Basic Life Support

For Healthcare / Lay Rescuer

Cardio-Pulmonary Resuscitation

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EMERGENCY

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Yesterday's "Flying Ambulance" (Cabanes, Chirurgiens et Blesses a travers I' Histoire, Paris, 1918.)

Today's "Flying Ambulance"

THEN AND NOW

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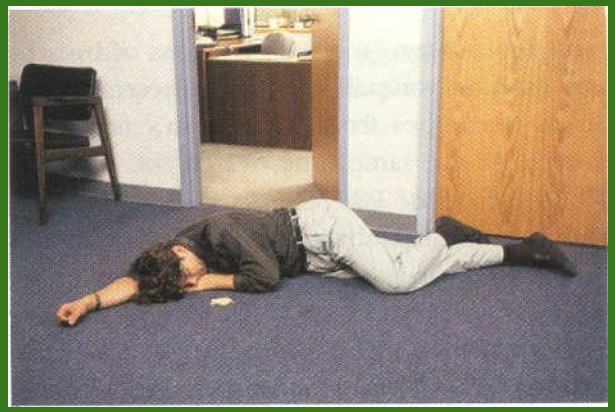
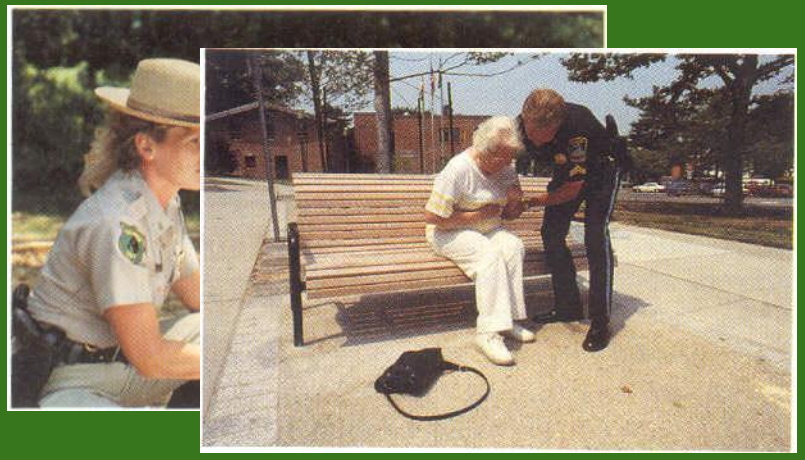
Pre-Hospital Scenarios





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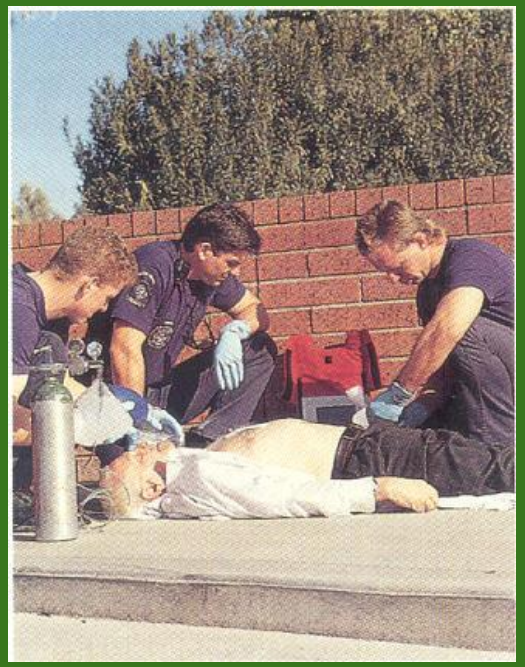

Pre-Hospital Scenarios

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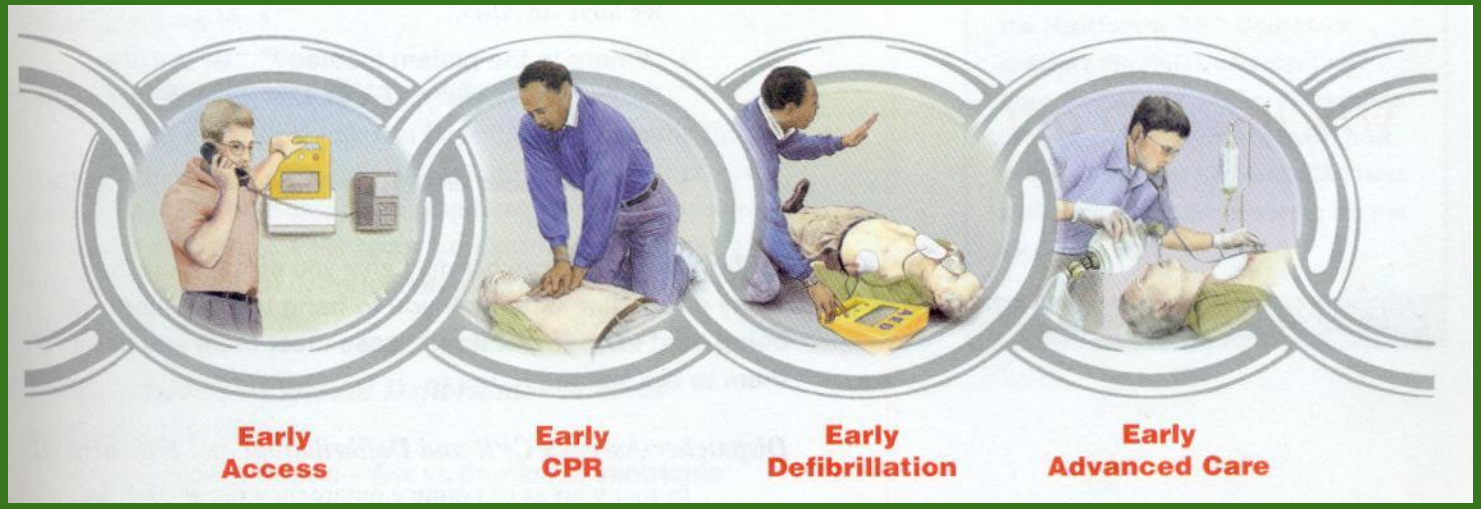
LIFE SUPPORT

- **Basic Life Support**, **an emergency procedure that consists of recognizing respiratory or cardiac arrest or both and the proper application of CPR to maintain life until a victim recovers or an advanced life support is made available**

LIFE SUPPORT

- **Advanced Life Support**, **the use of special equipment to maintain breathing and circulation for the victim of a cardiac emergency**
- **Prolonged Life Support**, **for post resuscitative and long term resuscitation**

Chain of Survival



Early Access **Early CPR** **Early Defibrillation** **Early Advanced Care**

Chain of survival

- **Early Access, It is the event after the patient collapses, until the arrival of the Emergency Medical Services personnel to provide care**

- **Early CPR, If started immediately after the victim collapsed, the probability of survival approximately doubles when it is initiated before the arrival of the EMS**

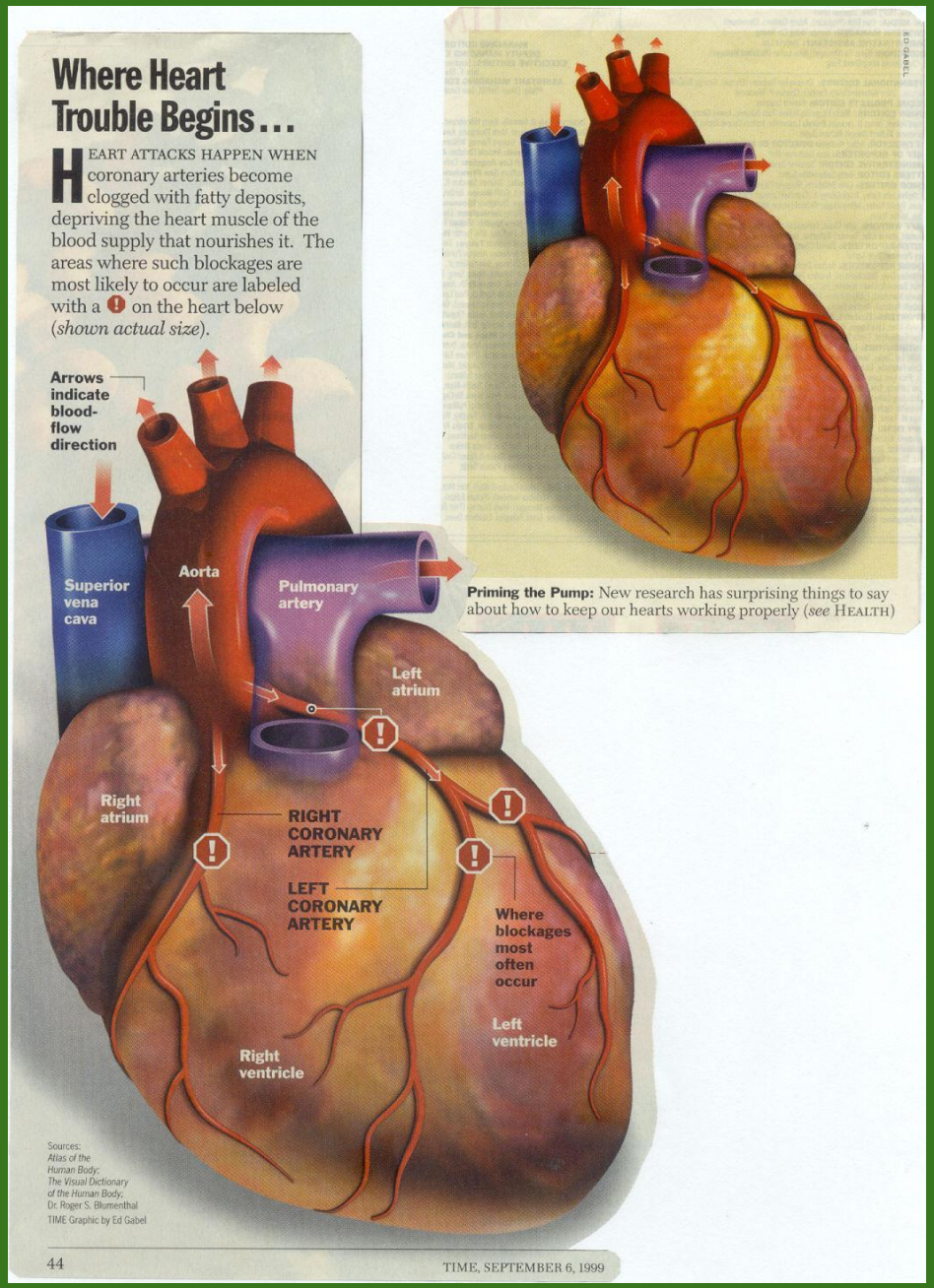
Chain of Survival

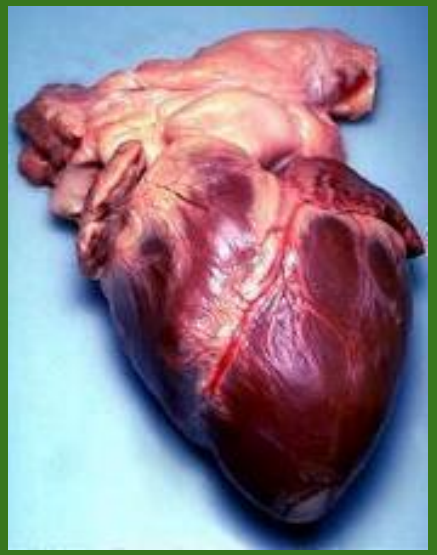
- **Early Defibrillation, It is most likely to improve survival. It is the key intervention to increase the chances of survival of patients of cardiac arrest in the pre-hospital setting.**

- **Early Advanced Care, If provided by highly trained personnel like paramedics, provision of advanced care outside the hospital would be possible**

BODY SYSTEMS

- **Respiratory System**, It delivers oxygen to the body, as well as removes carbon dioxide from the body. The passage of air into & out of the lungs is called respiration. Breathing in is called inspiration or inhaling. Breathing out is called expiration or exhaling.
- **Circulatory System**, It delivers oxygen and nutrients to the body's tissues and removes waste products. It consists of the heart, blood vessels and blood.





Human heart

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BODY SYSTEMS

- **Breathing & Circulation,**

Air that enters the lungs contain about 21% of Oxygen and only a trace of Carbon Dioxide.

Air that is exhaled from the lungs contain about 16% of Oxygen and 0.4% Carbon Dioxide

The right side of the heart pumps blood to the lungs where blood picks up oxygen and releases carbon dioxide.

