What is the respiratory system?

The respiratory system is everything to do with breathing [1]. The organs used in breathing are nose, throat, larynx (voice box), trachea (tube running from the back of the throat into the top of lungs) and lungs. The two lungs, right and left, are located in the chest. The lungs are made up of the bronchi (tubes that carry air to the lungs) and the arterioles (air sacs in lungs that hold oxygen). Breathing enables us to take up oxygen from the air around us, and to get rid of carbon dioxide from our bodies. Oxygen is needed for the cells and organs in our body to function, and carbon dioxide is a waste product of this function.

What is respiratory sickness?

Respiratory sickness occurs when organs of the respiratory system are damaged or diseased. There are two main ways of describing respiratory sickness [2]. One way is by location: in the upper respiratory system (the part above lungs) or the lower respiratory system (part below trachea). The other way is by duration of the respiratory sickness: if the sickness lasts a short time, it is called acute; if it lasts longer than three months, it is called chronic respiratory disease. Many respiratory illnesses are caused by viruses, which don’t respond to antibiotics, but others, caused by bacteria, are treated with antibiotics.

What is acute upper respiratory tract sickness?

These are respiratory sicknesses in the upper part (tract) of the respiratory system that last a short time; they are also called upper

More detailed information about respiratory health in Indigenous people can be found at:

http://www.healthinfonet.ecu.edu.au/lung_review
respiratory tract infections (URTIs). These infections are caused by viruses (tiny germs that can’t be fixed with antibiotic medicine) and bacteria (tiny germs that can be fixed with antibiotic medicine). URTIs are described according to which part of the respiratory tract is infected, as follows:

Sinuses (the bone cavities in the face [3]): Infection can occur in the sinuses if a cold or flu blocks them with mucus. Cigarette smoke, pollen and other allergens (something the body is allergic to) in the air, or snorting too much medicine, or snorting illegal substances can also irritate the sinuses or cause infections. Tumours or growths can also block the sinuses, and if so, these have to be removed. Sinusitis (infection of the sinuses) can be acute or chronic [3].

Nasopharynx (nose and throat): Infection in the nose usually takes the form of the ‘common cold’ [3]. A cold is very easy to catch. The most common way to catch a cold is by coming into contact with infected water droplets from another person when they cough or sneeze. Exposure to cold weather does not give you a cold. A cold might give you a sore throat, tiredness, sneezing, occasionally fever, runny nose, and a cough that can last up to two weeks. Colds are caused by viruses, so antibiotics do not help them. In most cases, a cold lasts between 4 and 10 days. There is no cure for a cold, but some medicines can give you relief (for example, by making breathing easier).

Pharynx (throat or windpipe): Sore throat occurs in the pharynx when this passage at the back of the throat gets infected [3]. This section of the wind pipe starts behind the nose and ends at the top of the trachea (the pipe that goes to the lungs). Infection of the pharynx (throat) makes it painful to swallow and may cause the throat to blister and become dry. Infection of this part of the respiratory system can be caused by viruses or bacteria. If the infection is caused by bacteria it is usually the bacteria called Streptococcus.

Larynx (voice box): Inflammation of the larynx is usually caused by viral infections [3]. However, chronic laryngitis can be caused by allergies, smoking, sniffing glue or petrol, and over-use of the voice. People who have bronchitis, pneumonia, influenza, pertussis (whooping cough), measles, and diphtheria can also get laryngitis. As well as a sore throat, laryngitis can cause you to lose your voice, have a tickling throat, rawness, an urge to clear the throat, fever, and tiredness. A common form of sickness involving the pharynx and/or larynx in very young children is called croup [3]. It can be recognised by a harsh cough that sounds like a barking seal.

Tonsils (patches of tissue on either side of the throat): Inflammation of the tonsils, also known as acute sore throat or tonsillitis, can cause sore throat, pain when swallowing, pain in the ears, and, sometimes, high fever, tiredness, headache, and vomiting. It is usually caused by bacteria.

Epiglottis (the fleshy flap that covers windpipe at back of throat to stop food entering the lungs): Infection of the epiglottis is a serious sickness usually caused by bacteria such as Streptococcus and Haemophilus. This infection leads to the swelling and redness of the epiglottis and surrounding tissues. Common signs of epiglottitis include high fever, sore throat, hoarseness, difficulty swallowing, and difficult and noisy breathing. Someone with this sickness needs to go straight to hospital for special care.

What is acute lower respiratory tract sickness?

Sicknesses in the respiratory system below the bronchi are called lower respiratory tract infections (LRTIs). Acute lower respiratory tract infections are similar to upper respiratory tract infections because the signs appear quickly and the sickness lasts between one week and three months [4]. These infections are usually caused by viruses. Sometimes viral infection is followed by a bacterial infection. Lower respiratory tract infections can last longer than 3 months and become chronic. LRTIs are also described according to where they occur in the respiratory system, as follows:

Bronchi (main tubes that lead to lungs): If this airway is infected it swells, produces mucus (sputum) and can get blocked [5]. When the airway and lungs becomes blocked with mucus, there is more chance of getting a bacterial infection. If you have bronchitis you might get more tired, turn hot and then cold, have a sore throat and/or a sore back. You may also have muscle pain and a cough that produces mucus. Acute bronchitis lasts for three months or less, with high fever usually for no longer than 3-5 days.

