Assisted Breathing

reathing comes so naturally for most of us that we never consider that we might ever need assistance breathing. Nevertheless, in some situations a person may need extra oxygen or the help of a **ventilator** (a device that pumps air into a person's lungs and helps him or her breathe regularly).

An article in the November 8, 2000, issue of *JAMA* discusses the use of invasive and noninvasive mechanical ventilation techniques (see "Types of Breathing Assistance" below) for individuals hospitalized with

severe respiratory problems.

SYMPTOMS OF RESPIRATORY DISTRESS AND FAILURE:

Every individual is different and he or she may experience some symptoms and not others, partly based on the cause of respiratory distress.

- Breathing rate becomes quicker
- Breathing becomes more difficult
- Heart rate becomes quicker
- Sweating
- Turning blue from lack of oxygen in the blood. This is the most serious symptom of respiratory failure; emergency action must be taken.

Seek emergency help immediately if you suspect someone is experiencing respiratory failure.

TYPES OF BREATHING ASSISTANCE:

- Mouth-to-mouth resuscitation a shortterm method to help someone breathe in an emergency situation
- Oxygen therapy providing oxygenenriched air to a person
- Invasive mechanical ventilation use of a machine to help a person breathe through a tube inserted down the trachea (the windpipe); sometimes a tracheotomy (a surgical operation to create a hole in the trachea) is performed
- Noninvasive mechanical ventilation – use of machine to help a person breathe by providing oxygen through a mask over the face or nose

CONDITIONS THAT MAY LEAD TO RESPIRATORY DISTRESS OR FAILURE:

The following diseases may progress to respiratory distress or failure

- Severe forms of asthma
- Chronic obstructive pulmonary disease – a term used for lung conditions that in
- used for lung conditions that involve obstruction to the airflow in the respiratory system, including chronic bronchitis and emphysema
- **Cystic fibrosis** a genetic disease of the body's mucus and sweat-producing glands; mucus-accumulates in the digestive system and the lungs.
- Heart failure
- Pneumonia and other lung infections

Respiratory distress or failure can also be caused by other circumstances

- Lungs injured by smoke, steam, or toxic gases (such as during a house fire)
- Lungs injured by a trauma (such as trauma caused in an automobile collision)
- Nearly drowning
- Inhaling vomit
- Inhaling an irritant, such as toxic gases
- Drug overdose

FOR MORE INFORMATION:

- National Heart, Lung, and Blood Institute (NHLBI) NHLBI Information Center
 - 301 592-8573 or www.nhlbi.nih.gov
- American College of Chest Physicians Patient Education Guide: Mechanical Ventilation
- 847 498-1400 or www.chestnet.org • American Lung Association 800 LUNG USA
- www.lungusa.org

INFORM YOURSELF:

To find this and previous JAMA Patient Pages, check out the AMA's Web site at www.ama-assn.org/consumer.htm.

Additional Sources: National Heart, Lung, and Blood Institute, American College of Chest Physicians, The AMA Home Medical Library, The AMA Family Medical Guide, The AMA Encyclopedia of Medicine

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MECHANICAL VENTILATION



WHAT IS RESPIRATORY FAILURE?

A life-threatening situation in which the respiratory system stops functioning properly may be referred to as **respiratory failure**. During respiratory failure there is an imbalance in the normal exchange of oxygen and carbon dioxide. There may be a decrease in the levels of oxygen causing **hypoxemia** (too little oxygen in the blood) and/or an increase in the levels of carbon dioxide in the blood causing **hypercapnia** (too much carbon dioxide in the blood).

WHAT IS RESPIRATORY DISTRESS?

Respiratory distress is a term used to describe a condition in which there is a not enough oxygen in the blood due to problems with the ability of the lungs to take in oxygen. Respiratory distress can lead to respiratory failure.