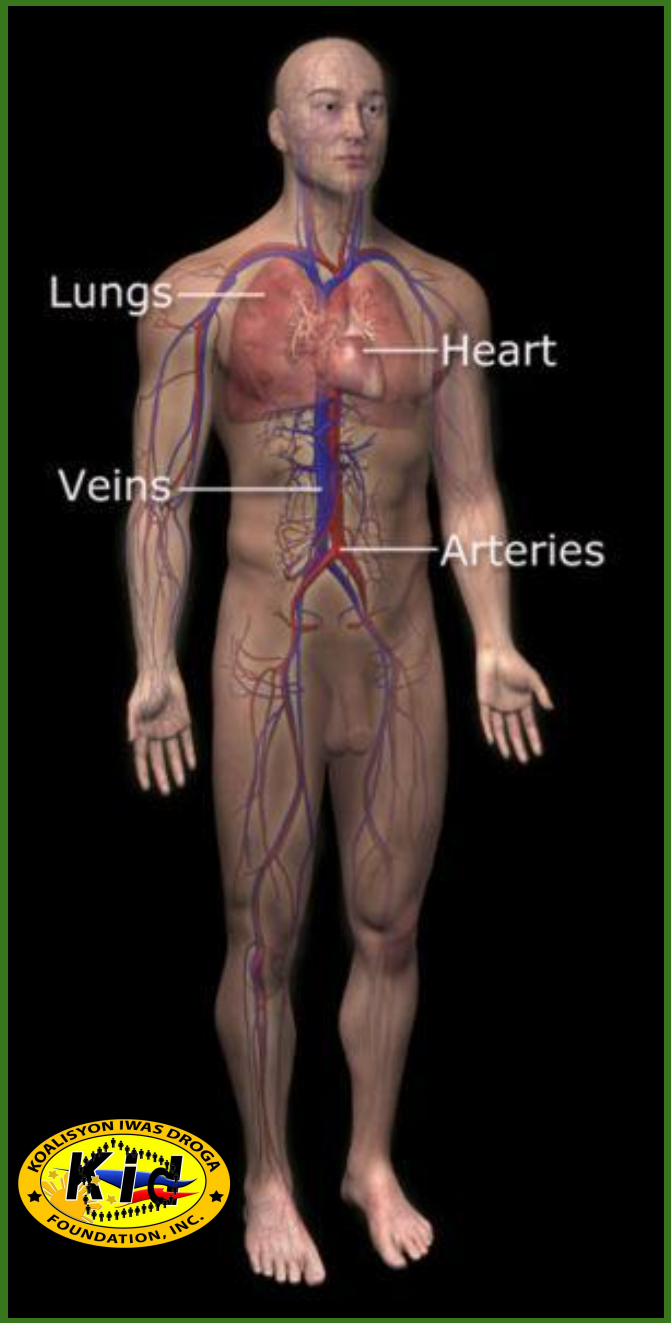
BODY SYSTEMS

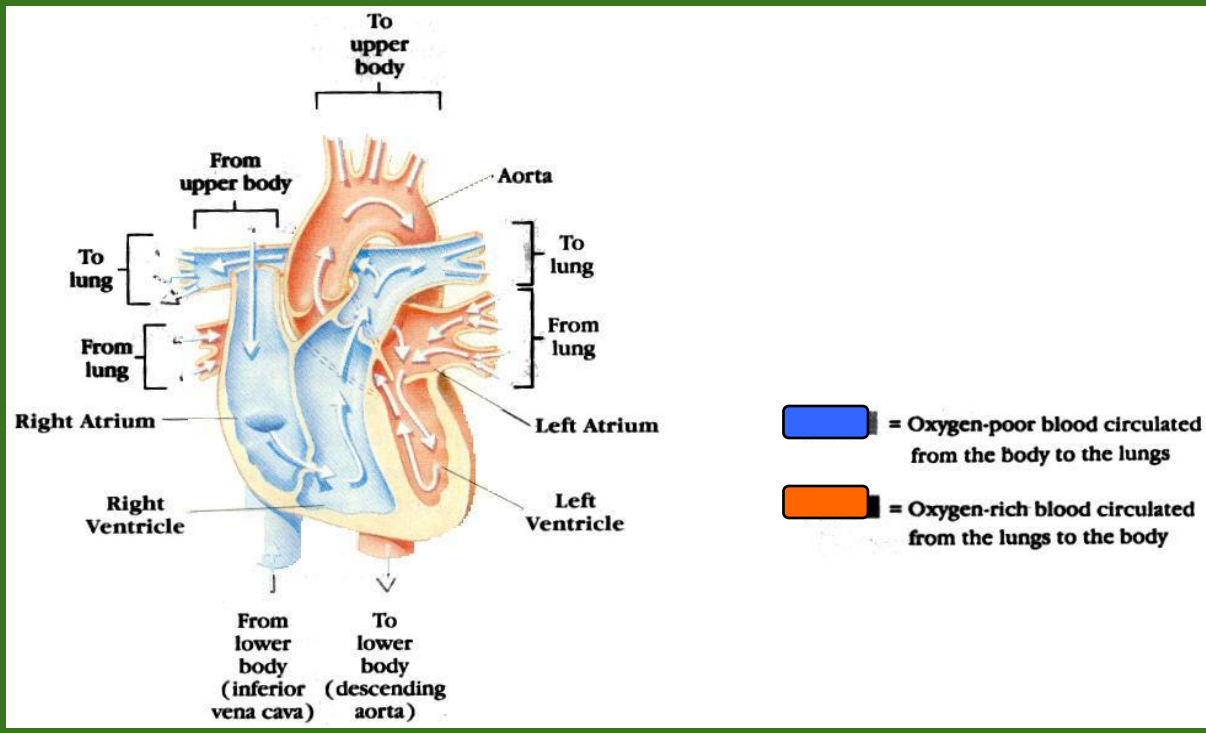
- **Breathing & Circulation,**

The oxygenated blood then returns to the left side of the heart, where it is pumped to the tissues of the body.

In the body tissues, blood releases oxygen and takes up carbon dioxide after which it flows back to the right side of the heart.

All body tissues require oxygen, but the brain requires more than any other tissue.





Heart And Lungs

BODY SYSTEMS

- **Breathing & Circulation,**
  When breathing and circulation stop, this is called clinical death where within
  0-4 minutes, brain damage not likely to occur,
  4-6 minutes, brain damage is probable
  When the brain has been deprived of oxygenated blood for a period of 6 minutes or more an irreversible damage to brain tissues would probably occur. **This is called biological death.**

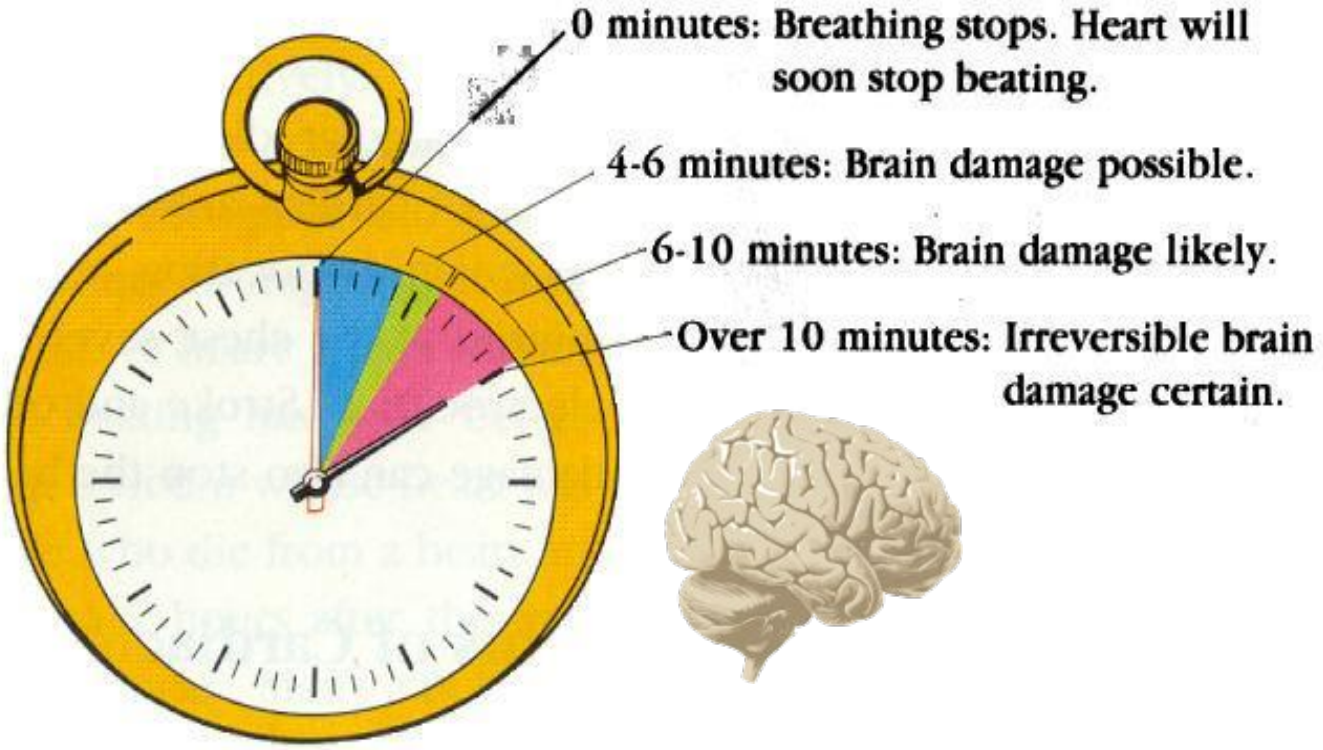


Figure 7-6 Clinical death is a condition in which the heart and breathing stop. Without resuscitation, clinical death will result in biological death. Biological death is the irreversible death of brain cells.

BODY SYSTEMS

- Breathing & Circulation,

6-10 minutes, brain damage is probable

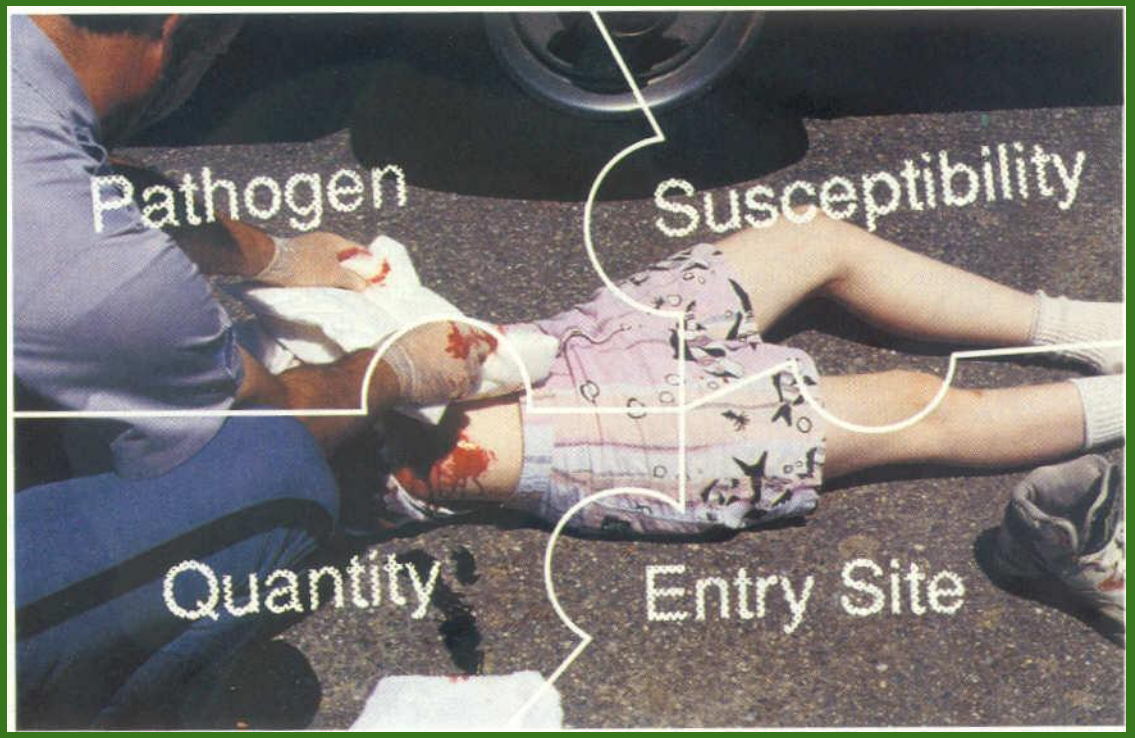
Over 10 minutes, brain damage is certain.

It is obvious from the above stated facts that both respiration & circulation are required to ma life.

BODY SYSTEMS

- Nervous System, It is composed of the brain, spinal cord and nerves. It has two major functions – Communication & Control . It lets a person be aware of and react to the environment. It coordinates the body's responses to stimuli and keeps body systems working together.

