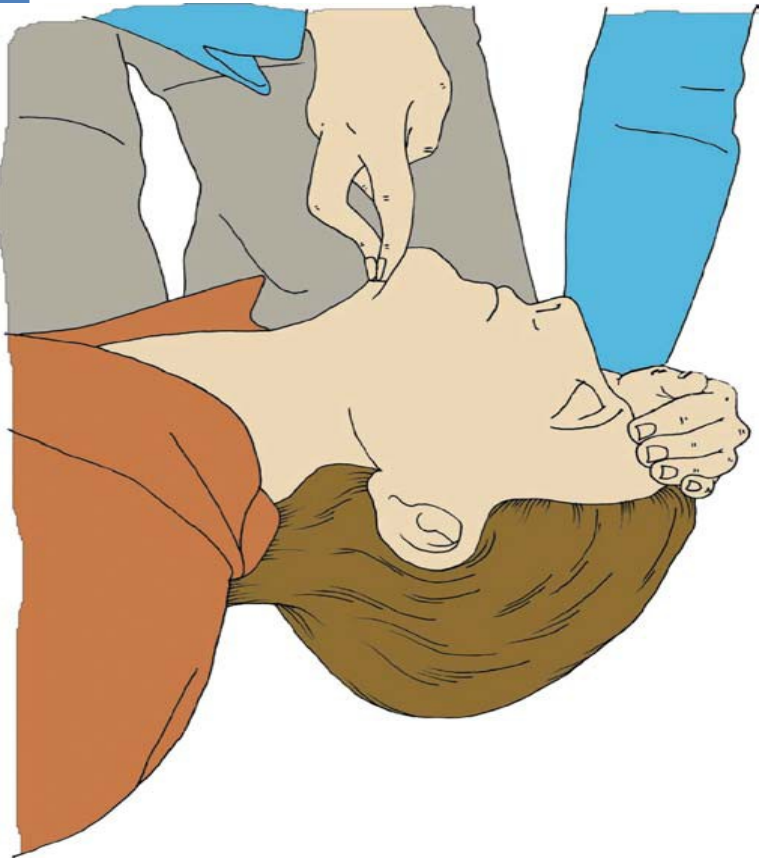
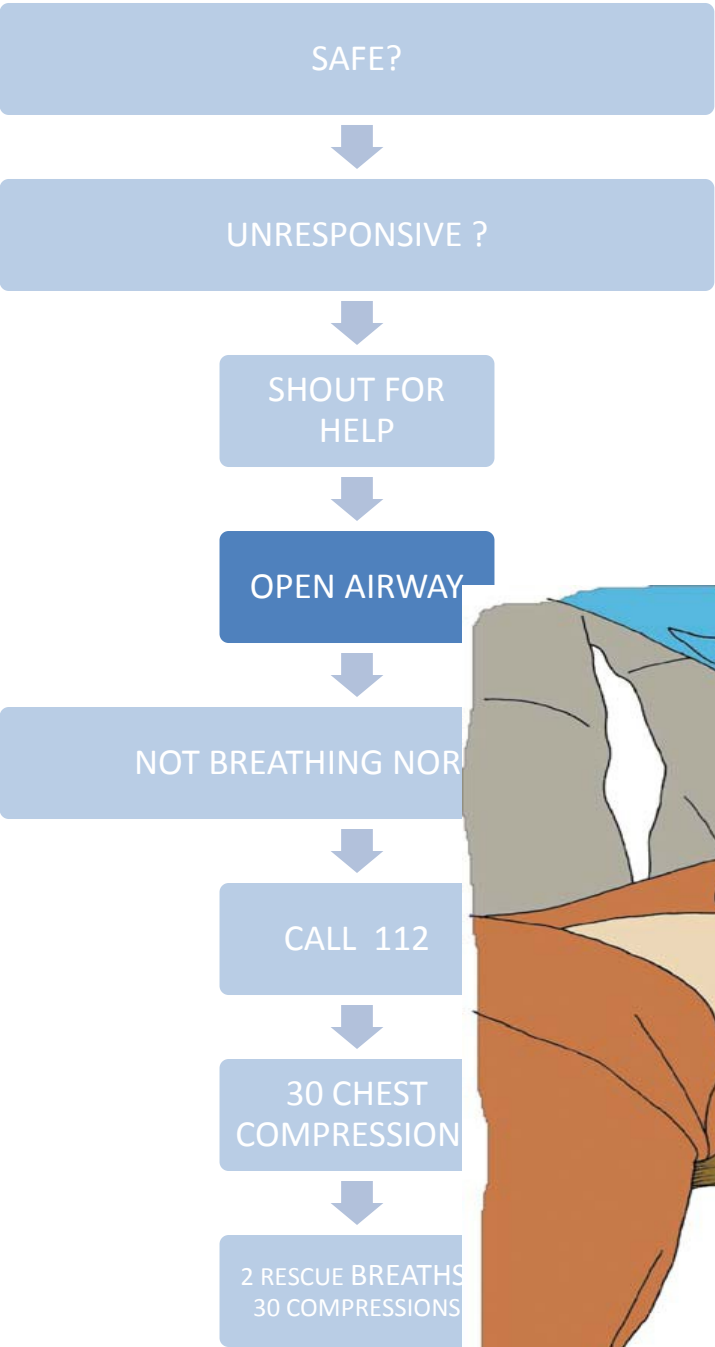


