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Respiratory Therapy

Name:

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Respiratory Therapy-Treat patients with heart and lung diseases by administering oxygen, gases, or medications; use exercise to improve breathing; and perform diagnostic respiratory function tests (with Dr.'s orders)

A Day in a Respiratory Therapist's Life:

On a typical day a respiratory therapist will:

- **treat all types of patients including infants and the elderly**
- **consult with physicians and other healthcare staff to help develop and modify individual patient care plans**
- **provide complex therapy requiring a great deal of independent judgment, e.g. caring for patients who are on life support in hospital intensive care units**
- **treat patients by using oxygen or oxygen mixtures, chest physiotherapy, and aerosol medications**
- **connect patients who cannot breathe on their own to ventilators that deliver pressurized oxygen into the lungs**
- **perform regular checks on patients and equipment**
- **supervise respiratory therapy technicians**

Training, Other Qualifications, and Advancement

An associate degree is the minimum educational requirement, but a bachelor's or master's degree may be important for advancement. All States, except Alaska and Hawaii, require respiratory therapists to be licensed.

Education and training. An associate degree is required to become a respiratory therapist. Training is offered at the postsecondary level by colleges and universities, medical schools, vocational-technical institutes, and the Armed Forces. Most programs award associate or bachelor's degree and prepare graduates for jobs as advanced respiratory therapists. A limited number of associate degree programs lead to jobs as entry-level respiratory therapists. According to the Commission on Accreditation of Allied Health Education Programs (CAAHEP), 31 entry-level and 346 advanced respiratory therapy programs were accredited in the United States in 2008.

Among the areas of study in respiratory therapy programs are human anatomy and physiology, pathophysiology, chemistry, physics, microbiology, pharmacology, and mathematics. Other courses deal with therapeutic and diagnostic procedures and tests, equipment, patient assessment, cardiopulmonary resuscitation, the application of clinical practice guidelines, patient care outside of hospitals, cardiac and

pulmonary rehabilitation, respiratory health promotion and disease prevention, and medical recordkeeping and reimbursement.

High school students interested in applying to respiratory therapy programs should take courses in health, biology, mathematics, chemistry, and physics. Respiratory care involves basic mathematical problem solving and an understanding of chemical and physical principles. For example, respiratory care workers must be able to compute dosages of medication and calculate gas concentrations.

Other qualifications. Therapists should be sensitive to a patient's physical and psychological needs. Respiratory care practitioners must pay attention to detail, follow instructions, and work as part of a team. In addition, operating advanced equipment requires proficiency with computers.

Advancement. Respiratory therapists advance in clinical practice by moving from general care to the care of critically ill patients who have significant problems in other organ systems, such as the heart or kidneys. Respiratory therapists, especially those with a bachelor's or master's degree, also may advance to supervisory or managerial positions in a respiratory therapy department. Some respiratory therapists advance by moving into teaching positions. Some others use the knowledge gained as a respiratory therapist to work in another industry, such as developing, marketing, or selling pharmaceuticals and medical devices.

Respiratory therapists held about 105,900 jobs in 2008. About 81 percent of jobs were in hospitals, mainly in departments of respiratory care, anesthesiology, or pulmonary medicine. Most of the remaining jobs were in offices of physicians or other health practitioners, consumer-goods rental firms that supply respiratory equipment for home use, nursing care facilities, employment services, and home healthcare services.

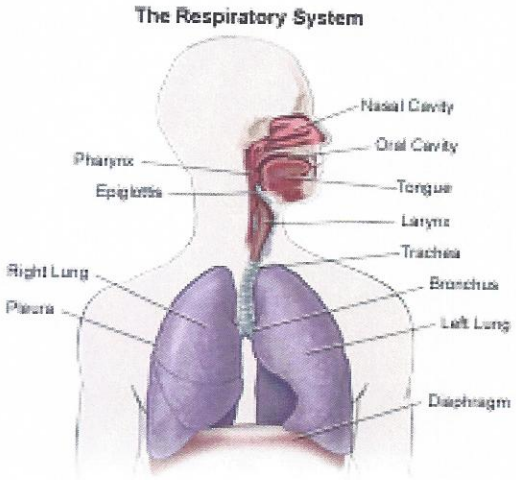
Employment change. Employment of respiratory therapists is expected to grow by 21 percent from 2008 to 2018, much faster than the average for all occupations. The increasing demand will come from substantial growth in the middle-aged and elderly population—a development that will heighten the incidence of cardiopulmonary disease. Growth in demand also will result from the expanding role of respiratory therapists in case management, disease prevention, emergency care, and the early detection of pulmonary disorders.