YOU & YOUR ENVIRONMENT



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Disease Transmission

A. Direct Contact

B. Indirect Contact

C. Airborne Transmission

D. Vector Transmission

Precautions to Prevent Disease Transmission

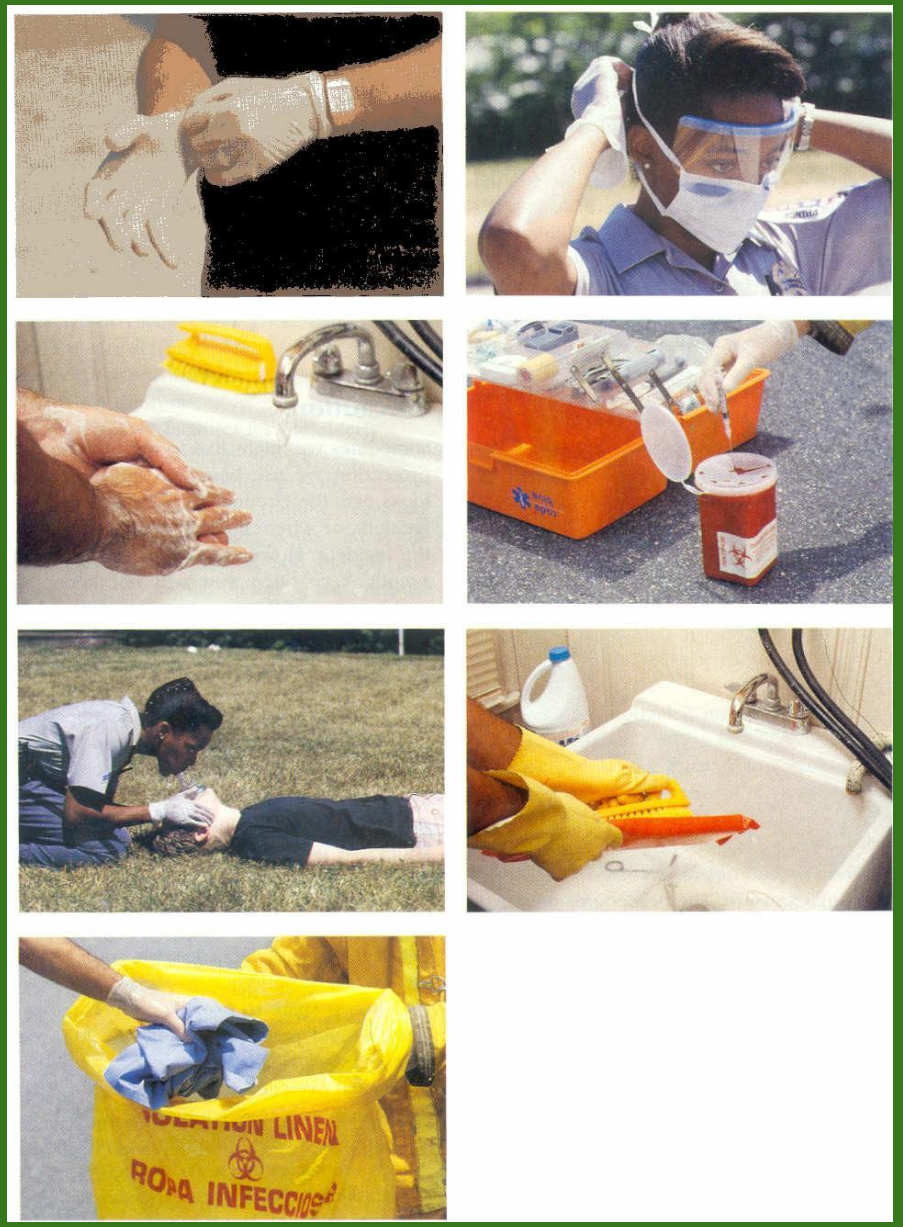
Body Substance Isolation Precaution,

are measures taken to prevent risk of exposure from any other type of bodily substance.

Basic Precautions and Practices,

1. Personal Hygiene
2. Personal Protective Clothing
3. Cleaning & Disinfecting

Basic Precautions and Practices



Cardio Vascular Disease

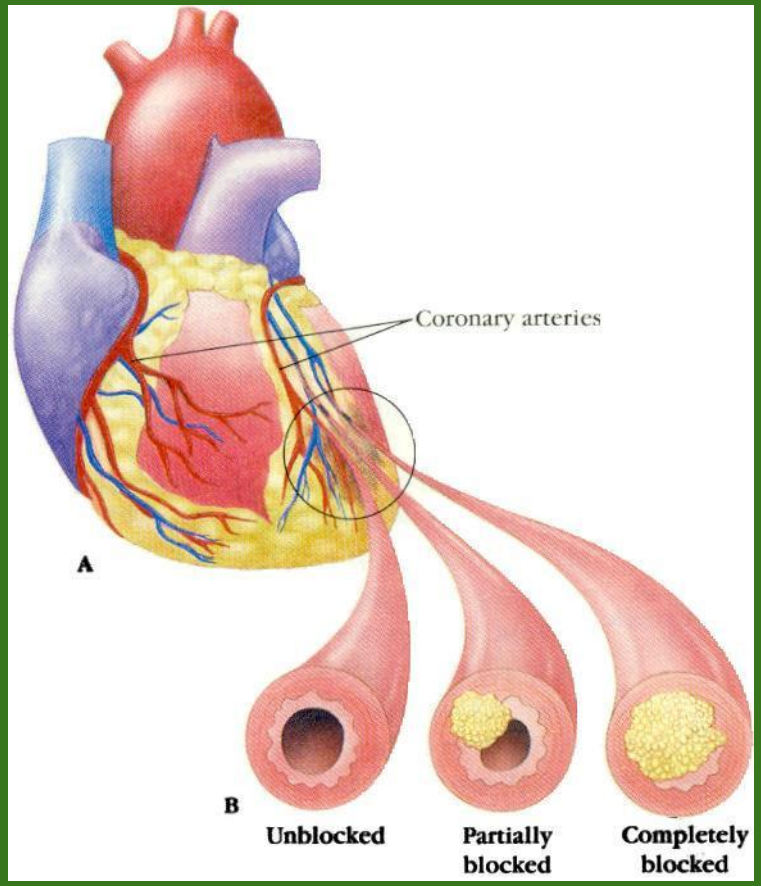
- Risk Factors that can not be changed

1.Heredity 2. Age 3. Sex / Gender

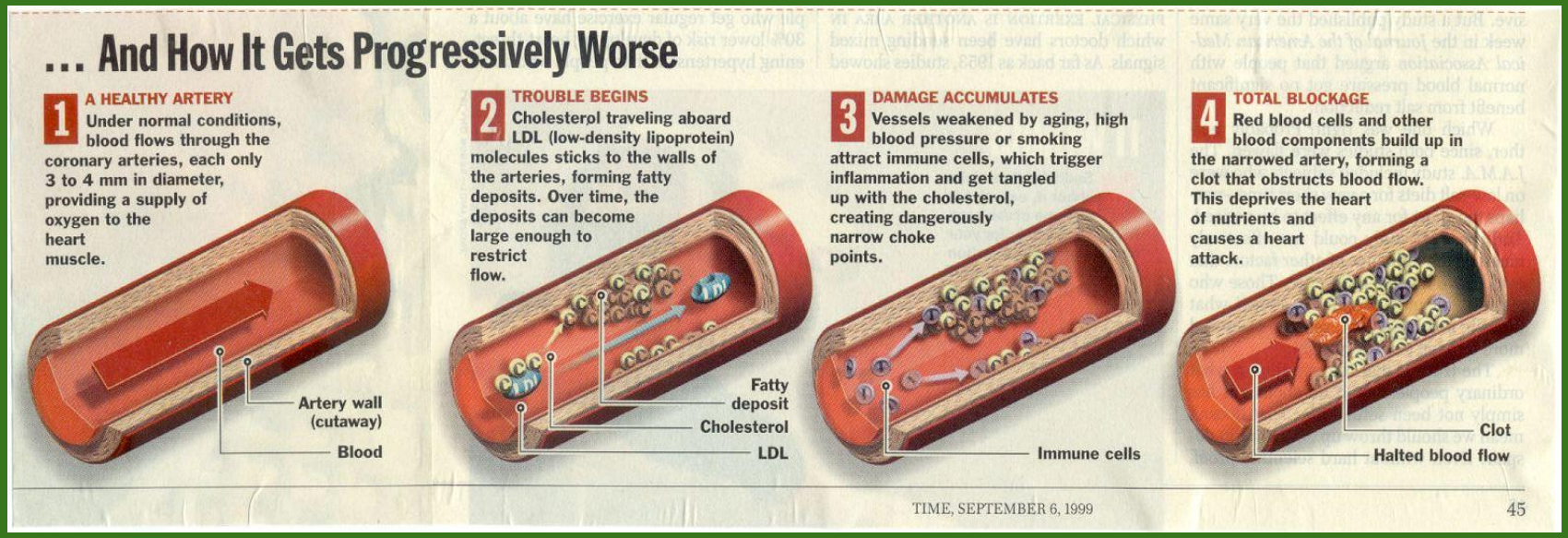
- Risk Factors that can be changed

Cigarette Smoking; High Cholesterol level; Hypertension; Lack of Exercise; Stress

Myocardial Infarction or HEART ATTACK



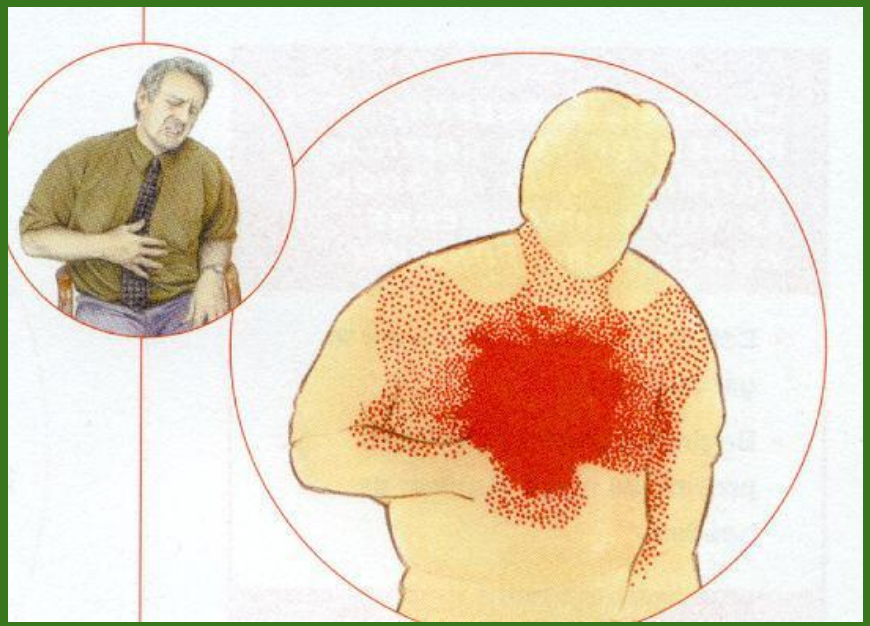
It occurs when the oxygen supply to the heart muscle (myocardium) is cut-off for a prolonged period of time. This cut-off results from a reduced blood supply due to severe narrowing or complete blockage of the diseased artery. The result is **death (infarction)** of the affected part of the heart.



Warning Signals

- Chest discomfort characterized by: uncomfortable pressure, squeezing, fullness or tightness, aching, crushing, constricting, oppressive or heavy
- Sweating
- Nausea
- Shortness of breath

Chest Discomfort



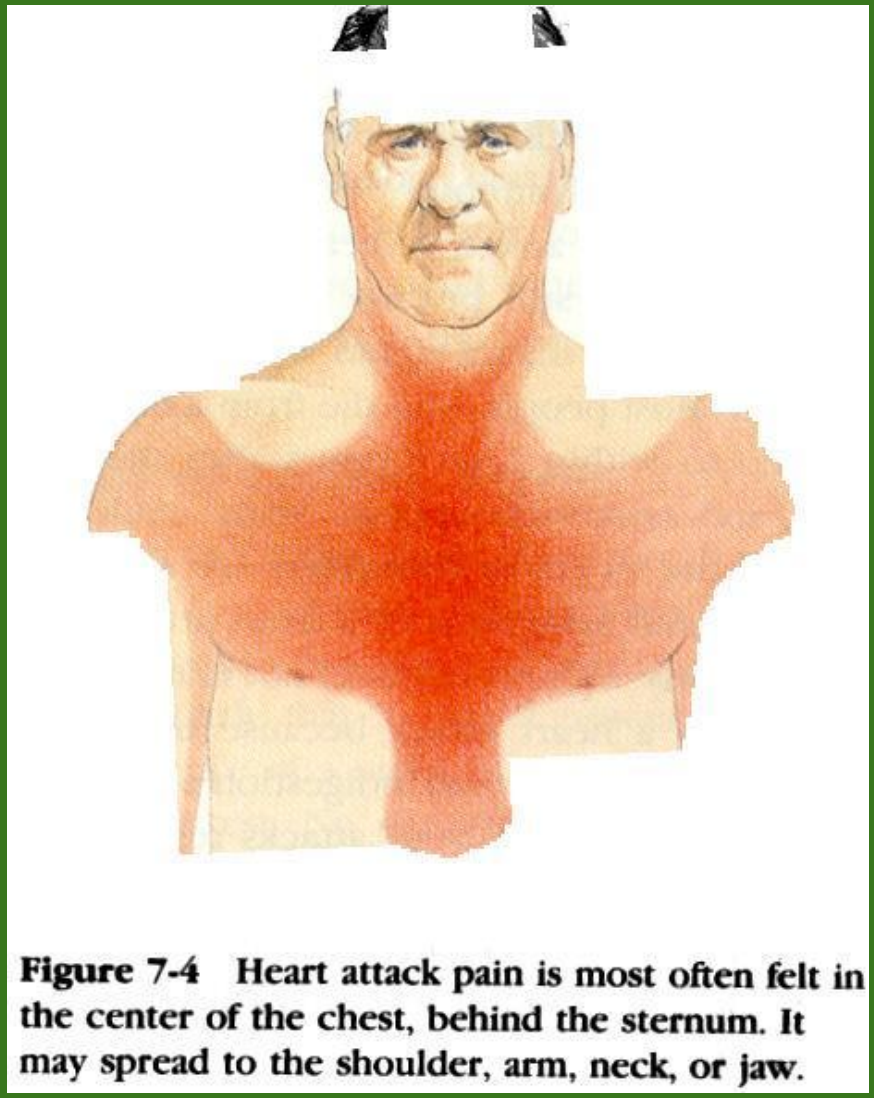


Figure 7-4 Heart attack pain is most often felt in the center of the chest, behind the sternum. It may spread to the shoulder, arm, neck, or jaw.

