

CHAPTER 3

ARTIFICIAL VENTILATION AND EXTERNAL CHEST COMPRESSION

Introduction

1. If a person has stopped breathing, it does not mean he is dead, but he soon will be if you do not act quickly. If a person has stopped breathing he only has FOUR MINUTES before irreparable brain damage occurs. NO TIME CAN BE WASTED-SECONDS COUNT. Therefore, start ARTIFICIAL VENTILATION AT ONCE.
2. There are three emergency situations where a casualty is especially at risk:
 - a. Lack of breathing and/or heartbeat.
 - b. Severe bleeding.
 - c. UNCONSCIOUSNESS, which is likely to interfere with the casualty's open airway and eventually his breathing.

Mouth-to-Mouth Ventilation

3. In mouth-to-mouth ventilation, the air we breathe out contains about 16% oxygen, which is more than is needed to sustain life. This can be breathed into a casualty's lungs through his mouth or nose, and can be carried out by any First Aider of any age.

4. Method

- a. Remove any obvious obstructions over the face or constrictions around the neck.
- b. OPEN THE AIRWAY. Place one hand under the casualty's neck and your other hand on the forehead. Tilt the head backwards. This will extend the neck and open the air passage (*see Fig 2a*). Transfer your hand from the neck and push the chin upwards. The tilted jaw will lift the tongue forward, clear of the airway. (*Fig 2b*).
- c. CLEAR THE AIRWAY. In the Open Airway position any foreign matter (vomit, loose teeth, *etc*) that can be seen or felt should be removed if possible. To do this, turn the casualty's head to the side, hook your first two fingers and sweep round inside the mouth. DO NOT spend time searching for hidden obstructions. (*Fig 2c*).
- d. Open your mouth wide and take a deep breath. Pinch the casualty's nostrils together and seal your mouth around his lips. (*Fig 3a*). (For mouth-to-nose, close the casualty's mouth with your thumb and seal your lips around the casualty's nose). (*Fig 3b*).
- e. Look along the casualty's chest and blow into his lungs until you can see the chest rise to its maximum expansion. (*Fig 3c*). (*Note: If the casualty's chest fails to rise, assume the airway is not fully open. Adjust the position of the head and jaw and try again. If there is still no ventilation the airway may be blocked and you will have to treat for CHOKING. (See Chapter 6)*).

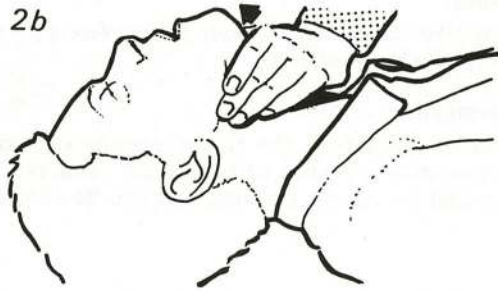
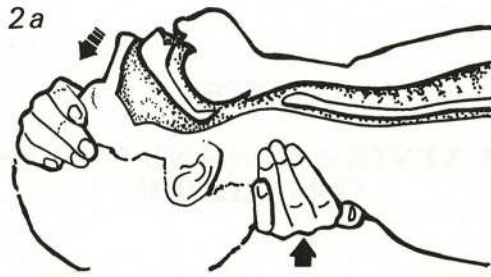


Fig 2 Opening the Airway

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3b Mouth-to-nose
ventilation