START CHEST COMPRESSIONS



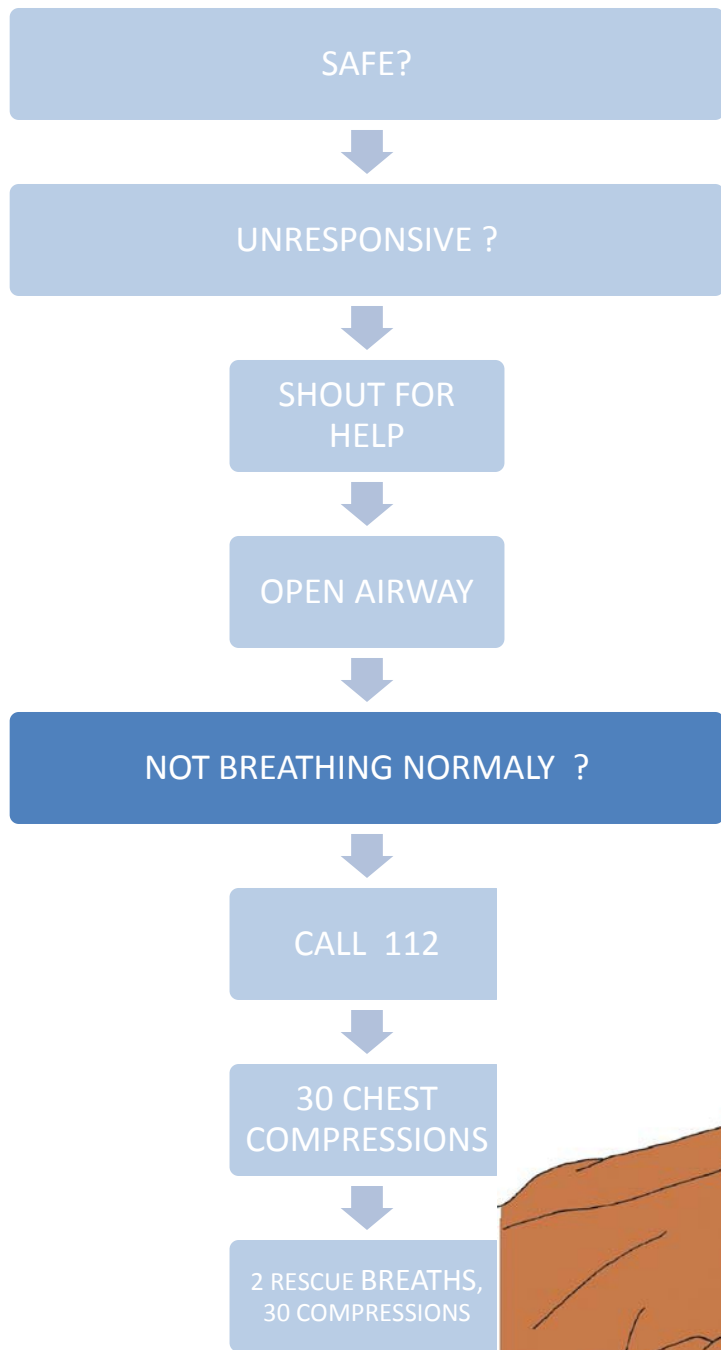
GIVE 30 BREATHS, 2 COMPRESSIONS





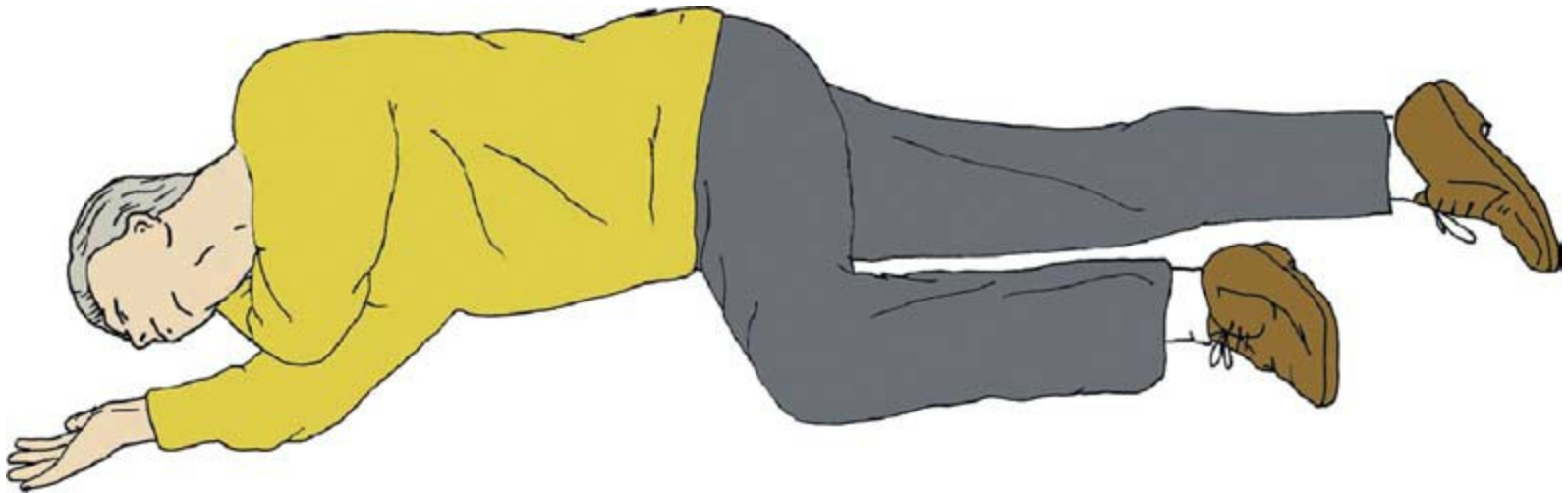
HEAD TILT
CHIN LIFT

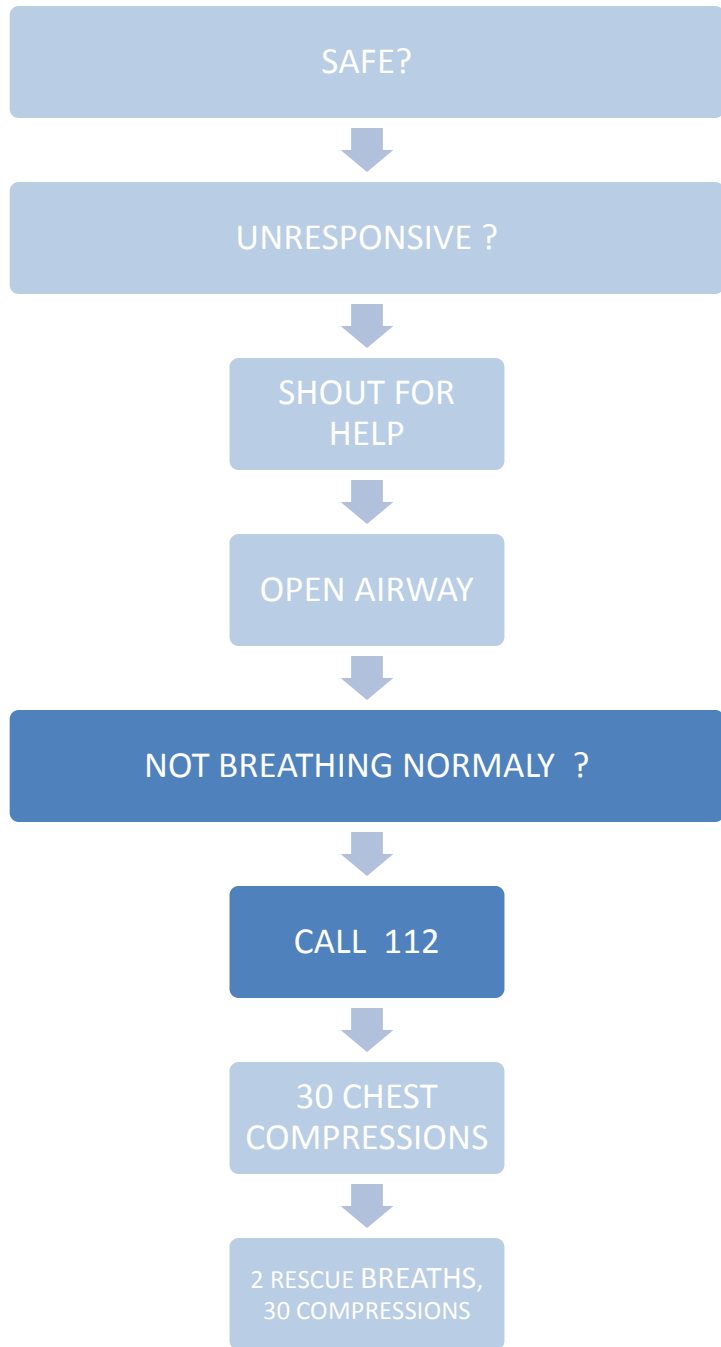
10 SEC
LOOK
LISTEN AND