First Aid Management

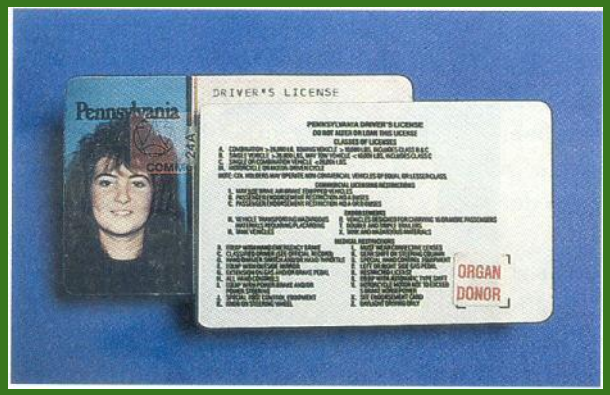
- Recognize the signals of heart attack and take action
- Have the patient stop what he or she is doing and make the patient sit or lie down in a position of comfort. Do not let the patient move around.
- Have someone call for a physician or ambulance for help
- If patient is under medical care, assist him / her in taking his / her prescribed medicine/s

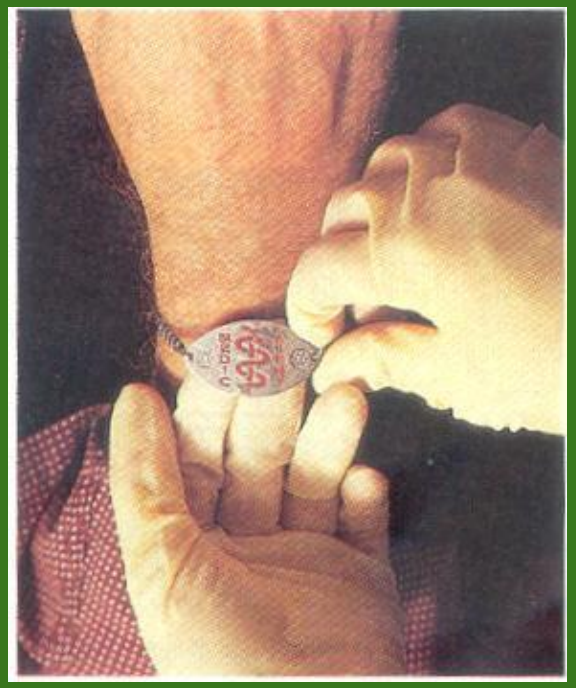
Emergency Action Principles

- SURVEY THE SCENE
- ACTIVATE MEDICAL ASSISTANCE or ARRANGED FOR TRANSPORT FACILITY
- DO A PRIMARY SURVEY ON THE VICTIM
  - Do Check for RESPONSIVENESS
  - Do Check for AIRWAY
  - Do Check for BREATHING
  - Do Check for CIRCULATION
- DO A SECONDARY SURVEY ON THE VICTIM

ATTENDING TO A CARDIAC ARREST VICTIM

MEDIC TAGS / MEDIC ALERTS





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INITIAL ASSESSMENT

CHECK FOR RESPONSIVENESS / CONSCIOUSNESS

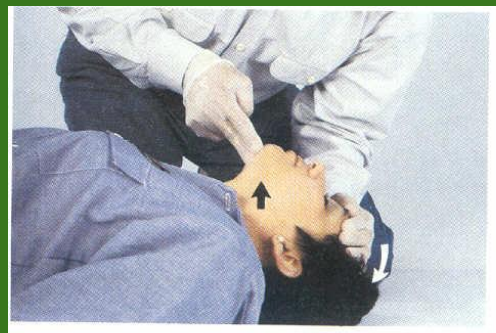

Figure 4-6 To check breathing, look, listen, and feel for breathing for about 5 seconds.

CHECK FOR AIRWAY

CHECK BREATHING

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Opening of Airway

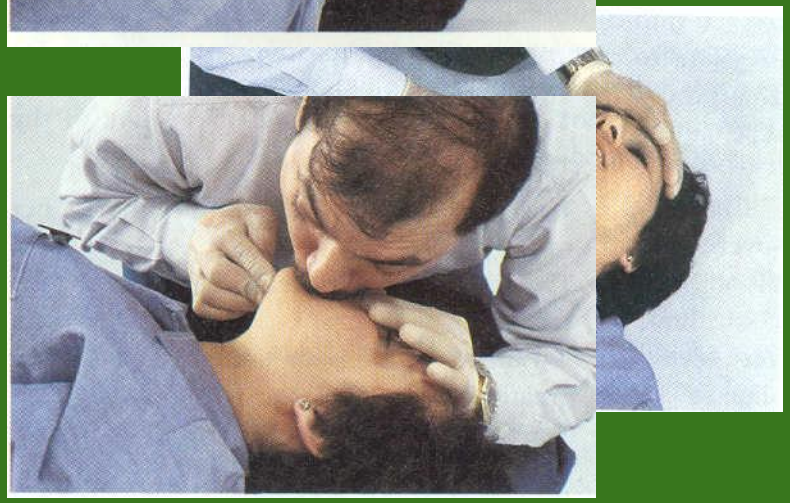
Sniffing position

AIRWAY BLOCKED BY TONGUE

HEAD-TILT CHIN-LIFT MANEUVER

INITIAL ASSESSMENT

OPENING OF AIRWAY BY HEAD TILT-CHIN LIFT MANEUVER



PROVIDING INITIAL BREATHS

CHECKING FOR CIRCULATION

Basic Life Support

Respiratory Arrest and Rescue Breathing

- RESPIRATORY ARREST, Is the condition in which breathing stops or inadequate to support life.

CAUSES:

1. Obstruction (Anatomical / Mechanical)
2. Diseases (Bronchitis / Pneumonia / COPD)
3. Other Causes: Electrocution; External Strangulation; Chest Compression; Drowning, Poisoning, Suffocation; etc.

RESCUE BREATHING, IS A TECHNIQUE OF BREATHING AIR INTO THE PERSON'S LUNGS TO SUPPLY HIM OR HER WITH THE OXYGEN NEEDED TO SUSTAIN LIFE

- WAYS TO VENTILATE THE LUNGS

1. Mouth-to-Mouth
2. Mouth-to-Nose
3. Mouth-to-Mouth & Nose
4. Mouth to Stoma
5. Mouth to Mask
6. Bag-Valve-Mask Device

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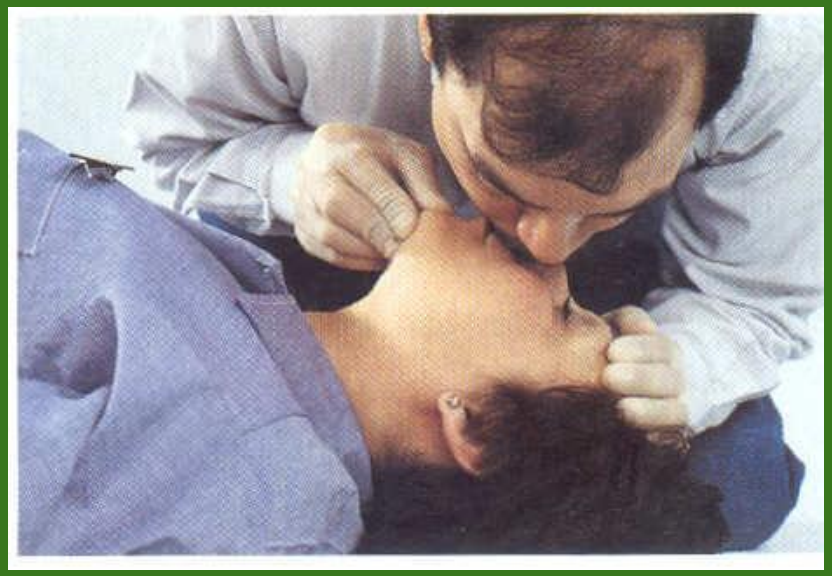
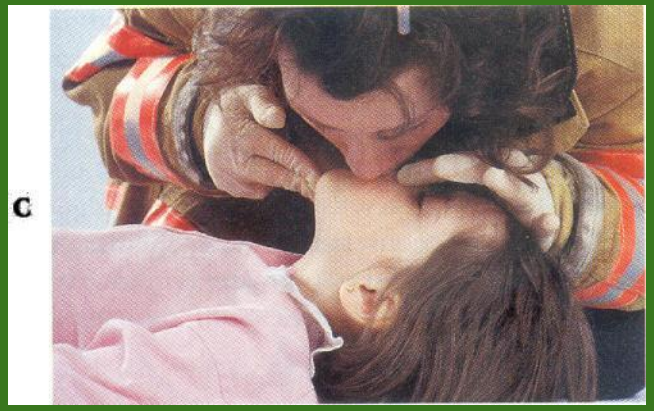
Opening of Airway

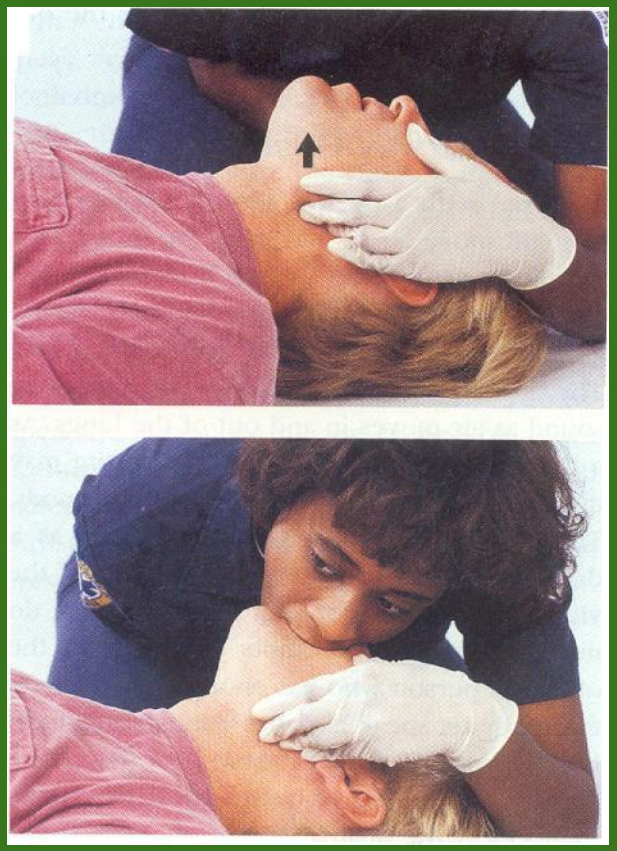
- **Head Tilt-Chin Lift Maneuver**

Mouth–to-Mouth Ventilation

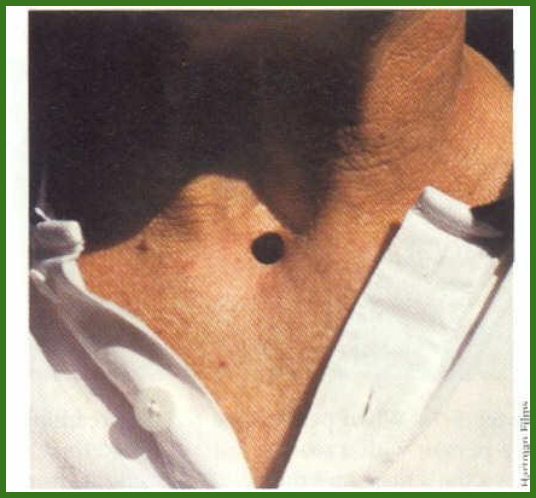


Mouth–to-Mouth Ventilation





Mouth–to-Stoma Ventilation



Mouth–to-Mask / Barrier Device

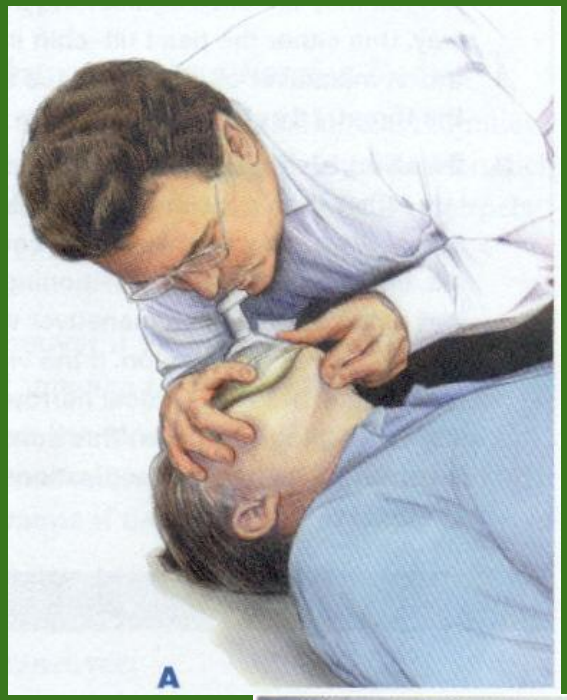


Figure 6-1 Resuscitation masks vary in size, shape, and features.

