



Workshop on respiratory and cardiovascular disease

Information for delegates

WELLINE is a network project funded from the recent Medical Research Council's Lifelong Health & Wellbeing call. The project will run over a 12 month period completing by summer 2010. The purpose of the WELLINE project is to identify factors in the indoor environment that influence the health and wellbeing of people throughout their lives. The principal objective is to identify interventions and other actions that can immediately be recommended, and also to focus on areas of uncertainty that require further research. We will then submit an application to the Medical Research Council for further funds. We also aim to produce a paper for publication describing the findings from our project.

The method we are using to is known as DPSEEA, which stands for Drivers, Pressures, State, Exposure, Effects and Actions. These elements are used to develop chains of relationships which will allow identification of specific actions to improve outcomes or reduce adverse effects. There will be a session at the workshop explaining the DSPEEA method in more detail. As a delegate you would be asked to contribute your opinions and views.

The topics being investigated at the workshop relate to respiratory and cardiovascular disease. There will be talks about these conditions from both medical practitioners and sufferers, to give delegates an insight into their causes, worsening factors and impacts. We will be focusing on what makes these conditions better or worse and what starts them. The second workshop will focus on musculo-skeletal and neurological disease.

Delegates to the workshop come from a range of organisations and have a range of backgrounds, both expert and from the general public. We are looking for a free flowing exchange of thoughts and ideas - focusing on what causes these diseases and what indoor factors might influence their impact and effects throughout life.. We would like to establish particularly how the indoor environment might be modified to improve health and well-being in these medical conditions and also identify the key outstanding research needs.

You have been invited to this meeting because you have expertise and/or experience in either respiratory or cardiovascular illness. It is our wish that you contribute freely and interact with the other delegates so that we can build up a broad picture of the indoor factors that might be important in causing or worsening respiratory and cardiovascular disease. In the longer term we hope that our research will improve the health of individuals throughout their lives.

Some further information on the project, together with a brief presentation explaining the DPSEEA model is available at www.welline.org.uk

First Workshop

23rd September 2009, IOEM, University of Birmingham

Chronic lung diseases

These comprise a wide range of conditions but the two most prevalent conditions are asthma and chronic obstructive pulmonary disease (COPD). Asthma occurs in around 15% of children and 6% of adults. COPD is infrequently seen below the age of 40 but above that age affects about 10% of the UK population.

Asthma

This is a condition of the bronchial tubes (or airways) which are unduly irritable due to inflammation of the lining of the airways. This irritability can lead to sudden constriction of the muscles in the airway wall resulting in narrowing of the airway diameter so making it more difficult to breathe in and out. This can resolve either on its own or with treatment (called reversibility). So the main symptoms are breathlessness, wheeziness and cough (with or without sputum). Most cases are relatively easy to control although asthma can be fatal. The most severe 10% of the asthma population are more likely to be hospitalised and consume around 60% of NHS asthma costs. The factors leading to the development of asthma are poorly understood but include genetic predisposition, environment and even the diet of the mother during pregnancy. The causes of exacerbations, or asthma attacks, are also numerous but viral infections are the commonest and exposure to allergens both at home and work are also important.”

When symptoms are bad individuals will be chair bound. Patients with chronic asthma often have persistent breathlessness which can severely limit their mobility. Symptoms characteristically occur at night and on exertion.

Treatment is aimed at opening up the bronchial tubes using inhaled drugs (bronchodilators) and reducing the inflammation with inhaled steroids. In attacks, high doses of bronchodilators (through a nebuliser) and oral steroids are used.

COPD

This condition is the only chronic disease which is increasing globally. It is largely due to cigarette smoking although occupational exposures and some chronic infections can contribute. Rarely cases are hereditary. The disease is due to chronic inflammation of the airways leading to scarring and irreversible narrowing. Mucus production is often marked. The main symptoms are breathlessness on effort and coughing sputum). In the late stages of the disease, breathlessness occurs at rest which is severely incapacitating.

Treatment is similar to that for asthma using bronchodilators to open up the airways although inhaled steroids are less effective. Oral steroids and antibiotics are used in exacerbations. In advanced stages, long term oxygen is prescribed using an oxygen concentrator although portable cylinders can be used to try and increase mobility.

Other causes of chronic lung disease

We do not wish to consider these conditions in the workshop today although it is likely that some chains which are developed in the workshop may well be relevant to these other conditions.

They include:

- 1 cystic fibrosis - a hereditary condition which occurs in 1 in 2000 live births
- 2 pulmonary fibrosis - (i.e. chronic lung scarring) which is relatively rare and usually seen over the age of 55.
- 3 lung cancer - common and has a bleak prognosis. It may result in intractable breathlessness towards the end of life.

Chronic heart diseases

The two most important common cardiac conditions are coronary heart disease (angina and heart attack) and heart failure.

About 8% of men and 3% of women aged 55 to 64, and about 14% of men and 8% of women aged 65 to 74, have or have had angina. Each year there are around 240,000 admissions to hospital for angina or heart attack.

Around 1% of men and women aged under 65 have heart failure, increasing to around 6% of those aged 75 to 84 and between 12 and 22% of those aged 85 and over, resulting in over 106,000 admissions to hospital annually.

Coronary heart disease

In this condition, coronary arteries (the blood vessels that supply oxygen to the heart muscle), become narrowed due to a build up of atheroma (fatty deposits) within the arteries. When a coronary artery is narrowed, this leads to a reduction in the oxygen supply to the heart, particularly when the heart has to work harder causing the symptoms of angina - pain, discomfort or tightness in the chest. Symptoms occur on exertion and are usually relieved with rest. Angina attacks vary in frequency and duration. Risk factors for coronary heart disease include smoking, high blood pressure, raised cholesterol, diabetes, male sex, older age, obesity, and a family history of coronary heart disease. Angina is more common in certain ethnic groups, particularly South Asians living in the UK.

If a coronary artery is blocked with a blood clot, this can cause a heart attack, causing permanent heart muscle damage. Nearly all patients with a heart attack require emergency hospital treatment to try and restore the blood flow through the blocked artery. Following a heart attack, treatment is provided to reduce the risk of future problems. Damage to the heart muscle may lead to chronic heart failure.

Treatment is aimed at opening up the coronary arteries either with attacks (e.g glyceryl trinitrate) or with regular medication to prevent attacks, including aspirin, which slightly reduces the blood's ability to clot and statins to lower cholesterol levels. Many patients with angina will undergo procedures to open up narrow coronary arteries with a balloon or stent (a hollow metal tube placed within the artery) or undergo coronary bypass surgery.

Heart failure

Heart failure is a condition where the heart is less efficient at pumping blood around the body and is mostly due to coronary heart disease but can be the result of high blood pressure, or other more rare conditions. The main symptoms are breathlessness, tiredness, reduced exercise capacity or fluid retention, with swelling of the feet and ankles. In the later stages of the disease, breathlessness may occur at rest which is severely incapacitating.

Treatment is usually with diuretics (water tablets) to treat fluid overload but also with other tablets with a range of effects. In late stages of the disease, patients may require oxygen to help reduce the feeling of breathlessness.

Other causes of chronic heart disease

We do not wish to consider these conditions in the workshop today although it is likely that some chains which are developed in the workshop may well be relevant to these other conditions. They include arrhythmias – a group of conditions that affect the control of the rhythm of the heart. Symptoms may include palpitations and fainting attacks. Treatment, if required, is usually with medication or a pacemaker.