Job prospects. Job opportunities are expected to be very good, especially for those with a bachelor's degree and certification, and those with cardiopulmonary care skills or experience working with infants. The vast majority of job openings will continue to be in hospitals. However, a growing number of

openings are expected to be outside of hospitals, especially in home healthcare services, offices of physicians or other health practitioners, consumer-goods rental firms.

Respiratory Diseases

Respiratory obstructions arising from diseases can occur in the nasal area, the regions of the throat and windpipe (upper respiratory system), or in the bronchial tubes and lungs (lower respiratory system). The common cold and allergic reactions to airborne pollens block the nasal passages by creating nasal inflammation (rhinitis). Viral and bacterial infections of the upper respiratory tract inflame various parts of the airways. These infections lead to fever, irritation, coughing, and phlegm, which is mixture of mucus and pus. Inflammations may occur in the throat (pharynx), tonsils, larynx, and bronchial tubes. Damage to these parts of the respiratory system and to the lungs can also result from the inhalation of tobacco smoke, air pollution caused by smog, and industrial waste products.

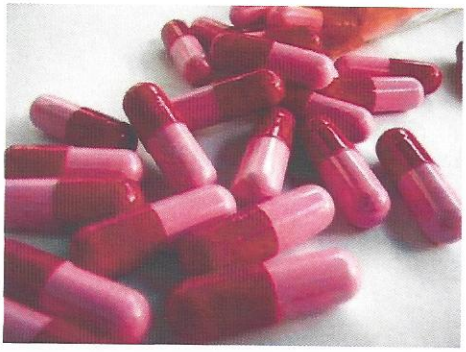


With the mid-twentieth-century discovery and use of antibiotics, the two major respiratory killers of the past, tuberculosis and pneumonia, were brought under control. In place of those diseases, lung cancer began to emerge in the 1940s as an **epidemic disease** among those who are heavy smokers of cigarettes and those who are exposed to some forms of hazardous environmental pollution. Worksite populations exposed to such materials as asbestos, chromium, and radioactive substances were also found to have a higher incidence of lung cancer.

Colds, like flu and allergies, challenge the breathing process. There are no cures for these conditions, but they are usually not life threatening, unlike many other respiratory diseases. Prescription medicines and over-the-counter medications may provide temporary relief of the discomforts associated with colds, flu, and allergies, while asthma, tuberculosis, and other respiratory diseases require long-range medical attention and supervision.

Coughing is a reflex action that helps to expel infected mucus or phlegm from the airways of the lungs by causing the diaphragm to contract spasmodically. It is characterized by loud explosive sounds that can often indicate the nature of the discomfort. While coughing is irritating and uncomfortable, losing the ability to cough can be fatal in an illness such as pneumonia, where coughing is essential to break up the mucous and other infected secretions produced by the body in its battle against the disease.

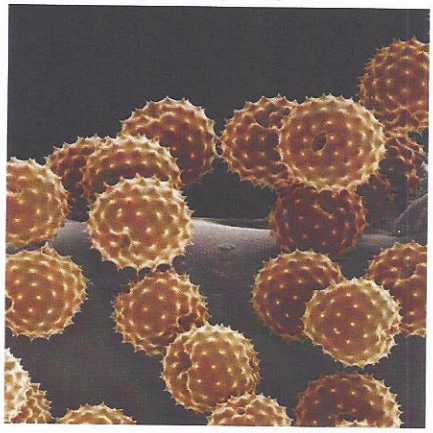
Antibiotics kill bacteria but not viruses; hence they are not effective against cold viruses. The body has to build up its own defense against them. Since there are so many different types of viruses that can cause a cold, no vaccine to protect against the cold has as yet been developed. Though the common cold by itself is not a serious condition, it poses a threat because of the complications that may arise from it, especially for children, who are much more prone to colds than older people.