FEEL



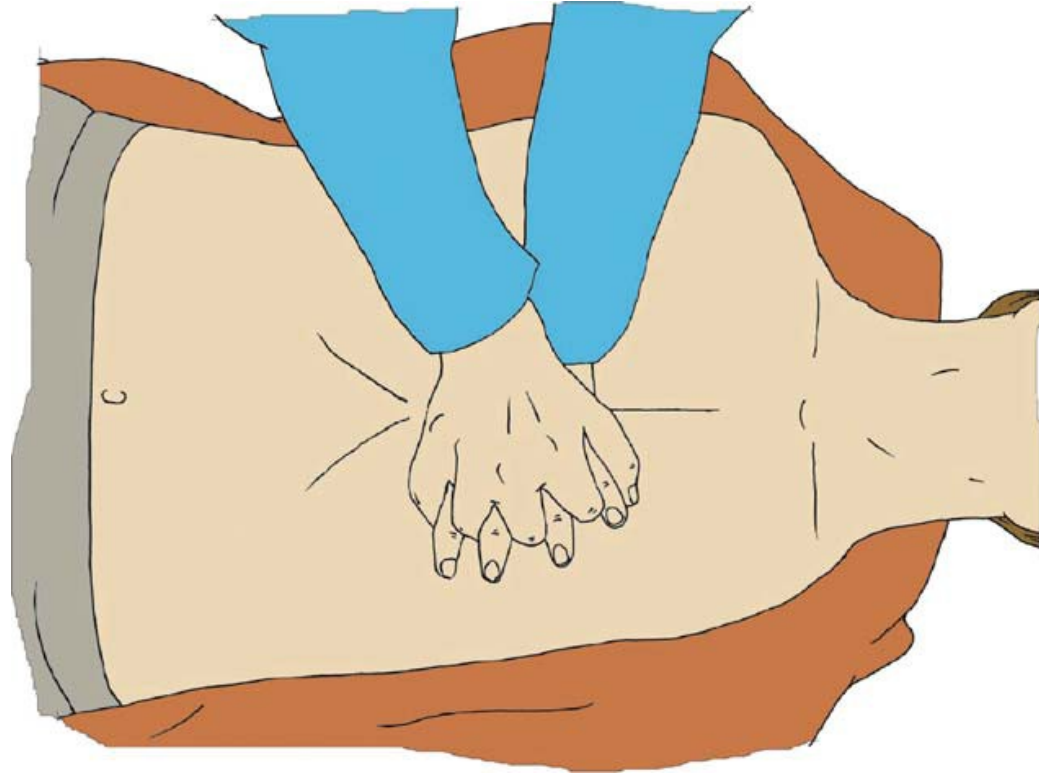
- If breathing normally

Turn to recovery position and get help





SAFE?



CALL 112



30 CHEST
COMPRESSIONS



2 RESCUE BREATHS,
30 COMPRESSIONS

SAFE?



UNRESPONSIVE ?