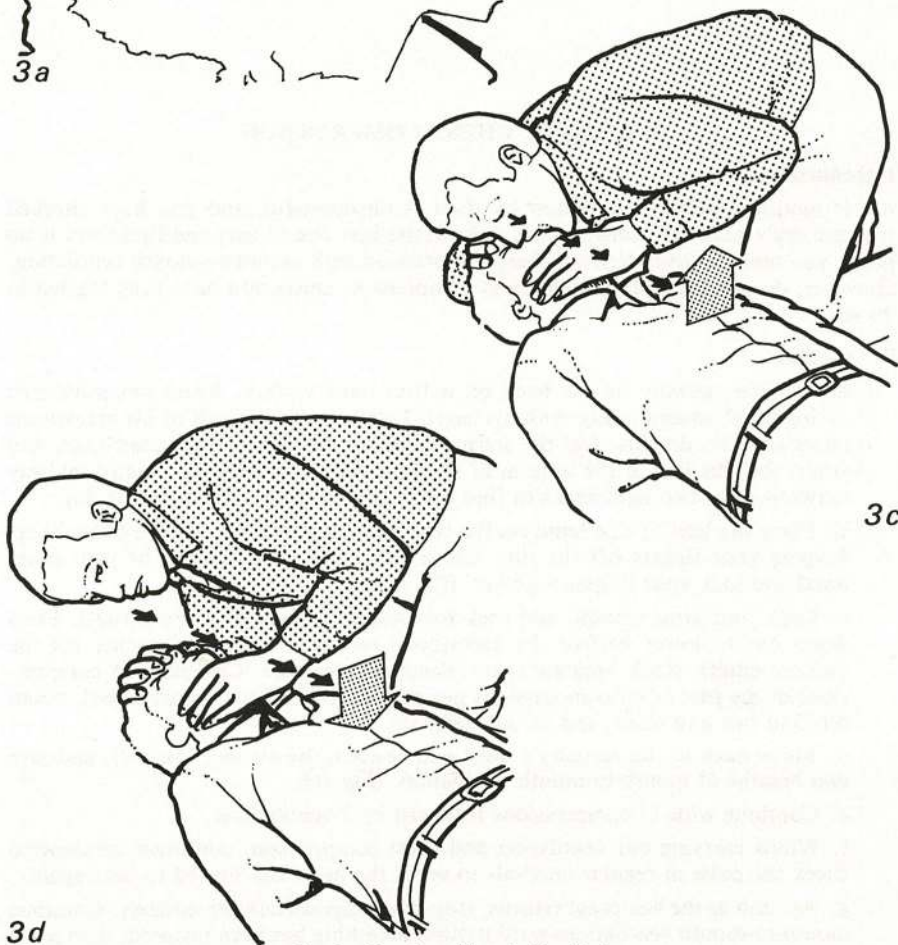


Fig 3 Mouth-to-Mouth Ventilation

f. Remove your mouth well away from the casualty's mouth and breathe out any excess air. Watch the chest fall and take in a breath of fresh air. (Fig 3d). Repeat the inflation. Give the first *four* inflations as quickly as possible, without waiting for the casualty's lungs to deflate completely between breaths.

Important

5. Check the casualty's pulse to see if it is beating. If the heart is beating normally continue mouth-to-mouth ventilation at the normal breathing rate (16-18 times per minute) until the casualty starts to breathe normally by himself, assist him if necessary. When he starts to breathe normally, place him in the Recovery position. (See Chapter 4).

EXTERNAL CHEST COMPRESSION

Introduction

6. If mouth-to-mouth ventilation by itself is unsuccessful, and you have checked the casualty's pulse (the carotid neck pulse is the best one to use) and find there is no pulse, you may perform external chest compression with mouth-to-mouth ventilation. However, do not attempt external chest compression unless you have been trained to do so.

7. Method.

a. Lay the casualty on his back on a firm hard surface. Kneel alongside him facing his chest and in line with his heart. Locate the lower half of his breastbone (sternum). To do this, feel the sternal notch at the top of the breastbone, and where the ribs join at the bottom of the breastbone. Place your thumbs midway between these two landmarks to find the centre of the breastbone. (Fig 4a).

b. Place the heel of one hand on the centre of the lower half of the breastbone, keeping your fingers off the ribs. Cover this hand with the heel of your other hand and lock your fingers together. (Fig 4b).

c. Keep your arms straight and rock forward until your arms are vertical. Press down on the lower half of the breastbone (about 4-5 cm/1½-2 inches for the average adult). Rock backwards to release the pressure. Complete 15 compressions at the rate of 80 compressions per minute (to find the correct speed, count one and two and three, and so on). (Fig 4c).

d. Move back to the casualty's head and re-open the airway, (Fig 4d), and give two breaths of mouth-to-mouth ventilation. (Fig 4e).

e. Continue with 15 compressions followed by 2 ventilations

f. Whilst carrying out ventilation and chest compression, you must continue to check the pulse at regular intervals to see if the heart has started to beat again.

g. As soon as the heartbeat returns, stop the compressions immediately. Continue mouth-to-mouth ventilations until natural breathing has been restored, then place your casualty in the Recovery position.

