

ADMINISTERING EMERGENCY OXYGEN

Emergency oxygen can be given for many breathing and cardiac emergencies. It can help improve hypoxia (insufficient oxygen reaching the cells) and reduce pain and breathing discomfort. Always follow local protocols for using emergency oxygen. Consider administering emergency oxygen for:

- An adult breathing fewer than 12 or more than 20 breaths per minute.
- A child breathing fewer than 15 or more than 30 breaths per minute.
- An infant breathing fewer than 25 or more than 50 breaths per minute.
- A person who is not breathing.

Emergency Oxygen Delivery Systems

Emergency oxygen delivery systems include the following equipment:

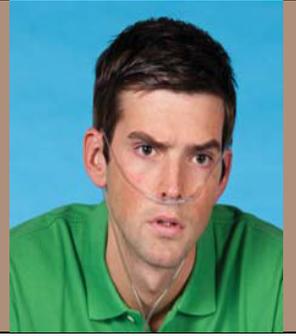
- *An oxygen cylinder.* Oxygen cylinders come in different sizes and have various pressure capacities. Cylinders are labeled “U.S.P.” (United States Pharmacopeia) and marked with a yellow diamond that says “Oxygen,” which indicates the oxygen is medical grade. Oxygen cylinders contain gas under high pressure. If mishandled, cylinders can cause serious damage, injury or death.
- *A pressure regulator with flowmeter.* The pressure regulator controls the pressure coming out of the cylinder and is indicated on the gauge in pounds per square inch (psi). The flowmeter controls how rapidly the oxygen flows from the cylinder to the victim. The flow rate can be set from 1 to 25 liters per minute (LPM).
- *A delivery device.* The equipment a victim breathes through is an oxygen delivery device. Tubing carries the oxygen from the regulator to the delivery device. Delivery devices include nasal cannulas, resuscitation masks, non-rebreather masks and bag-valve-mask resuscitators (BVMs).

Emergency oxygen units are available without prescription for first aid use, provided they contain at least a 15-minute supply of oxygen and are designed to deliver a preset flow rate of at least 6 LPM. The type of system used (variable or fixed flow) impacts the type of delivery devices that can be used and the concentration of oxygen that can be delivered to a victim.

- *Variable-flow-rate oxygen systems* allow the rescuer to vary the flow of oxygen. This type of system must be assembled and the appropriate flow rate selected.
- *Fixed-flow-rate oxygen systems* include a regulator set at a fixed-flow rate, usually 15 LPM, or may have a dual (high/low) flow setting. The cylinder, regulator and delivery device are already connected.

Oxygen Delivery Devices

Oxygen should be delivered with properly sized equipment for the victim and appropriate flow rates for the delivery device. Various sizes of oxygen delivery devices are available for adults, children and infants.

Delivery Device	Description	Common Flow Rate	Oxygen Concentrations	Suitable Victims
Nasal cannula 	Held in place over the victim's ears; oxygen is delivered at a low level through two small prongs inserted into the nostrils. Not used in this kit	1–6 LPM	24–44%	<ul style="list-style-type: none"> ■ Victims with breathing difficulty ■ Victims unable to tolerate mask
Resuscitation mask with oxygen inlet 	Pliable, dome-shaped breathing device that fits over the mouth and nose	6–15 LPM	35–55%	<ul style="list-style-type: none"> ■ Victims with breathing difficulty ■ Victims who are not breathing
Non-rebreather mask 	Face mask with an attached oxygen reservoir bag and one-way valve between the mask and bag; victim inhales oxygen from the bag and exhaled air escapes through flutter valves on the side of the mask	10–15 LPM	Up to 90%	Breathing victims only
BVM 	Hand-held breathing device consisting of a self-inflating bag, a one-way valve and a face mask	15 LPM or higher	90% or more	<ul style="list-style-type: none"> ■ Victims with difficulty breathing ■ Victims who are not breathing