SHOUT FOR HELP



OPEN AIRWAY



NOT BREATHING



CALL

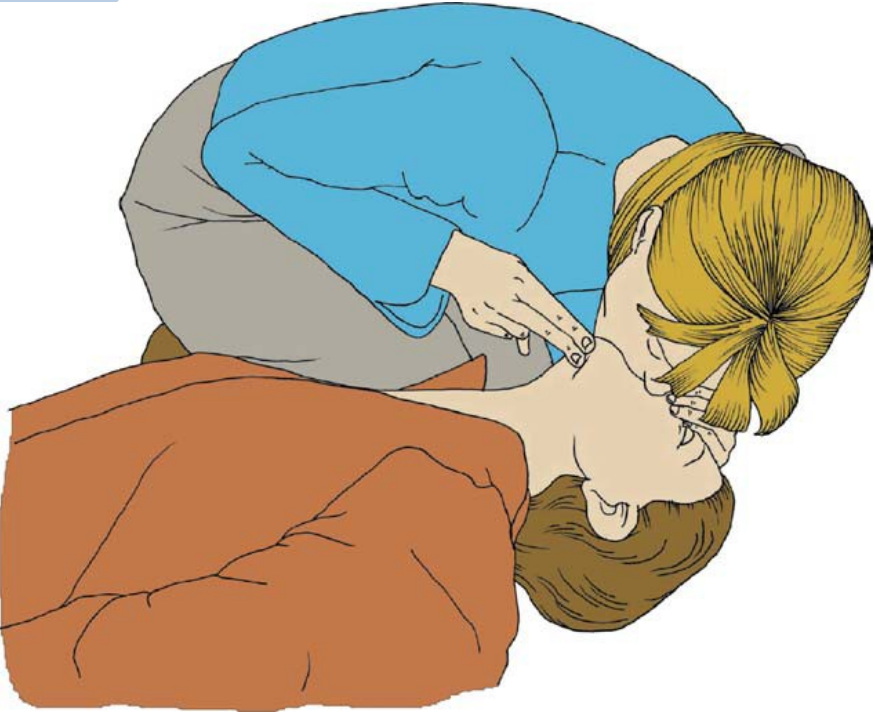


30 CH
COMPRES



2 RESCUE BREATHS,
30 COMPRESSIONS

2 EFFECTIVE RESCUE BREATHS
CONTINUE CPR
RATIO 30 : 2



When to stop CPR

- Qualified help arrives and takes over
- The victim starts to breath normally
- You become exhausted

SAFE?



UNRESPONSIVE ?



SHOUT FOR HELP



OPEN AIRWAY



NOT BREATHING NORMALY ?