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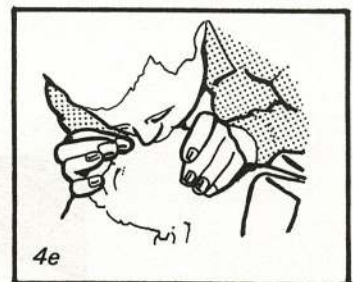
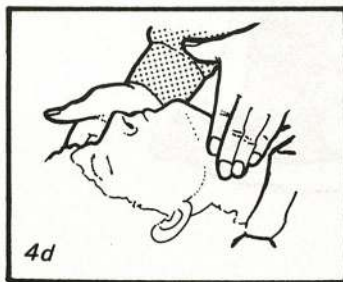
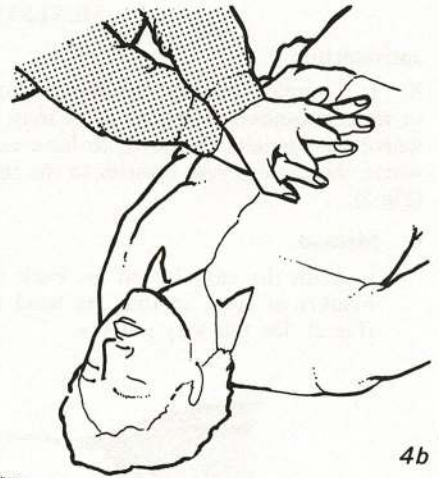


Fig 4 External Chest Compression

(AL6, Jun 83)

SILVESTER METHOD

Introduction

8. It is emphasized that the best method of artificial ventilation is mouth-to-mouth or mouth-to-nose. However, there may be circumstances where this is impossible, *eg* where the casualty is known to have taken poison or corrosive acids by mouth, or where there are severe injuries to his face. The Silvester method may then be used. (Fig 5).

9. Method

a. With the casualty on his back raise his shoulders by a pad (using a towel, blanket or coat) so that the head tilts well back in the Open Airway position (Fig 2). Do this very quickly.

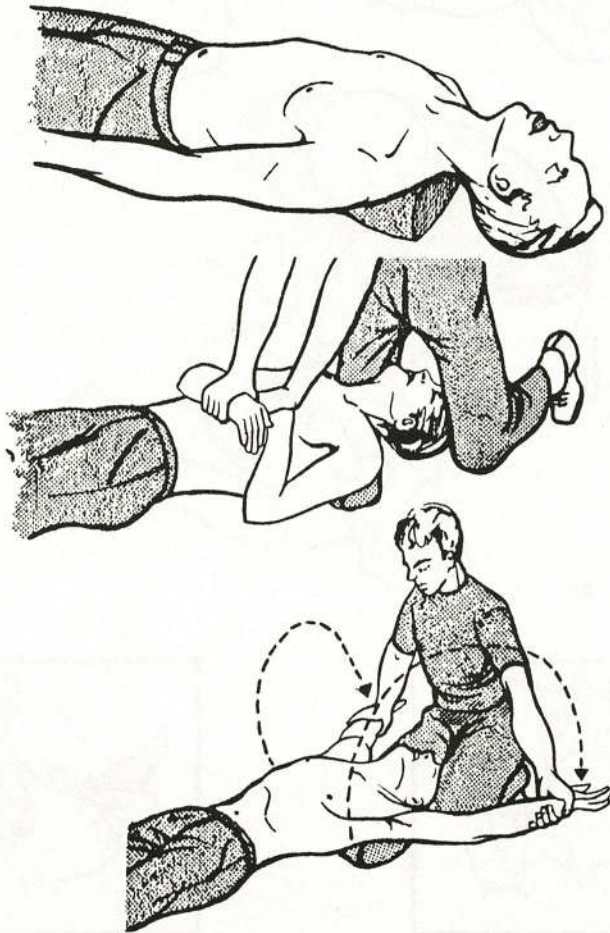


Fig 5 The Silvester Method

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- b. Kneel with his head between your legs, grasp his wrists and cross them over the lower part of his chest—not too high (on the upper chest) and not too low (on the stomach).
- c. Rock your body forward so that its weight presses through your arms on to his chest. This forces the air out of his lungs. Allow the weight of your own body to do the work and keep your arms straight.
- d. Straighten up and rock back on your heels, sweeping his arms well up, then back and out as far as you can. This draws air into the lungs.
- e. Repeat this rhythmically twelve times a minute.
- f. Keep the airway clear. Constantly check that the mouth is not filling up with fluid (vomit or blood) and that the tongue is not falling back. Turning the head to one side helps any fluid to fall out. If an assistant is present he can be instructed to press the casualty's lower jaw so that it juts forward. (Do not do this if the jaw is badly injured.)

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TELEBRIEF
CONNECTIONS

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