

## SmartMan<sup>®</sup>

### Why it is Important To get Ventilations Right

**When a person is not breathing** adequately, positive pressure ventilation can be used to deliver oxygen and remove carbon dioxide from the lungs. Ventilations can be provided by using the mouth-to-mouth technique, an oxygen powered resuscitator or a bag-valve-mask device.

Although the technique of performing ventilations may seem easy, it requires practice and concentration to perfect. Proper positioning of the victim and rescuer, placement of the mask, creating an effective seal and delivering each breath with the correct force, volume, and rate, are all essential for effective ventilations.

#### VENTILATIONS

To perform effective ventilations one must pay attention to all of the following

##### 1. Rescuer Position:

*Mouth-to-mouth:* The rescuer is positioned beside the victim's head.

*Bag-Mask:* The rescuer is above the victim's head.

**2. Head Position:** The victim's head should be fully tilted back and the jaw lifted up to keep the tongue off the back of the throat (pharynx).

##### 3. Air-Tight Seal:

*Mouth-to-mouth:* Pinch the nose shut while making a seal with the face mask or face shield.

*Bag-Mask:* Lift the victim's jaw into the mask. Do NOT press the mask down onto the face. This can be done with one hand. Often this procedure is performed with 2 rescuers, one using two hands to hold the mask in the correct position.



##### 4. Inspiration Time and Volume:

**Rate of inspiration:** Perform slowly taking about 1 second.

**Volume of inspiration:** 0.5 to 0.6L (500-600 ml)

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- Shows your rate of inspiration, the volume of inspiration, the interval between inspirations and the total time taken. Each ventilation is displayed on a computer screen in colorful easy to understand bar graphs.
- Real time feedback allows you to integrate all your skills so you perform correctly. Correct performance gives the greatest benefit to the victim.
- SmartMan allows you to practice and test: Compressions alone, Ventilations alone or both together in full CPR.

**Only SmartMan<sup>®</sup> provides this type of Real-Time Training and Instant Feedback. It Accurately Measures and Validates how you perform CPR!**

TRAINING



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### The Detail to Improving Ventilations Page 2

#### RESCUE BREATHING

If a person has a pulse but is not breathing (respiratory arrest), provide 10-12 breaths per minute.

After each 1 second inspiration, quickly and completely release the bag. The positive pressure in the chest will push air out of the lungs. Wait about 4-5 seconds after releasing the bag before beginning the next ventilation. From the beginning of one ventilation to the beginning of the next ventilation should be 5-6 seconds.

#### VENTILATIONS IN CPR (Mouth-To-Mouth or Bag-Mask)

The recommended practice for CPR is 30 chest compressions followed by 2 ventilations. At the end of the last chest compression you have about 4 seconds to provide those 2 ventilations. Time is short, but it is important not to push the air into the lungs too quickly or the airway pressure will rise, the lower esophageal sphincter will open, and much of the air will go into the stomach. Inspiration time is 1 second and the second breath should be given as soon as the first breath has been exhaled.

#### VENTILATIONS IN CPR (Advanced Airway)

If an advanced airway has been inserted, such as an endotracheal tube or supraglottic device, ventilations are performed at a rate of 8-10 per minute, or about one for every 10 compressions.

#### IMPORTANT NOTE:

##### Current Ventilation Practice Likely Causes Harm

It is a common practice to unintentionally hyperventilate patients. Research shows that many times ventilations are too forceful, volumes are too great and/or they are too rapid; often more than 30 per minute.

- These errors usually occur due to the belief that “more oxygen is better for the victim”. **THIS IS INCORRECT AND DANGEROUS.** Administering too high a pressure, too large a volume and/or too rapid a rate increases stomach inflation. This leads to decreased lung efficiency and compliance, thereby directly decreasing the effectiveness of CPR.
- Less effective CPR **LOWERS THE LIKELIHOOD THAT THE PATIENT WILL SURVIVE.** Simply put, hyperventilation is harmful!
- To perform ventilations properly, it is important to have real time feedback of your performance, so that you can immediately adjust your technique and get it right!.



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