CALL 112



30 CHEST COMPRESSIONS



2 RESCUE BREATHS, 30
COMPRESSIONS



FOREIGN BODY AIRWAY OBSTRUCTION

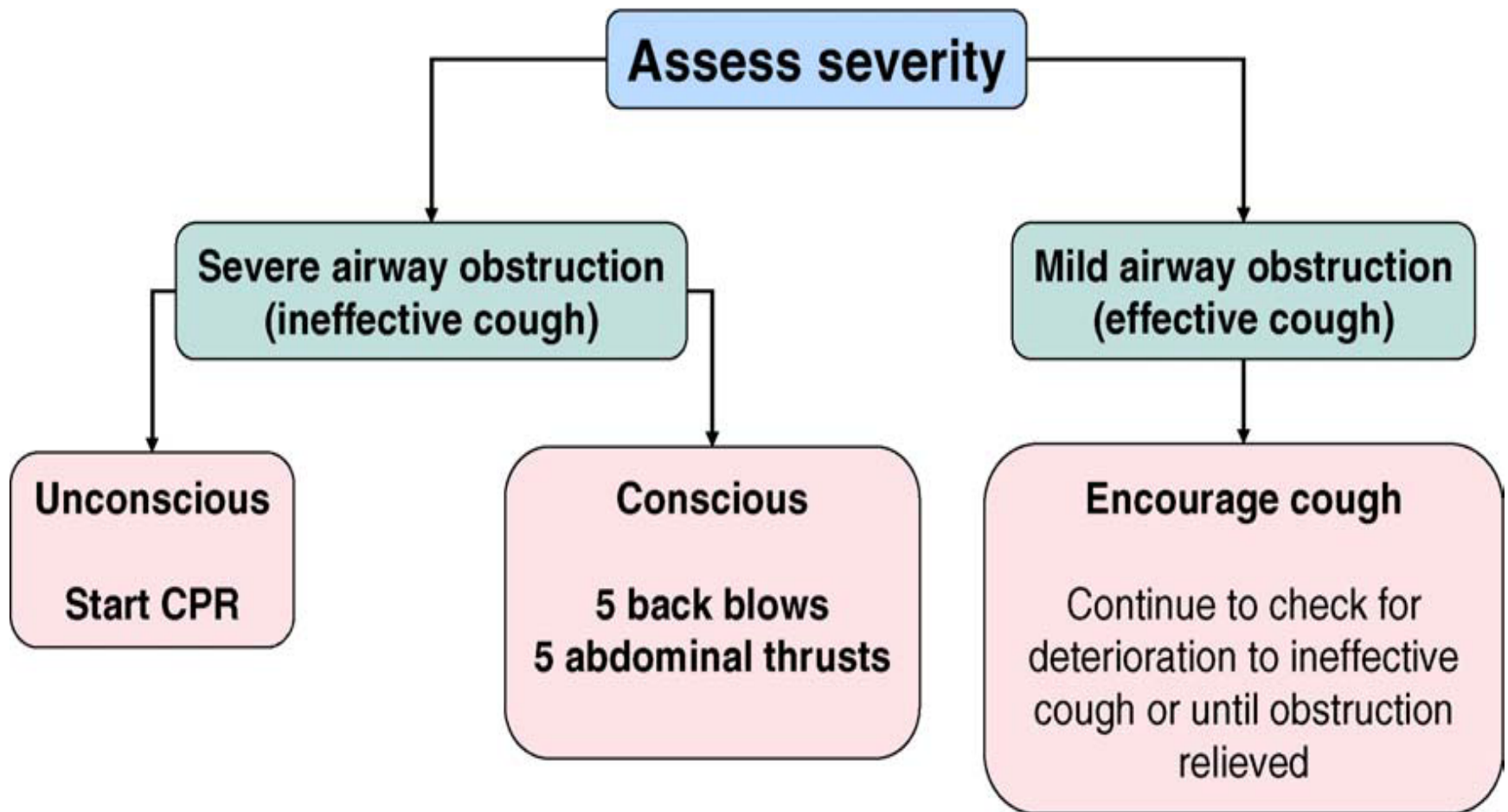
Foreign body airway obstruction

Causes of choking

- adults: fish, poultry
- kids: sweets, peanuts



Adult FBAO Treatment



Up to 5 sharp back blows



Abdominal thrusts



Up to 5 times, then alternate 5 back blows - 5 abdominal thrusts

If unconscious – start CPR with chest compressions

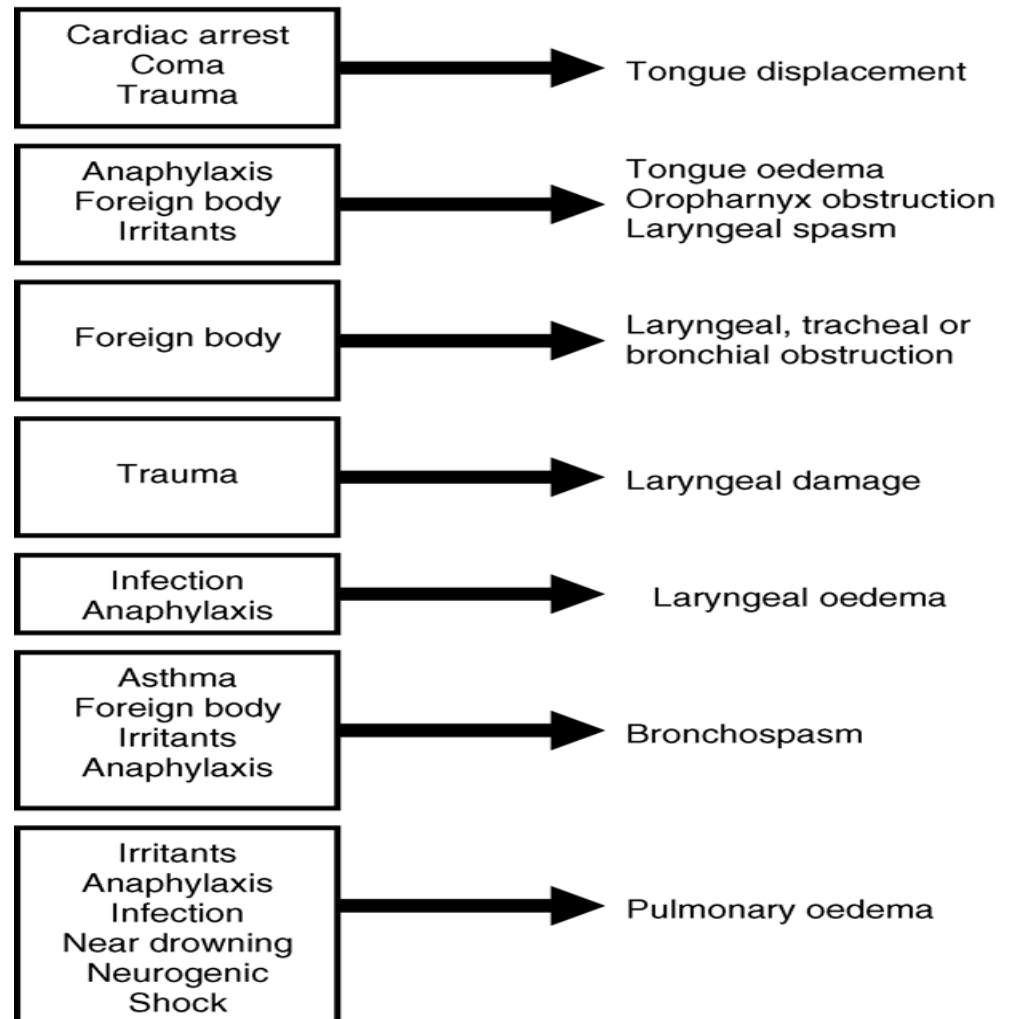
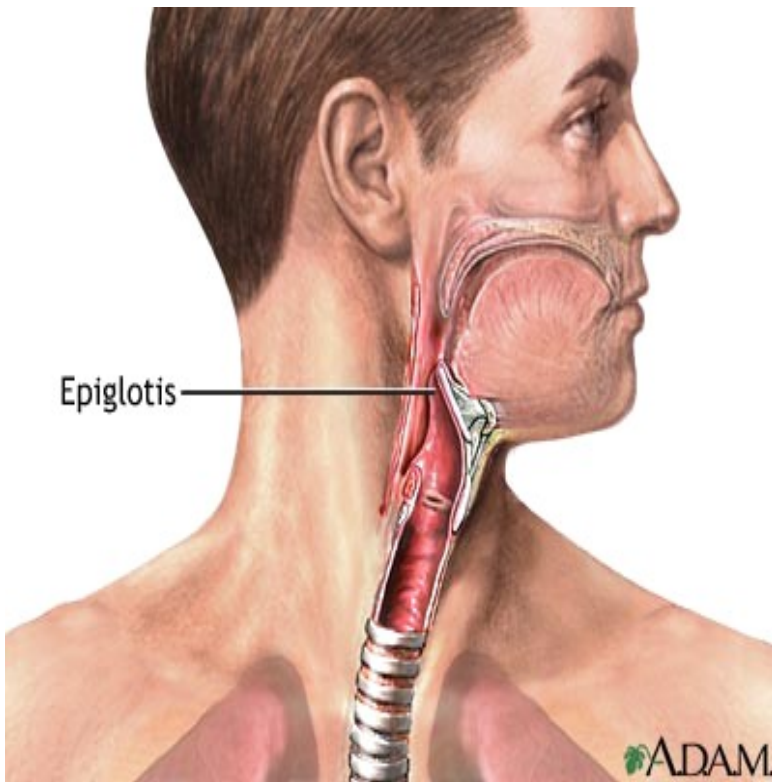