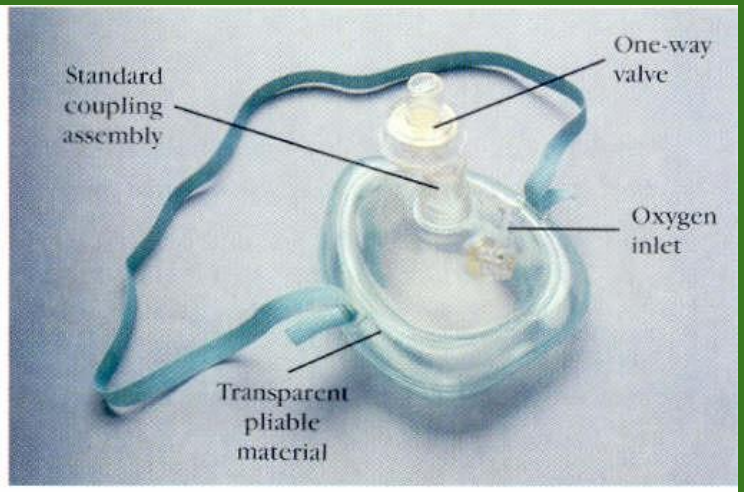
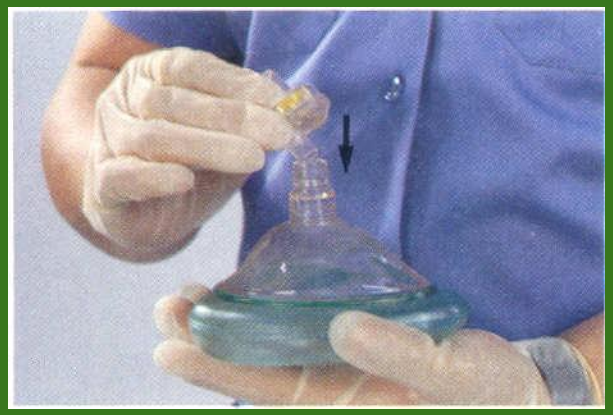
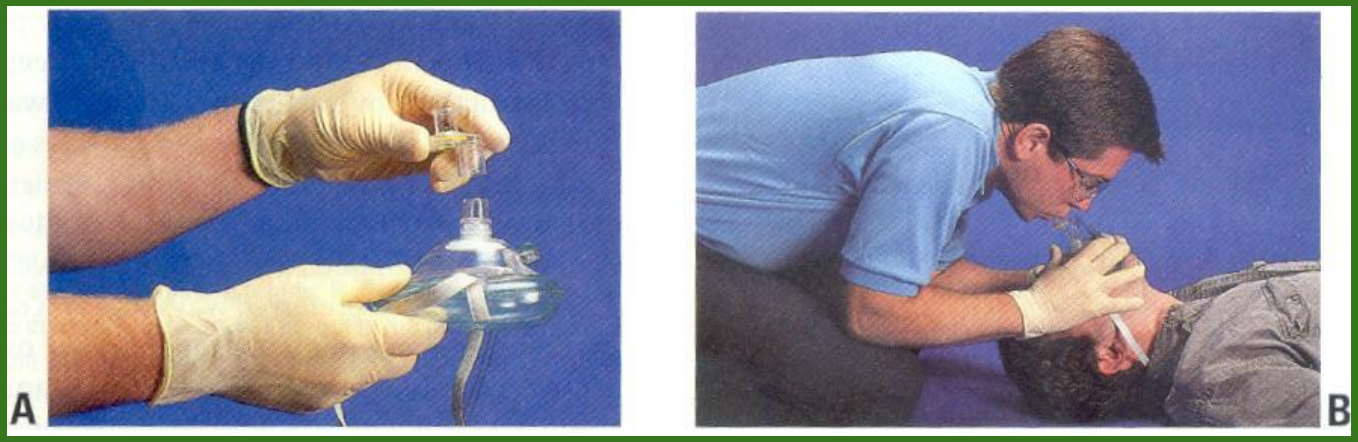
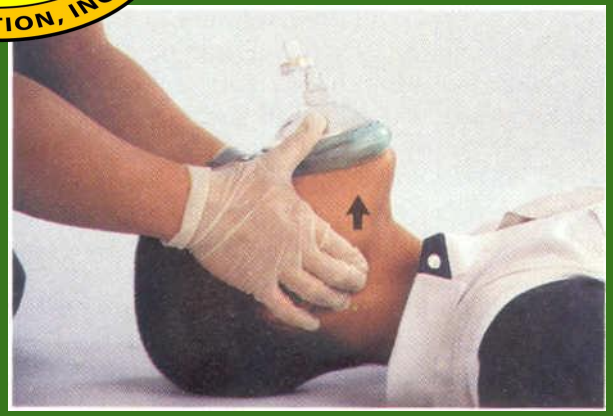


Figure 6-2 A resuscitation mask should meet specific criteria.

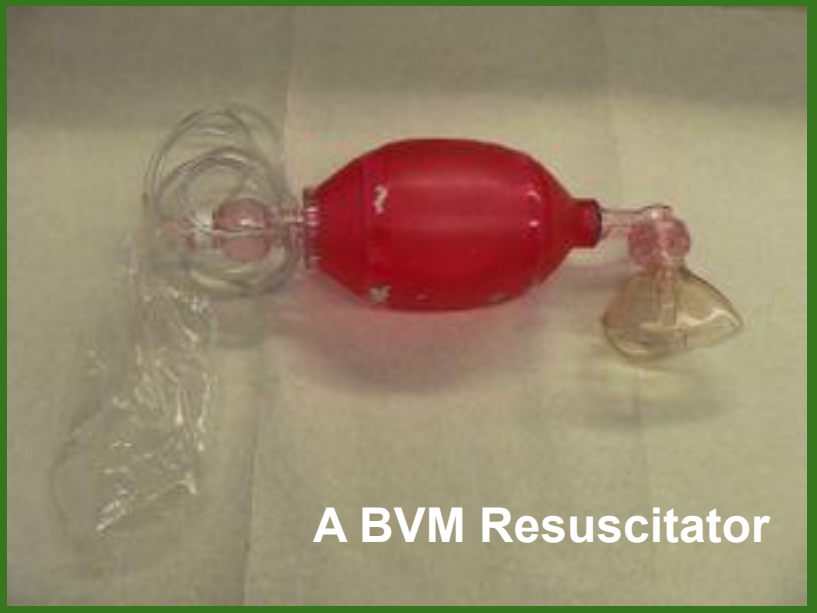



A
B



Bag-Valve-Mask Device

Bag-Valve-Mask



Different types of bag valve masks.

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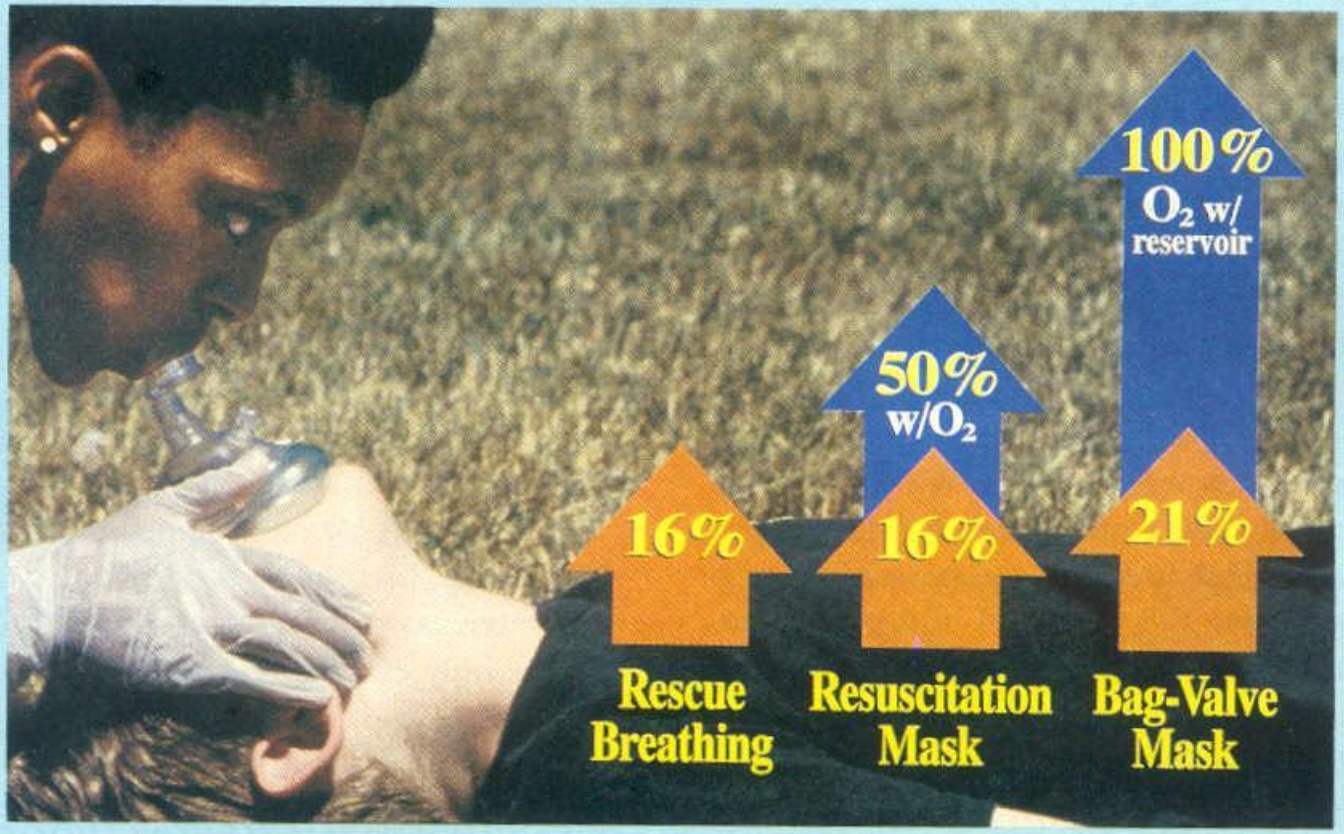
One type of bag valve mask. The part labeled 1 is a flexible mask designed to seal to the patient's face, and the part labeled 3 is a self-filling bag.

Figure 6-7 When two rescuers are available, **A,** one holds the mask in position and maintains an open airway, while **B,** the other ventilates the victim.

Supplemental Oxygen



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Basic Life Support

FOREIGN BODY AIRWAY OBSTRUCTION MANAGEMENT

FOREIGN BODY AIRWAY OBSTRUCTION

- **Causes of Obstruction**

1. Improper chewing of large pieces of food
2. Excessive intake of alcohol
3. The presence of loose upper & lower dentures
4. For children- running / playing while eating
5. For smaller children of “hand-to-mouth” stage left unattended

