Why Emergency Oxygen is Important for a Workplace First Aid Program.

Information from the 2010 ECC American Heart Association guidelines and Emergency Medical Journals.

OXYGEN for extended CPR

http://circ.ahajournals.org/cgi/content/full/122/18_suppl_3/S685

How can bystander CPR be effective without rescue breathing? Initially during SCA with VF, rescue breaths are not as important as chest compressions because the oxygen level in the blood remains adequate for the first several minutes after cardiac arrest… *However, at some time during prolonged CPR, supplementary oxygen with assisted ventilation is necessary*. The precise interval for which the performance of Hands-Only CPR is acceptable is not known at this time.

Asthma

http://circ.ahajournals.org/cgi/content/full/122/18_suppl_3/S829 .

Oxygen should be provided to all patients with severe asthma, even those with normal oxygenation. … Patients with severe life-threatening asthma require urgent and aggressive treatment with simultaneous administration of oxygen, bronchodilators, and steroids.
-perfusion mismatch.

Acute Coronary Syndrome.

http://circ.ahajournals.org/cgi/content/full/122/18_suppl_3/S787

Oxygen should be administered to patients with breathlessness, signs of heart failure, shock, or an arterial oxyhemoglobinsaturation <94% (Class I, LOE C). Noninvasive monitoring of blood oxygen saturation can be useful.

Stroke

http://circ.ahajournals.org/cgi/content/full/122/18_suppl_3/S818

Patients with acute stroke are at risk for respiratory compromise from aspiration, upper airway obstruction, hypoventilation, and (rarely) neurogenic pulmonary edema. The combination of poor perfusion and hypoxemia will exacerbate and extend ischemic brain injury and has been associated with worse outcome from stroke.45 Both out-of-hospital and in-hospital medical personnel should administer supplemental oxygen to hypoxemic (ie, oxygen saturation <94%) stroke patients (Class I, LOE C) or those with unknown oxygen saturation.

Oxygen is essential to life, and supplemental oxygen is the most frequently used drug in the treatment of acutely ill and injured patients. An understanding of oxygen, its side effects, systems of delivery and reasons for precise dosage is essential in the management of very ill patients. Oxygen should be regarded as a drug and careful titration of its dosage against clinical response is necessary for maximum benefit. This article reviews the physiology of oxygen, systems of delivery and the rationale for their use.

Emergency Medicine, 1992;4(3):163–178

We evaluated the efficacy of three methods by which rescuers can breathe supplemental oxygen to increase their delivered oxygen concentration during single rescuer, bystander-initiated CPR. Volunteers trained only in basic life support performed ventilation only and full CPR on a CPR manikin using room air and each of three supplemental oxygen delivery methods: nasal cannula, oxygen supply tube/mask, and demand valve. The volunteers received minimal instruction on how to use the supplemental oxygen delivery methods. **Conclusion:** The use of supplemental oxygen increases the rescuer's FDO_2 during ventilation-only and full CPR without interfering with CPR performance.

Annals of Emergency Medicine, 1994;23(5):1027-1031

We tested the hypothesis that the supplemental administration of oxygen decreases the incidence of wound infection. We randomly assigned 500 patients to receive 30 percent or 80 percent inspired oxygen during an operation and for two hours afterward. Anesthetic treatment was standardized, and all patients received antibiotic therapy. Among the 250 patients who received 80 percent oxygen, 13 had surgical-wound infections, as compared with 28 of the 250 patients given 30 percent oxygen (P=0.01). **Conclusion**: The administration of supplemental oxygen is a practical method of reducing the incidence of surgical-wound infections.

New England Journal of Medicine, 2000;342(3):161-167.

The primary goal of oxygen therapy is to correct alveolar and/or tissue hypoxia. Therefore, any disorder causing hypoxia is a potential indication for oxygen administration. But the tissue oxygen delivery depends upon an adequate function of cardiovascular and the respiratory systems. Therefore, tissue hypoxia is not relieved by oxygen therapy alone – functioning of all the systems also needs to be improved. **Conclusion**: Oxygen therapy should be administered according to guidelines. Proper monitoring of oxygen therapy is recommended to ensure adequate oxygenation and to save precious oxygen from wastage.

Journal of the Indian Academy of Clinical Medicine, 2001;2(3):178-184.

It is crucial to provide optimal oxygen therapy while the acutely breathless patient is being transferred to hospital, assessed in the emergency department and treated for their disease. For most such patients, the main concern is to give sufficient oxygen to support their needs. The

major risk is giving too little oxygen (hypoxia). **Conclusion**: Insufficient oxygen therapy can lead to cardiac arrhythmias, tissue damage, renal damage and, ultimately, cerebral damage.

Emergency Medical Journal, 2001;18:421-423

For critically ill patients, high concentration oxygen should be administered immediately and this should be recorded afterwards in the patient's health record. All critically ill patients should be assessed and monitored using a recognized physiological track and trigger system. Oxygen should be administered by staff who are trained in oxygen administration. Oxygen saturation and delivery system should be recorded on the patient's monitoring chart

***Thorax* 2008;63:vi1-vi68**