AIRWAY MANAGEMENT AND VENTILATION

A for Airway

- Patients with cardiorespiratory arrest often have an obstructed airway
- Prompt control of the airway is essential to prevent secondary hypoxic damage to the brain and without oxygenation it may be impossible to restore spontaneous cardiac output

Causes of the airway obstruction



Recognition of airway obstruction

LOOK, LISTEN AND FEEL

Partial obstruction

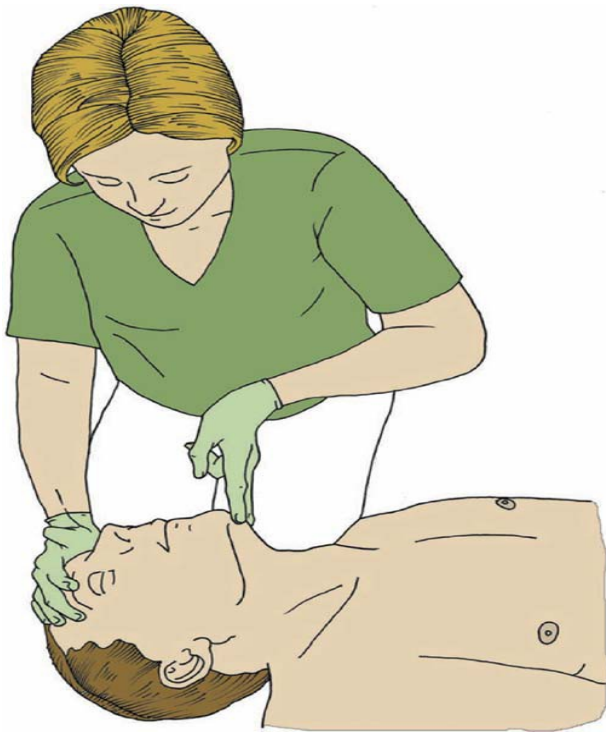
- Stridor obstruction above larynx
- Wheeze lower airway
- Gurgling semisolid/liquid FB
- Snoring soft palate/epiglottis
- Crowing laryngeal spasm

Recognition of airway obstruction

Complete obstruction

- Look for paradoxical chest and abdominal movement – 'see-saw breathing'

Basic airway management



Head tilt chin lift



Jaw thrust

Airway management with suspected cervical spine injury



Manual in line stabilization

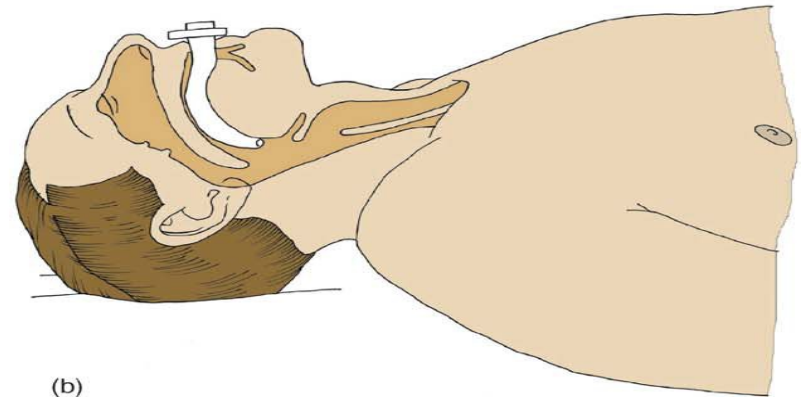
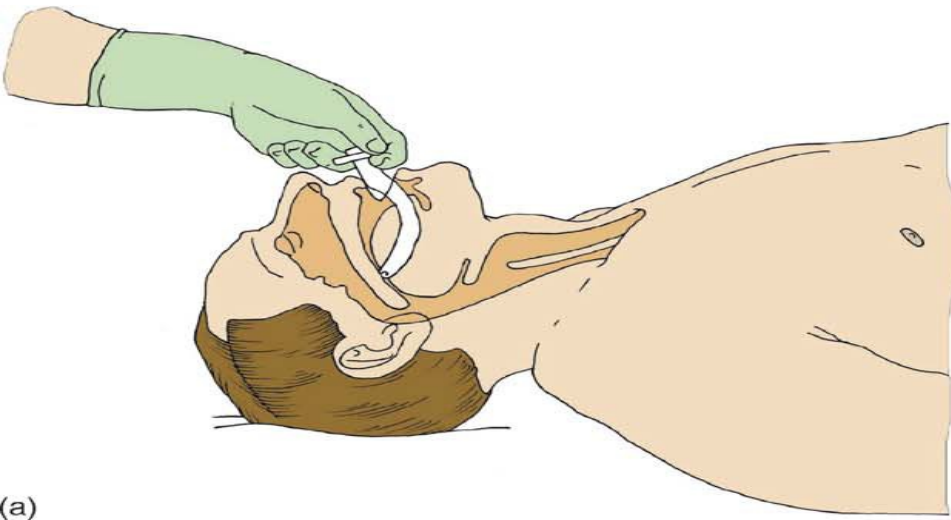
Airway adjuncts

- Oropharyngeal airways
 - Better in comatose patients
- Nasopharyngeal airways
 - Better tolerated by patient
 - Can cause nose bleed



CAREFUL! Both can cause airway obstruction !