- Two types of Obstruction

1. Anatomical
2. Mechanical

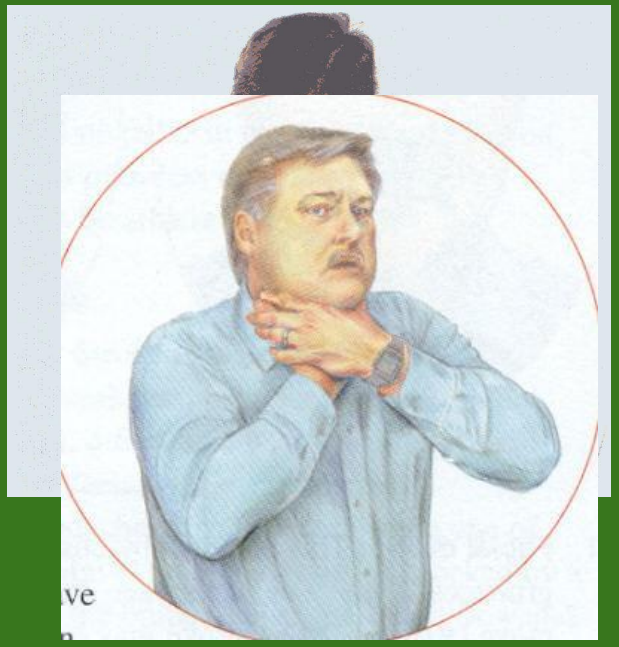
- Classification of Obstruction

1.Partial Obstruction with good air exchange

2.Partial Obstruction with poor air exchange

3.Complete or total Obstruction

Distress sign of Obstructed Airway or **“Choking”**



Heimlich Maneuver

Or Abdominal Thrust

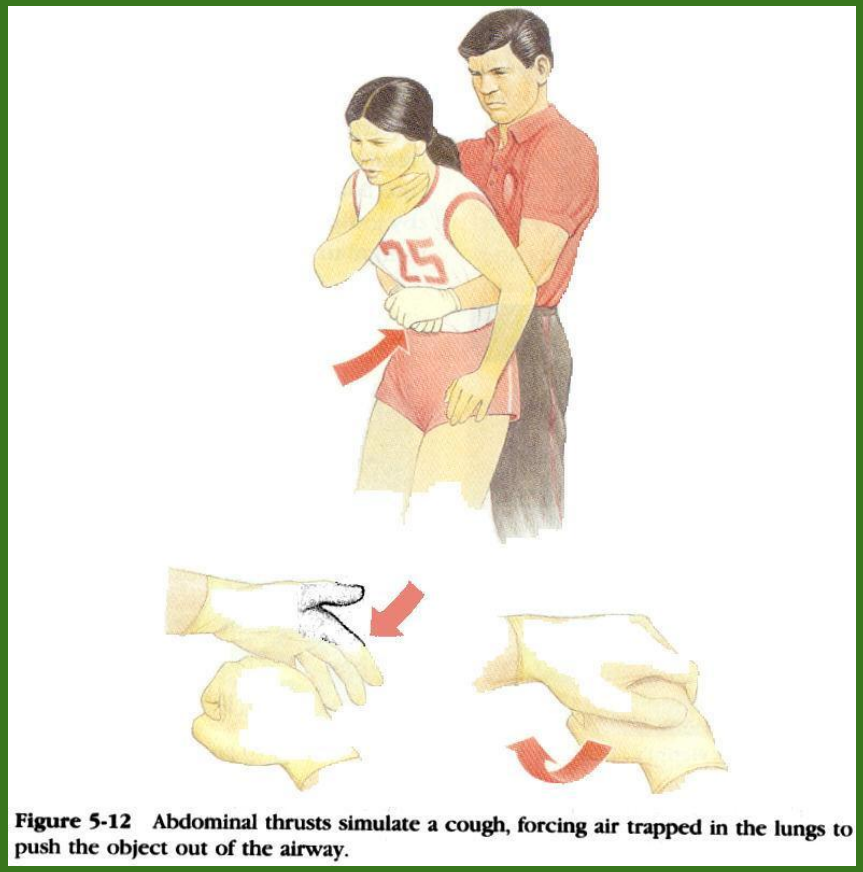
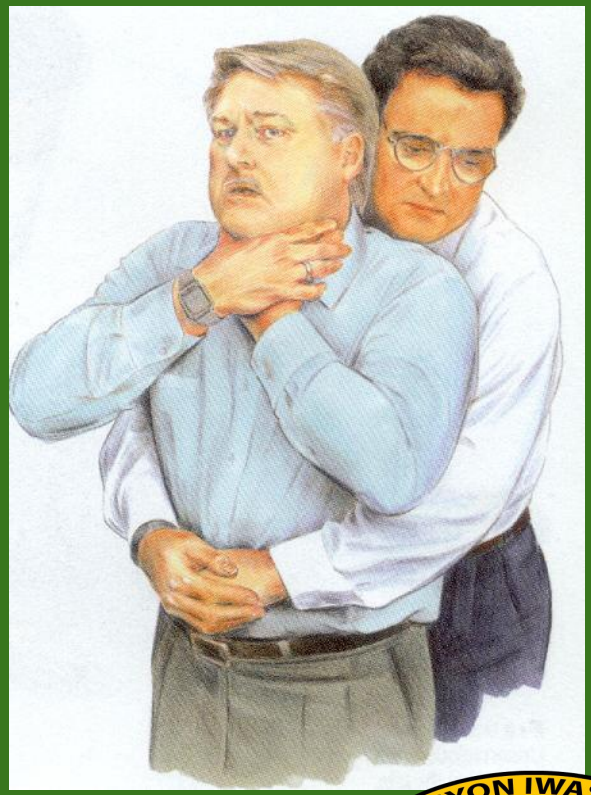


Figure 5-12 Abdominal thrusts simulate a cough, forcing air trapped in the lungs to push the object out of the airway.



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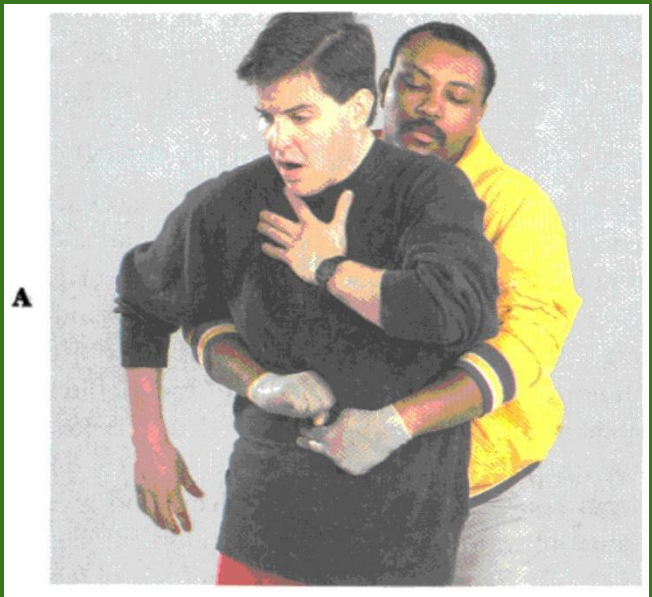
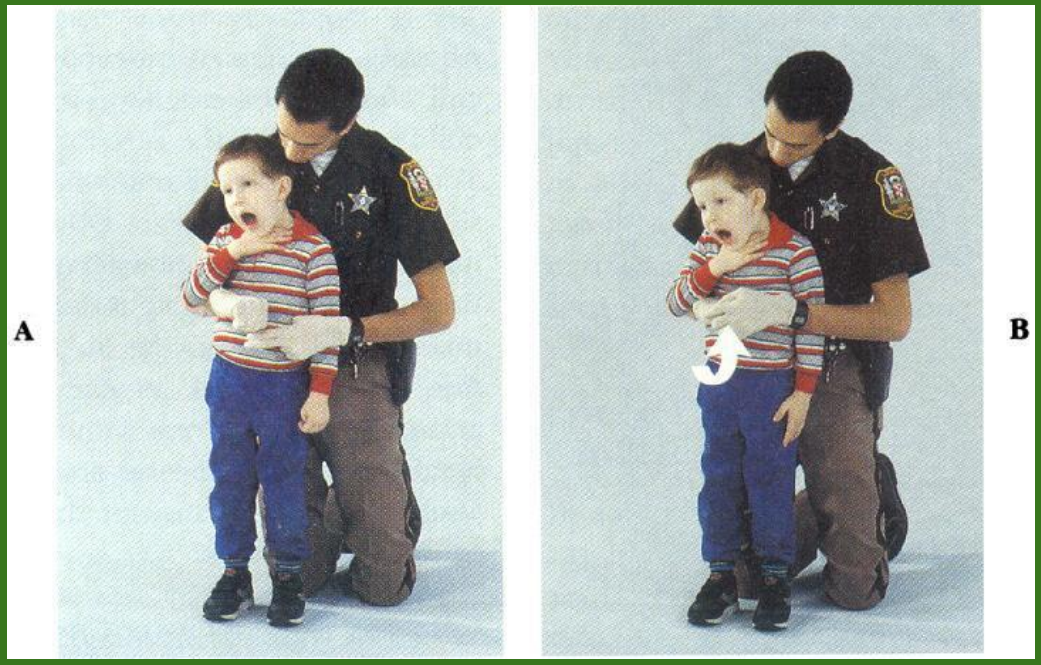
Heimlich Maneuver performed on a conscious adult

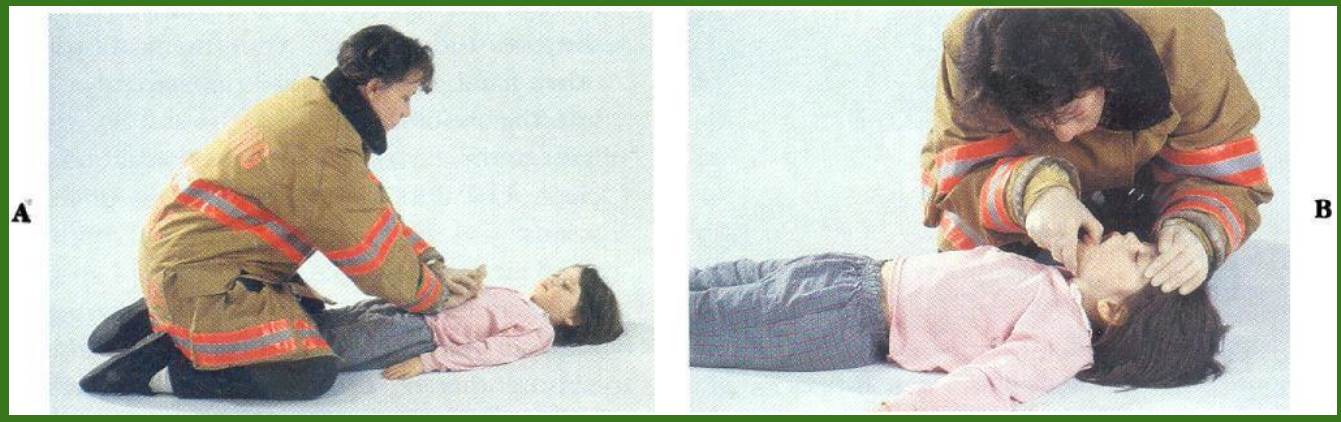


Heimlich Maneuver performed on a conscious child



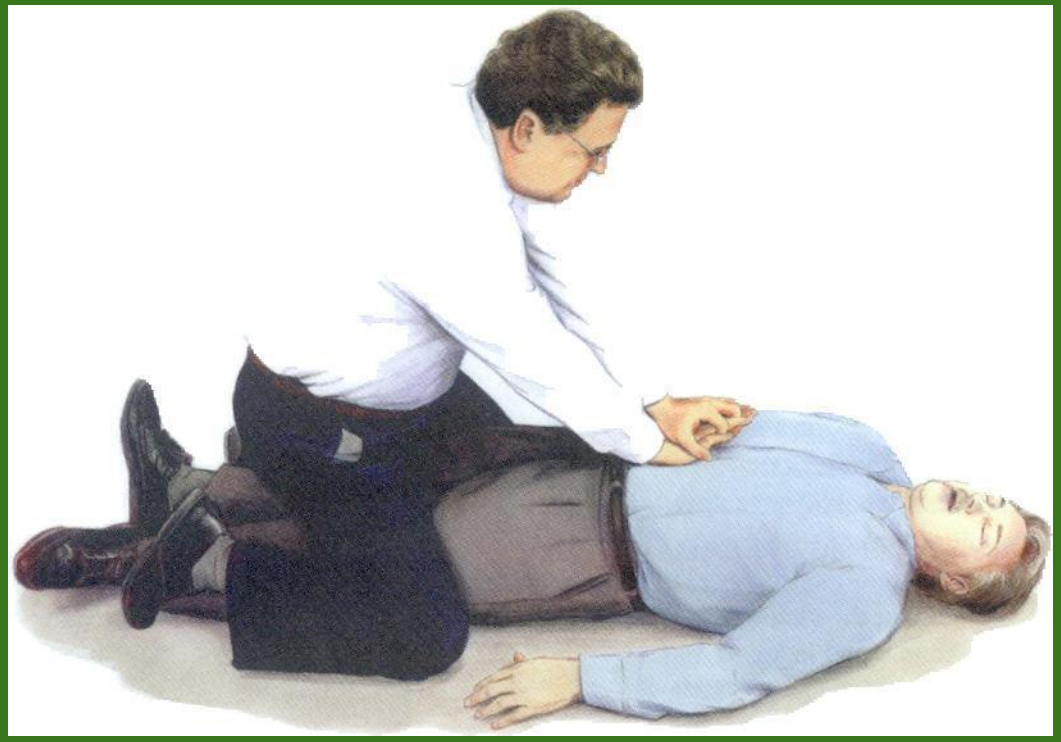
Chest Thrust performed on pregnant / obese person