Colds are usually contracted in the awinter months, but there are other seasonal conditions that make individuals receptive to colds.

Influenza---Other viruses cause different types of influenza, such as swine flu, Asian flu, Hong Kong flu, and Victoria flu. Some of the symptoms of influenza resemble the common cold, but influenza is a more serious condition than a cold. It is a disease of the lungs and is highly contagious. Its symptoms include fever, chills, weakness, and aches. It can be especially dangerous to the elderly, children, and the chronically ill. Flu vaccines provide only seasonal immunity, and each year new serums have to be developed for the particular strain that appears to be current in that period of time.

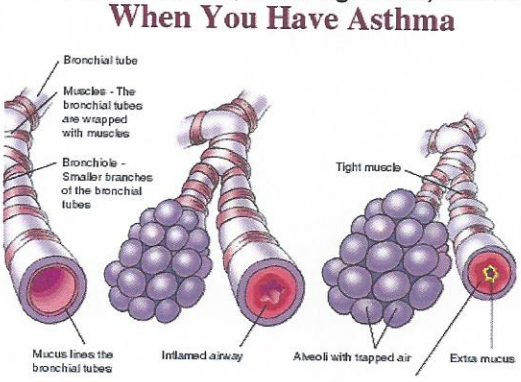
Allergic Rhinitis---Every season throughout the world, ragweed and pollens from grasses, plants, and trees produce the reactions of sneezing, runny nose, swollen nasal tissue, headaches, blocked sinuses, fever, and watery, irritated eyes in those who are sensitive to these substances. These are the symptoms of hay fever, which is one of the common allergies. Allergic respiratory disturbances may also be provoked by dust particles. Usually, the allergic response is due more to the feces of the dust mite that inhabits the dust particle. The dust mite's feces are small enough to be inhaled and to create an allergic respiratory response.



Colds and allergic rhinitis both cause the nasal passages and sinuses to become stuffed and clogged with excess mucous. In the case of a cold, a viral infection is responsible for the production of excess mucus. Inhaling steam with an aromatic oil is recommended for the cold. Histamines released by the mast cells play a major role in an allergic immune response, and it is these chemicals, for the most part, that are responsible for the allergy symptoms

TB---Tuberculosis is an infectious disease of the lungs caused by bacteria called tubercle bacilli. It was one of the major causes of death until the introduction of antibiotics in the 1940s. The bacillus is transmitted by the coughing of an individual who has an advanced case of the disease and infects the lungs of uninfected people who inhale the infected droplets. The disease is also spread through ...

Asthma--- is a disorder that causes the airways of the lungs to swell and narrow, leading to wheezing, shortness of breath, chest tightness, and coughing.



Pneumonia---Pneumonia, another life threatening disease, is an infection or inflammation of the lungs caused by bacteria, viruses, mycoplasma (microorganisms that show similarities to both viruses and bacteria), and fungi, as well as such inorganic agents as inhaled dusts or gases. The irritation to the lung tissues from these sources destroys the alveoli (air sacs) of the lung. Blood cells from lung capillary

Breathing Practices

+Ventilator Support—a method of moving air in and out of the lungs by mechanical means

+Therapeutic Gases--Gases are used to provide an improved supply of oxygen to the body

+Humidity and Medication—The respiratory system must be kept moist to function properly. It may become dried out by dehydration, air pollution, smoking or infection.

+Self Care Skills—Patients with breathing problems must be helped to: **Know** their limitations, **Use** their capabilities and strengthen them, **Beware** of dangers, **Keep** in good physical condition.

Oxygen

Must be prescribed by a Physician.

People who may need oxygen:

-chronic bronchitis -congestive heart failure -cystic fibrosis
-asthma

-occupational lung disease -lung cancer -emphysema