Airway adjuncts



Insertion of oropharyngeal airway

Oxygen

- Give oxygen whenever it is available

More O₂ for brain

Type of oxygenation	Oxygen concentration
Mouth to mouth	16 %
Face mask	Up to 50%
Face mask with reservoir	Up to 85%

Alternative airway devices

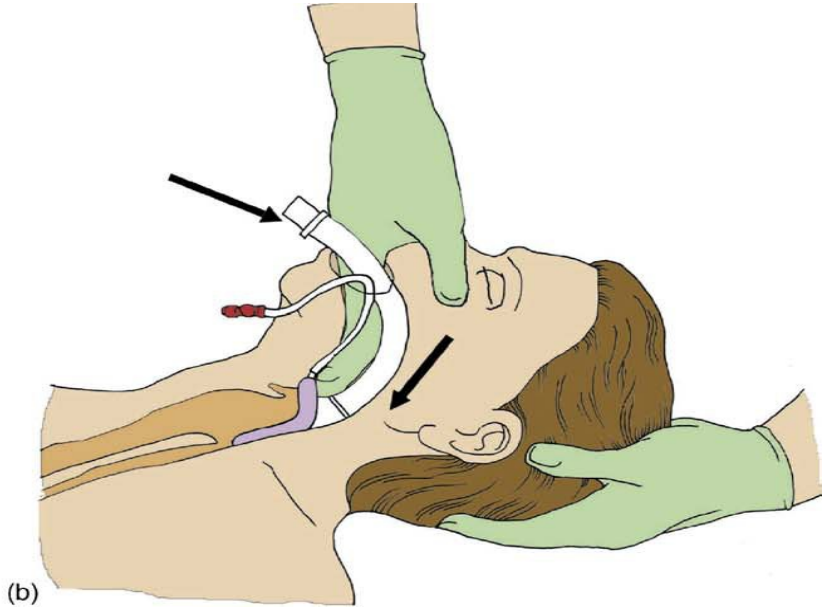
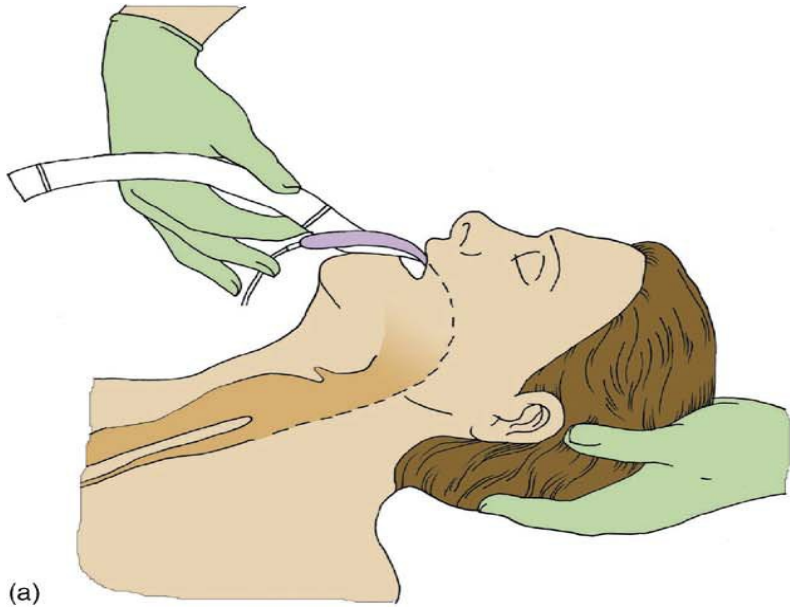
- High incidence of complications without adequate training and experience
- Best technique depends on the circumstances and competence of the rescuer

Alternative airway devices

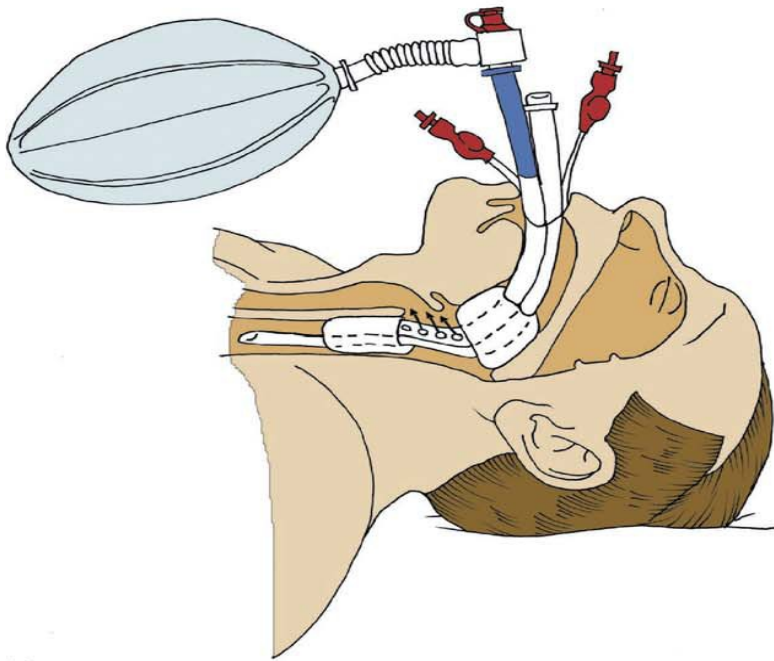
- Laryngeal mask airway
- Combitube
- Tracheal tube