Abdominal thrust performed on an unconscious adult / child



Heimlich Maneuver

Or Abdominal Thrust



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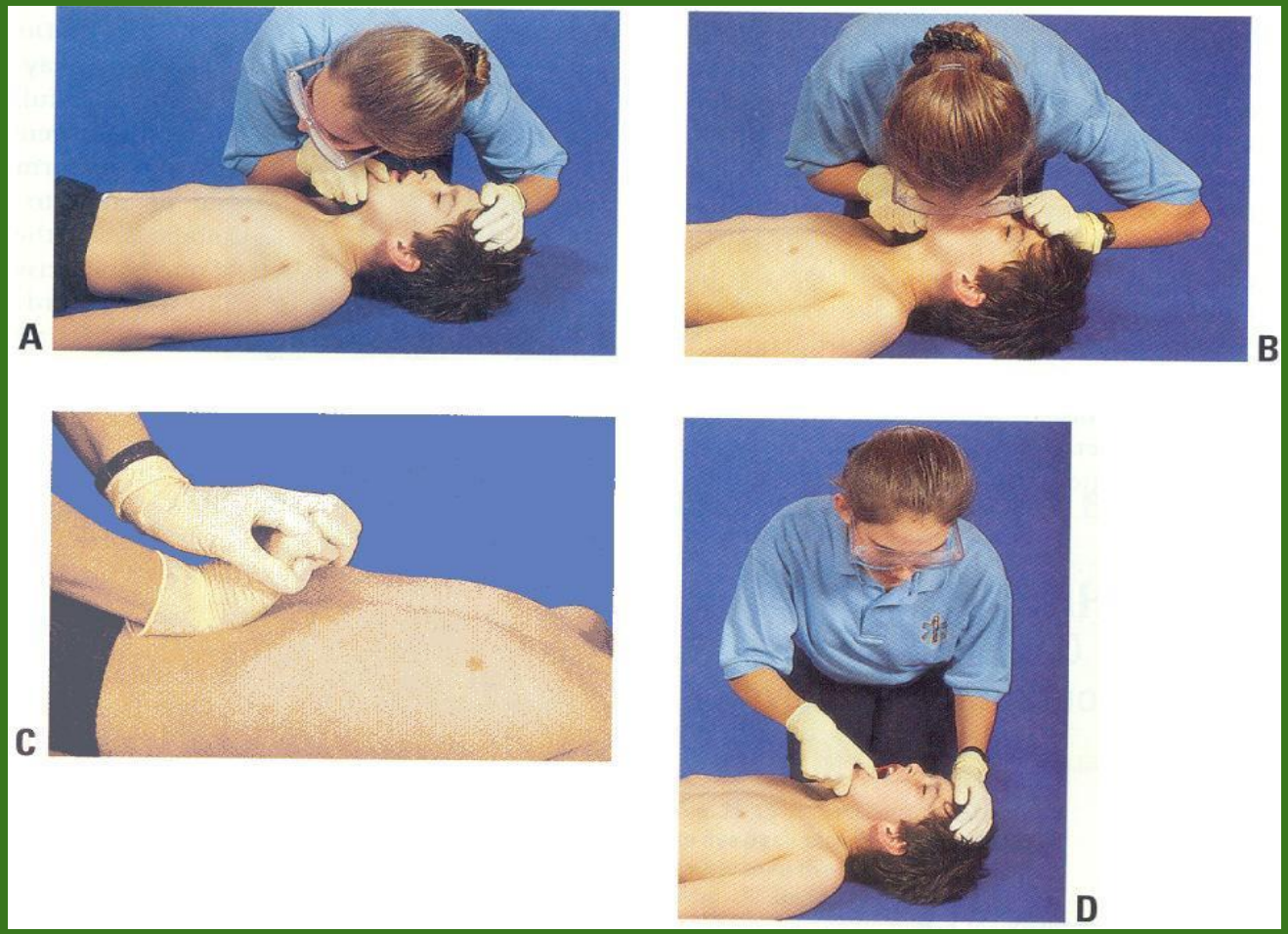
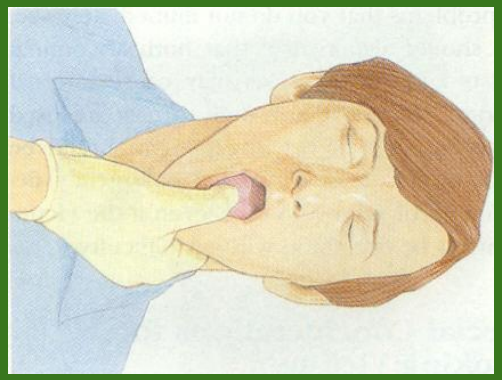
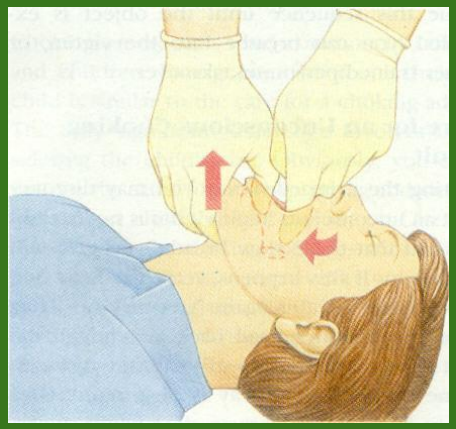
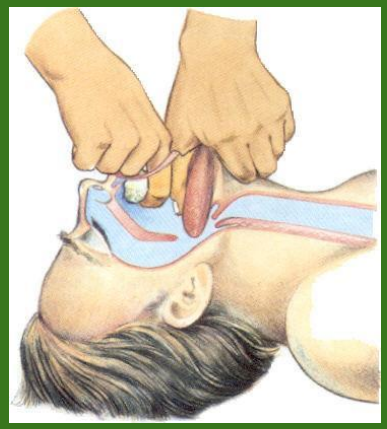
Abdominal thrust performed on an unconscious child

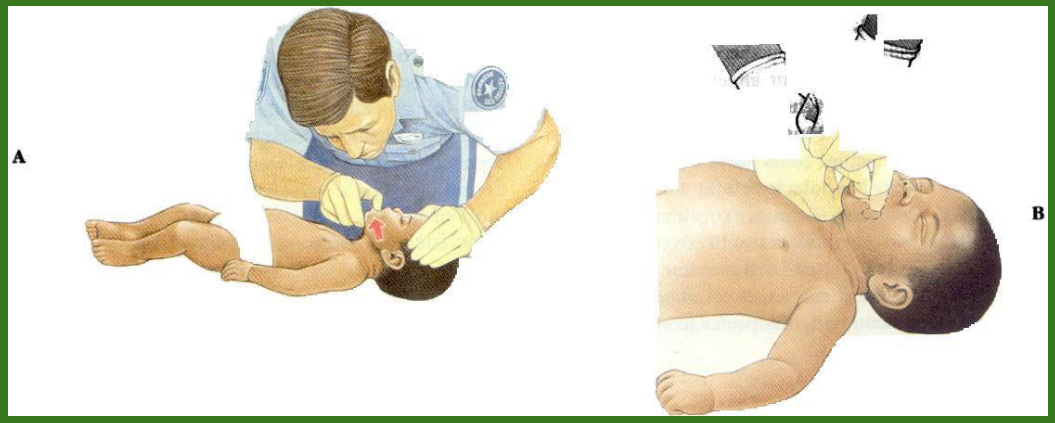


Relieving Obstruction by Finger sweep motion if object is seen









Basic Life Support

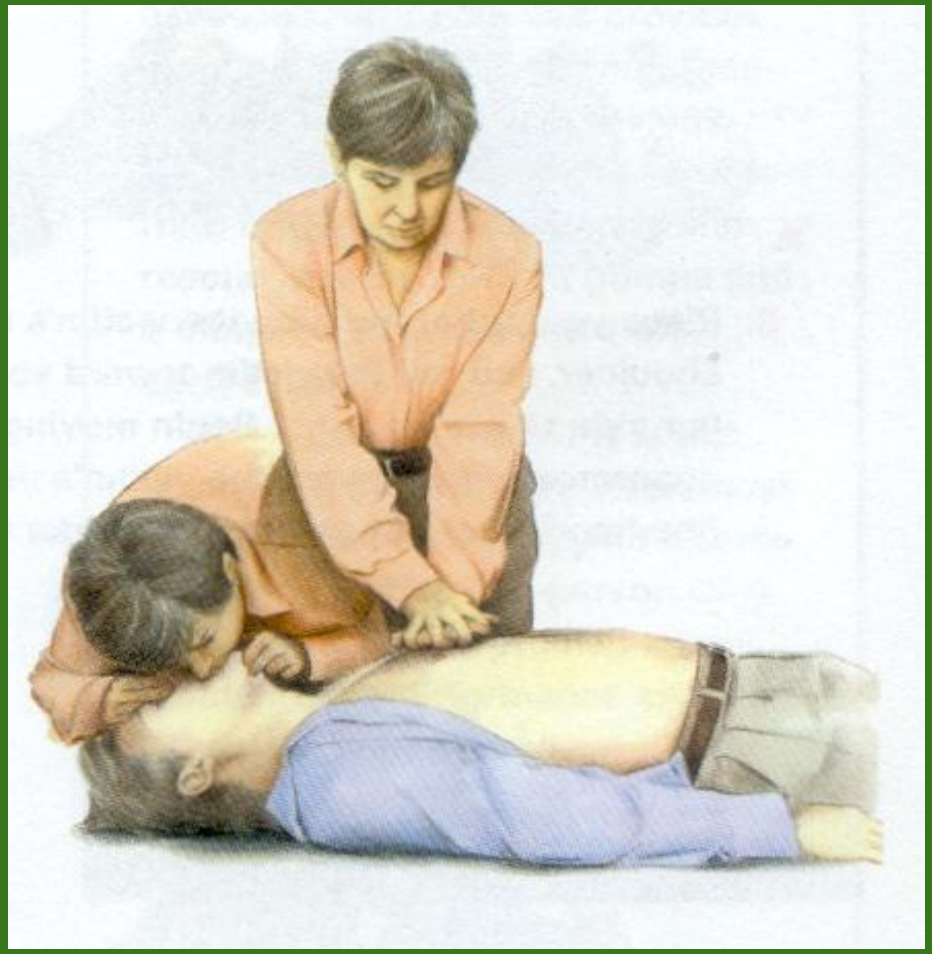
Cardiac Arrest and CPR

- CARDIAC ARREST, Is the condition in which circulation ceases and vital organs are deprived of oxygen

Cardio Pulmonary Resuscitation

This is a combination of chest compression and rescue breathing. This must be combined for effective resuscitation of the victim

American Heart Association



30 COMPRESSIONS :
2 VENTILATIONS

done in
5 CYCLES

in 120 seconds
(2 minutes)

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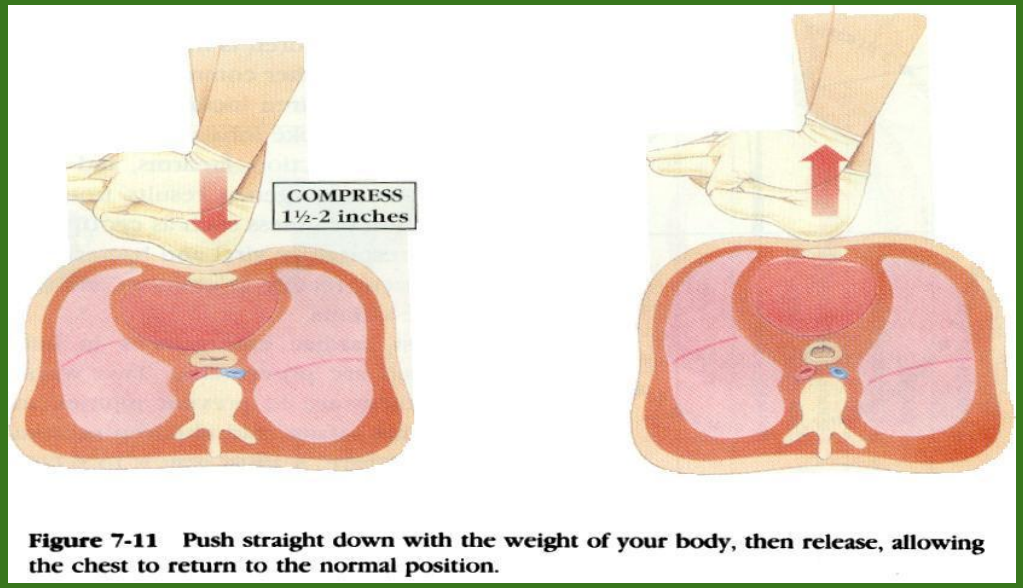
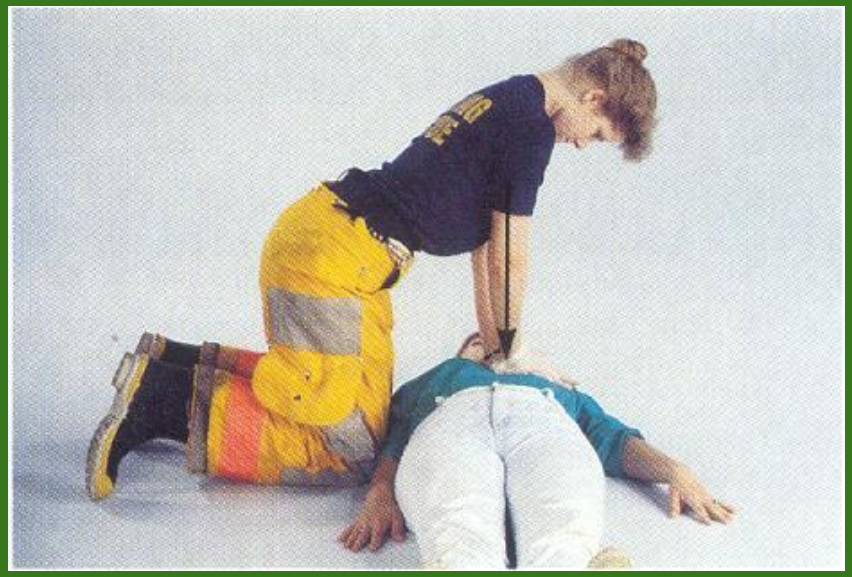


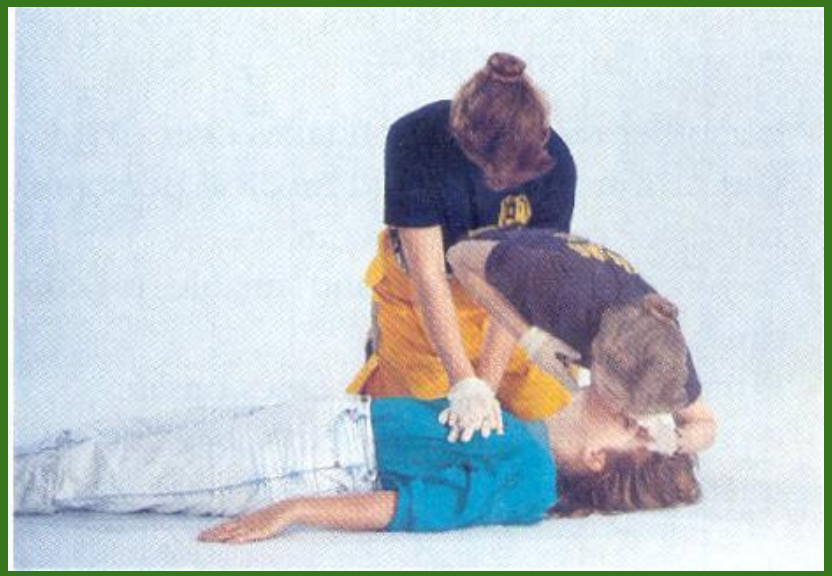
Figure 7-11 Push straight down with the weight of your body, then release, allowing the chest to return to the normal position.

