Oxygen is an odorless, colorless, tasteless gas present in the atmosphere. It is essential for production of energy in cells. Oxygen added to inspired air raises the amount of oxygen reaching the alveoli of the lungs. It is hoped that this increase in PaO2 will be picked up by the bloodstream and delivered to the tissues. However, bloodstream diseases as pulmonary hypertension or tissue injuries may limit the effectiveness of increasing the amount of O2 being inhaled. Oxygen is required for cells to efficiently breakdown glucose into a usable form of energy. Tissue hypoxia causes cell damage and death.

Indications and Administration

1. Any time hypoxia or potential hypoxia may be present or oxygen demands have increased.
   a. **Adult -** mild to moderate flow, 1 - 6 l/min by cannula, high flow, 10 -15 l/min non-rebreather mask.
   b. **Pediatric -** same as adult. May use blow by if patient will not cooperate with a mask or cannula.

Notes

1. If the patient is not breathing adequately on his own, the treatment then is assisted ventilation.
2. A small percentage of patients with chronic lung disease breathe because they are hypoxic. Administration of O_2 for extended periods will shut off their respiratory drive. Do not withhold oxygen because of this possibility. You will never reach the required period of time to shut off the patient's hypoxic drive.
3. Non-humidified O_2 is drying and irritating to mucous membranes.
4. Oxygen supports combustion.
5. Oxygen toxicity is not a risk in the prehospital use of oxygen.
6. Nasal cannula works equally well on nose and mouth breathers.
7. Do not use a nasal cannula with a flow rate over 6 L/min and do not give less than 10 L/min with a non-rebreathing mask.
8. Concentration guide:

Device	Flow Rate	Concentration
Nasal Cannula	1 - 6 L/min	24% - 44%
Simple Mask	8 - 10 L/min	40% - 60%
Partial Nonrebreather	4 - 12 L/min	24% - 50%
Nonrebreather	10 - 15 L/min	60% - 90%
BVM w/ reservoir	10 - 15 L/min	40% - 90%