Safe-Wise℠
Experience • Knowledge • Insight

Considerations for the use of Emergency Oxygen

Serious and life-threatening medical emergencies often cause oxygen to be depleted in the body leaving the victim at risk for cardiac arrest or brain damage. While there is currently no empirical data that supports (or discourages) the use of emergency oxygen in emergency situations, medical oxygen has been used for years by EMS and physicians. Many national organizations (see "authorities" below) in the emergency services field suggest that the use of emergency oxygen is a critical step in treating a severe or life-threatening illness or injury.

In normal situations the lungs absorb 5% to 7% of the available oxygen in the air. Administering emergency oxygen increases the oxygen concentration in the lungs allowing more oxygen to be absorbed. In emergency situations, increasing the oxygen concentration helps prevent brain damage, stabilizes the heart and other vital organs, and can even save a life. Without adequate oxygen, hypoxia, a condition in which insufficient oxygen reaches the cells, will occur.

Unlike the medical version, emergency oxygen does not require a prescription. The Food and Drug Administration (FDA) regulation of oxygen is defined by the dose and duration of the oxygen administration. According to the FDA, to be classified as emergency oxygen, it must be delivered at a dose of at least 6 liters per minute or run for a duration of more than 15 minutes. In this case it is considered first aid use and does not require a prescription. When the dose of oxygen is delivered for less than 6 liters per minute or for a duration of less than 15 minutes, a prescription for oxygen is required. State and local regulations may differ and should be consulted before allowing staff to administer emergency oxygen.

Guidelines for use:

The following strategies are suggested for organizations considering the use of emergency oxygen for the treatment of accident and illness victims:

- Organizations should have their supervising medical authority review and approve the use of emergency oxygen prior to equipping facilities and training staff
- Facilities equipped with emergency oxygen should maintain at least one staff member trained in its use onsite at all times during operations.
- Staff should be trained and maintain a current oxygen administration certification from a national organization (see below)
- Delivery devices and equipment should be stored, serviced, and maintained in accordance with manufacturer, OSHA and any state requirements.
- Signage to indicate the presence of compressed gas cylinders should be posted in compliance with all regulations.
- Regular and documented inspections of equipment should be conducted according to national standards.
- Oxygen delivery should be shut down during the use of an AED shock.

Recommending Authorities:

ASHI (American Safety & Health Institute) - Serious and life-threatening medical emergencies often cause oxygen to be depleted in the body leaving the victim at risk for cardiac arrest or brain damage. Emergency Oxygen administration is a critical step in treating a severe or life-threatening illness or injury.

Divers Alert network (DAN) - Providing high concentrations of oxygen to near-drowning victims in the first few minutes after rescue can prevent serious or even fatal complications. Administering 100 percent oxygen first aid immediately after an accident improves the victim's survival chances.

International Life Saving Federation (ILSF) - The physiological benefit of providing oxygen to spontaneously breathing drowning victims or during CPR in drowning victims in respiratory arrest is clear and advocates that oxygen should be used in all drowning victims.

YMCA of the USA Medical Advisory Committee - Research studies have shown that the use of supplemental oxygen can aid in the care of accident victims. Life-threatening medical emergencies are usually accompanied by low tissue oxygen levels (not enough oxygen to tissue and organs). If this progresses, the brain will begin to die first, with other organs following. Additionally, low oxygen levels to the heart may lead to cardiac arrest. After opening the airway, administering supplemental oxygen is the most important step in treatment.

Available Courses:

The Food and Drug Administration (FDA) controls the distribution and labeling of portable oxygen devices used for emergency resuscitation and life support. The Occupational Safety and Health Administration (OSHA) provides standards for ensuring adequate safety and health at the workplace which include the use of devices during life support and first aid. Several national training organizations have created and distributed programs to teach administration of oxygen. Organizations should assure that certifications are recognized by their state and/or other governing body before entering into a training program.

American Red Cross (ARC) - Administering Emergency Oxygen program provides the knowledge and skills necessary to provide care to a victim of a breathing emergency using breathing devices, including resuscitation masks, bag-valve mask resuscitators and supplemental oxygen. The certification is valid for one year and requires current CPR certification. Courses require 1 – 2.5 hours for certification depending on level of CPR certification.

ASHI (American Safety & Health Institute) **-** Emergency Oxygen administration program focuses on administering emergency oxygen, rescue breathing and oxygen delivery devices. Initial certification I instruction requires 1.5 hours for course. Certification can last up to 2 years but is recommended to be renewed annual with a short refresher course. Course requires current CPR and First Aid certifications.

American Safety Training Institute (ASTI) - Oxygen Administration, and Bloodborne Pathogens. Certifications are valid for 2 years from date of course completion. Course takes 1-3 hours to complete.

Divers Alert Network (DAN) - Oxygen First Aid for Aquatic Emergencies, provides training designed to provide emergency oxygen first aid during aquatic emergencies. Course takes 3 hours.

Other considerations:

- Use of emergency oxygen can be a critical response to many emergency situations and can be an effective first aid technique to prevent shock and cardiac arrest.
- Anyone properly instructed in its use may administer emergency oxygen
- Cylinders should be refilled by a vendor that is licensed and follows federal requirements for the handling, transportation and use of oxygen.
- Oxygen does not 'catch fire' or explode. It supports and accelerates combustion. Oxygen is perfectly safe when properly handled and used by person certified in oxygen administration.
- Cylinders should be stored and handled with the same care as any compressed gas device.
- Oxygen is not specifically a part of the OSHA Bloodborne pathogens standards but it is important to follow the OSHA standard should units become contaminated with blood or other potentially infectious materials.
- Emergency oxygen administration is considered first aid and may be covered under the Good Samaritan Laws.
- Cylinders should be stored in an upright position and separate from any flammable gases or petroleum products.
- Oxygen cylinders should never be subjected to a temperature above 125 degrees Fahrenheit, prolonged exposure to direct sunlight, excessive rise in temperature, or stored near radiators or other sources of heat.

Information for this document has been obtained from a number of sources including: American Heart Association, American College of Emergency Physicians, American Red Cross, International Lifesaving Federation, YMCA of the USA, American Medical Association, American Safety & Health Institute and the Divers Alert Network.

Information in this document is provided for discussion and informational purposes only. It is not intended to be a substitute for any lawful requirements or to suggest and establish a standard of emergency medical care.

More emergency preparation information is available from the
Safe-Wise Consulting Online Resource Library