Site of Compression

COMPRESSION / RELAXATION



EXTERNAL CHEST COMPRESSION / VENTILATION



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Two Rescuer CPR

Figure 7-23 During two-rescuer CPR, the rescuers share the responsibility for performing rescue breathing and chest compressions.

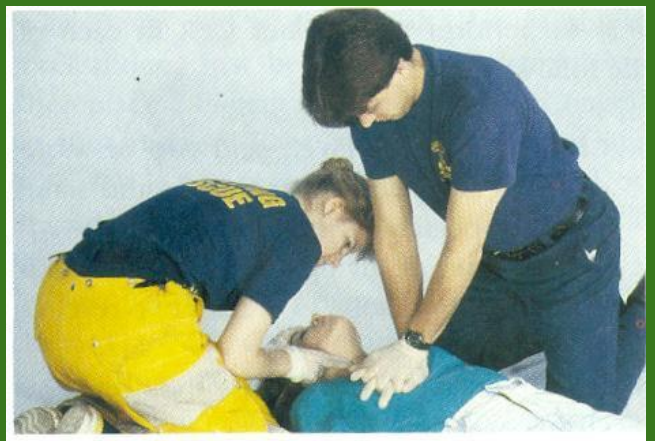

Figure 7-24 The ventilator periodically checks the effectiveness of compressions by feeling for the carotid pulse while the compressor gives chest compressions.

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Child Resuscitation

Figure 7-15 While kneeling beside the child, maintain an open airway with one hand and find the correct hand position with the other.

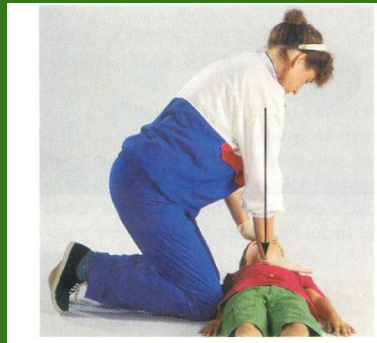


Figure 7-17 When you compress the chest, use the heel of your hand. Push straight down, making sure your shoulder is directly over your hand.

Figure 7-19 Give 5 compressions and then 1 breath.

Infant Resuscitation

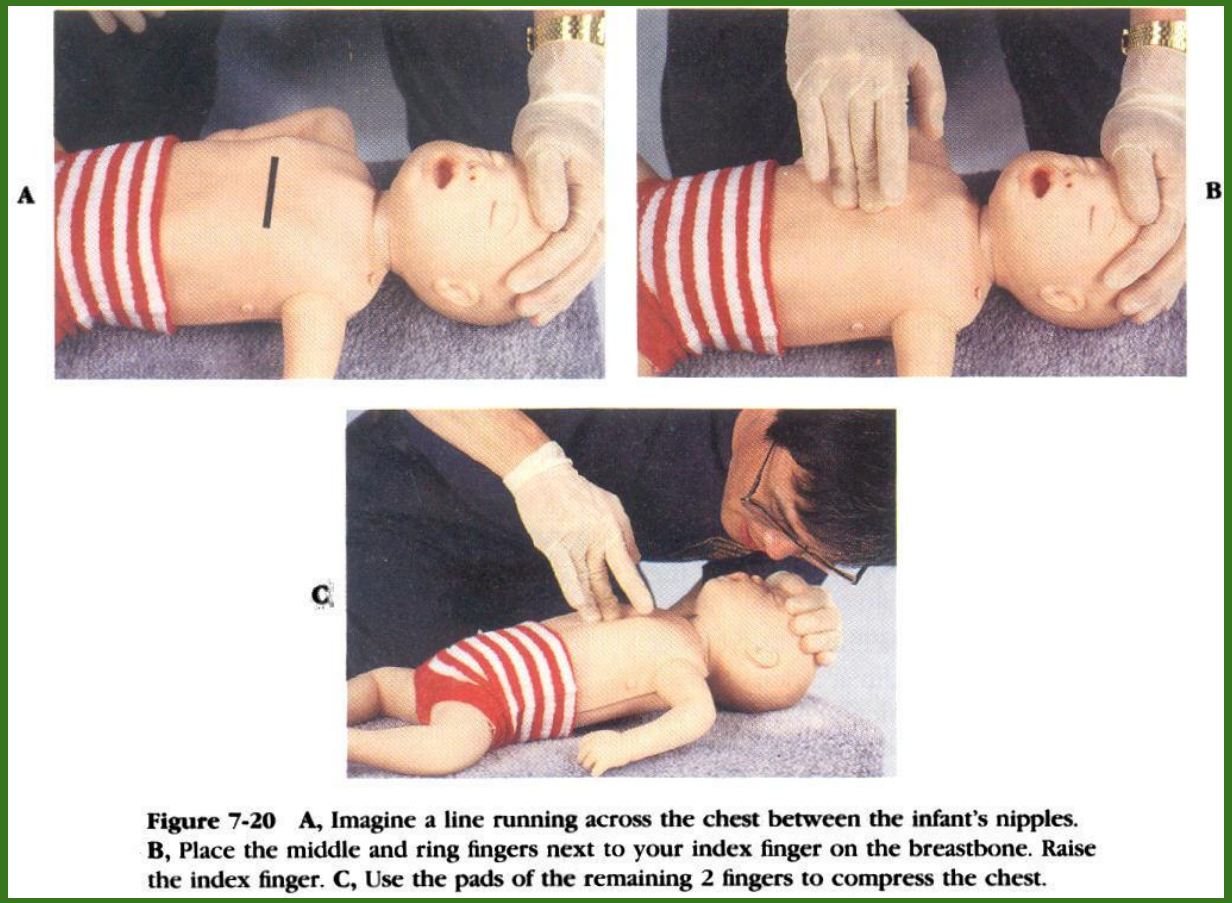
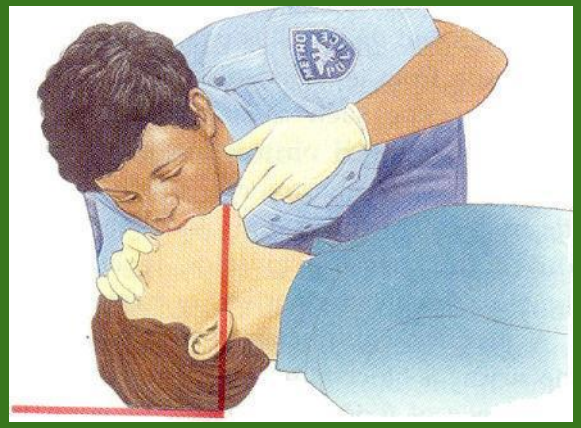
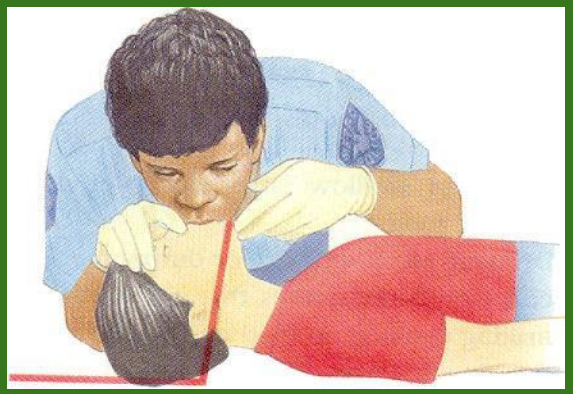


Figure 7-20 **A,** Imagine a line running across the chest between the infant's nipples. **B,** Place the middle and ring fingers next to your index finger on the breastbone. Raise the index finger. **C,** Use the pads of the remaining 2 fingers to compress the chest.



ADULT



CHILD

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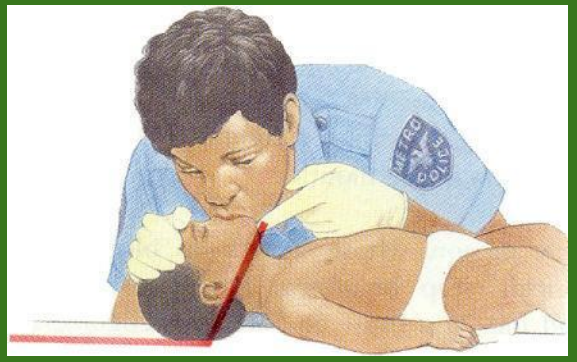
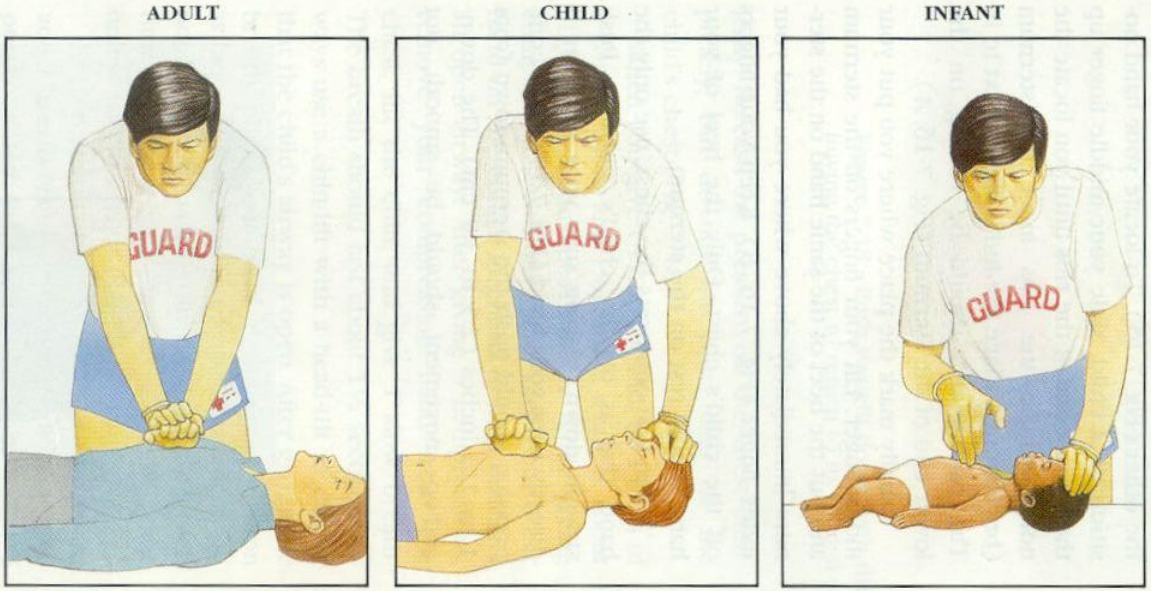
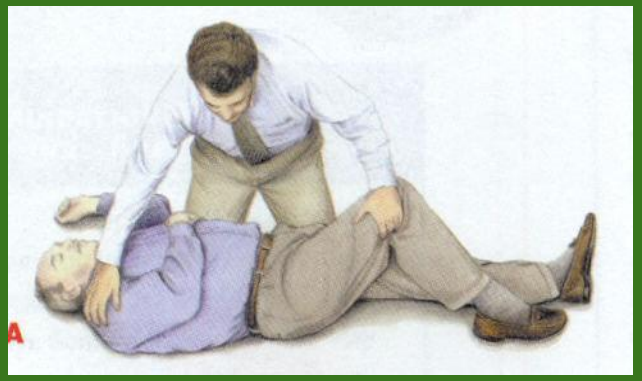


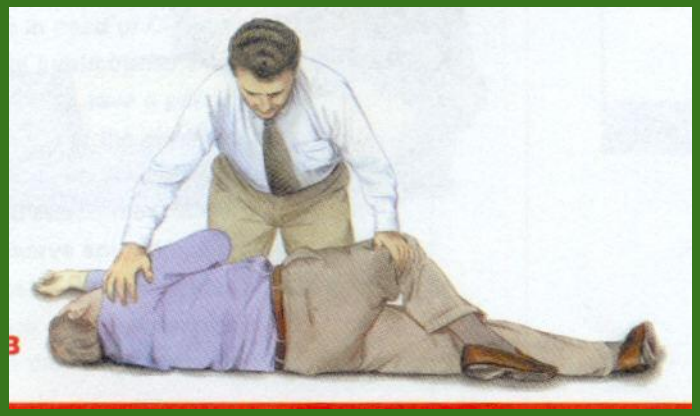
INFANT



	ADULT	CHILD	INFANT
HAND POSITION:	Two hands on lower ½ of sternum	One hand on lower ½ of sternum	Two fingers on lower ½ of sternum (one finger width below nipple line)
COMPRESS:	1½ - 2 inches	1 - 1½ inches	½ - 1 inch
BREATHE:	Slowly until chest gently rises (about 1.5 seconds per breath)	Slowly until chest gently rises (about 1.5 seconds per breath)	Slowly until chest gently rises (about 1.5 seconds per breath)
CYCLE:	15 compressions 2 breaths	5 compressions 1 breath	5 compressions 1 breath
RATE:	15 compressions in about 10 seconds	5 compressions in about 3 seconds	5 compressions in about 3 seconds

Figure 7-14 The technique for chest compressions differs for adults, children, and infants.





Recovery position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