Bronchioles (the tiny tubes within lungs that branch from the bronchi to the air sacs forming a sort of tree shape): Sickness here occurs when the bronchioles are infected by respiratory syncytial (a mass of undivided virus cells) virus (RSV), most commonly caught, like the common cold, during winter and early spring. Children and infants can get this infection at a high rate, with infants getting it most often [6]. Signs of bronchiolitis include coughing, breathlessness and crackled breathing. It is treated with cortisone (a type of steroid).

Lungs (spongy bags in the chest where the air sacs remove carbon dioxide from the blood and take in oxygen from the air): Influenza (flu) and pneumonia are the most common type of lung sickness. General flu symptoms include fever, cough, headache, tiredness, inflamed linings of the respiratory system, and head cold symptoms such as a runny nose and watery eyes. Sometimes, a person may experience nausea and vomiting. Flu is usually caused by viruses. There are three main types of virus that cause flu - influenza A, influenza B, and influenza C [3]. These viruses can sometimes cause...
pneumonia (a more serious disease that can sometimes kill).

Pneumonia, an inflammation of one or both of the lungs, can be bacterial, viral, fungal or parasitic, but bacterial and viral pneumonia are the most common. Signs of pneumonia include fever, chills, cough with mucus production, and, sometimes, pleuritic chest pain (the pleura is the lining of the lungs and inside part of chest cavity). Pneumonia can also cause people, particularly children, to breathe faster than normal. Symptoms of pneumonia can sometimes be the same as for the common cold, but pneumonia usually develops over a longer time and lasts much longer than a cold [2].

What is chronic lower respiratory tract sickness?

Chronic lower respiratory tract sickness is when the exchange of gases (oxygen and carbon dioxide) is slowed because the air flow is blocked or there is damage to the lungs. Together, these conditions are known as chronic obstructive pulmonary disease (COPD), and include chronic bronchitis, bronchiectasis, emphysema and asthma [5]. These sicknesses can be permanent.

Bronchi: When the lining of the airways become swollen and blocked with mucus (or sputum) for longer than three months this is called chronic bronchitis [5].

Another chronic sickness of the bronchi and bronchioles is bronchiectasis. Viruses or bacteria infect the bronchi, which get red and swollen. If infection causes the bronchi and bronchioles to widen abnormally and permanently, mucus can build up making it hard to breathe. The infection can keep coming back. When the sickness gets worse the body is not able to fight it and the person can get more infections, which can last for longer periods of time. The signs of bronchiectasis are fever, a very bad cough, shortness of breath and the production of large amounts of mucus. The mucus can sometimes have blood in it. This is a chronic sickness where the signs can get gradually worse and lead to death.

Alveoli (tiny air sacs in the lungs that help in gas exchange): When too much air builds up in the alveoli the air sacs may get bigger and be damaged or break. Scars can form in the lung tissue. This process makes the lungs less elastic, so that the person has to work harder to breathe. This change happens gradually. A person with this sickness may be short of breath, have a tight chest, and may wheeze. This sickness is called emphysema [5].

Bronchial tubes (large air tubes that begin at the bottom of windpipe and branch into lungs): Inflammation of the bronchial tubes causes them to swell and the inside of the tubes to get smaller [7]. The bronchial walls can spasm (tighten or cramp), which causes coughing and wheezing as the person gasps for air. This condition is known as asthma. Spasm of the bronchial walls can also be caused by allergens (something the body is allergic to). Heavy exercise, smoking, diet, pollution, viral infections and being in cold air can also trigger an asthma attack. Signs of asthma include shortness of breath, chest tightness, coughing, and wheezing. Breathing tests and chest x-rays are used to help find out if someone has asthma. If there is no wheezing, the person probably doesn’t have asthma.

References

The Australian Indigenous HealthInfoNet is an innovative Internet resource that contributes to ‘closing the gap’ in health between Indigenous and other Australians by informing practice and policy in Indigenous health.

Two concepts underpin the HealthInfoNet’s work. The first is evidence-informed decision-making, whereby practitioners and policy-makers have access to the best available research and other information. This concept is linked with that of translational research (TR), which involves making research and other information available in a form that has immediate, practical utility. Implementation of these two concepts involves synthesis, exchange and ethical application of knowledge through ongoing interaction with key stakeholders.

The HealthInfoNet’s work in TR at a population-health level, in which it is at the forefront internationally, addresses the knowledge needs of a wide range of potential users, including policy-makers, health service providers, program managers, clinicians, Indigenous health workers, and other health professionals. The HealthInfoNet also provides easy-to-read and summarised material for students and the general community.

The HealthInfoNet encourages and supports information-sharing among practitioners, policy-makers and others working to improve Indigenous health – its free on line yarning places enable people across the country to share information, knowledge and experience. The HealthInfoNet is funded mainly by the Australian Department of Health and Ageing. Its award-winning web resource (www.healthinfonet.ecu.edu.au) is free and available to everyone.