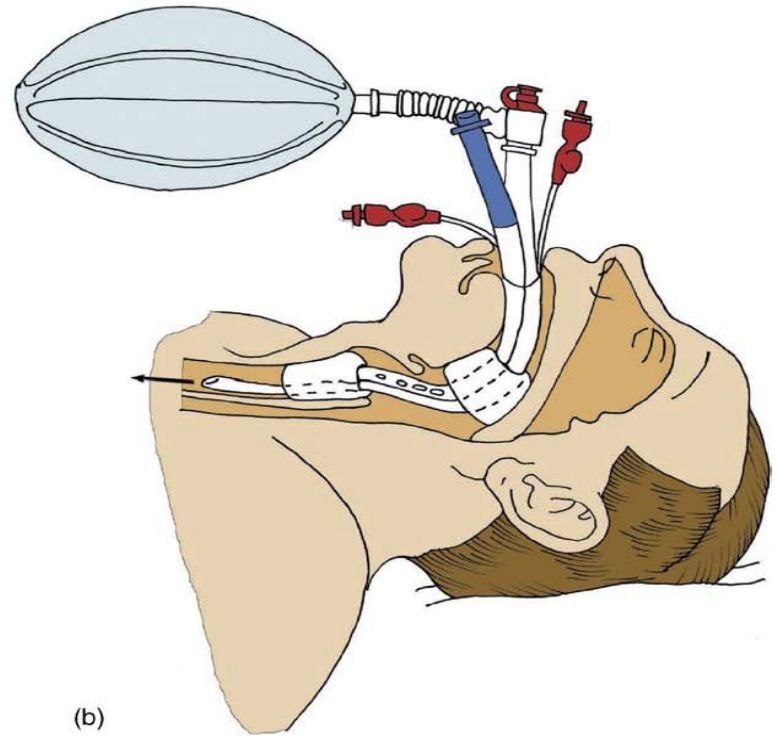
Laryngeal mask airway



Combitube

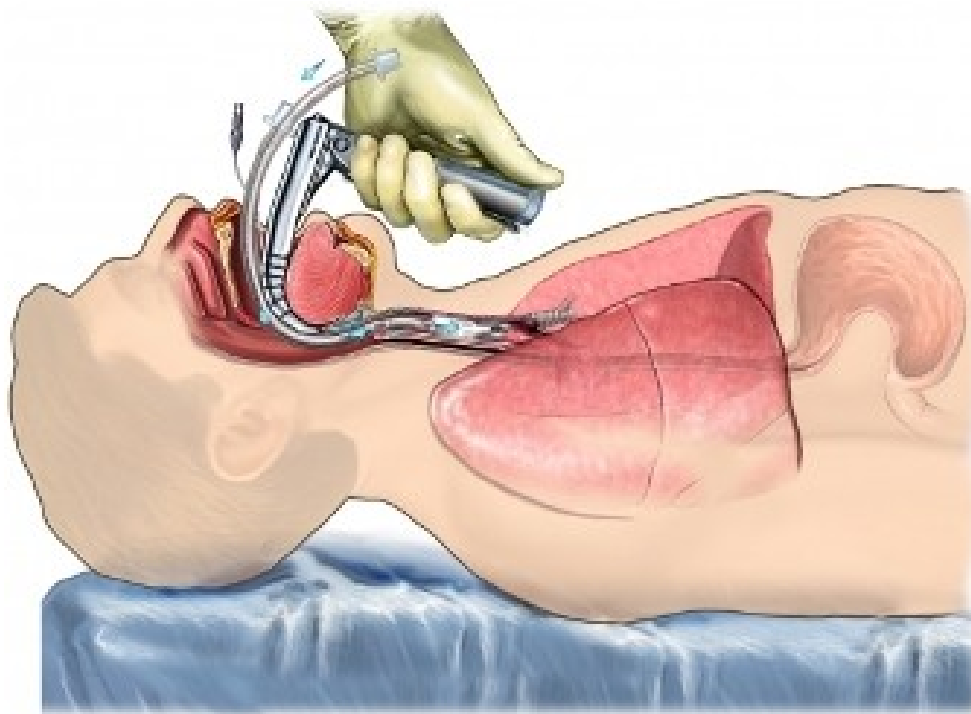


(a)



(b)

Gold standart - tracheal intubation

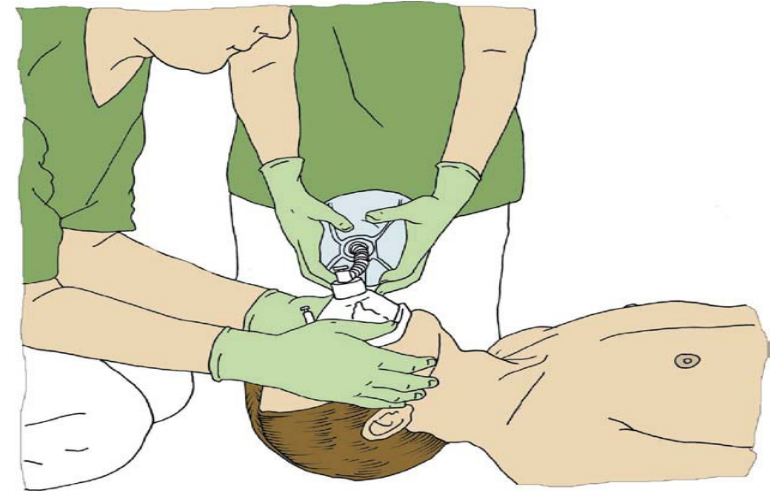


Gold standart - tracheal intubation

- **Advantages:**
 - Maintenance of patent airway
 - Protection from aspiration
 - Ability to ventilate reliably
 - Free the rescuers hands
 - Route for giving drugs
- **Disadvantages**
 - Unrecognised misplaces tracheal tube
 - Prolonged period without compressions

B for breathing

- Mouth to mouth
- Mouth to nose
- Mouth to protective device
- Using self inflating bag or ventilator



Ventilation

- Inspiration 1 sec
- Volume : enough to make the chest rise
 - Larger volumes lead to gastric inflation
- Once the tracheal tube is in place ventilate the lungs at a rate of 10 breaths/min and continue chest compressions without pausing during ventilation

SUMMARY

- Open the **airway**
- Look listen and feel for **breathing**
- Use airway adjuncts you're familiar with to enable ventilation
- Ventilation : chest compressions 2:30
Until airway protected, then
10 breaths / min and 100/min chest compressions

Questions ?