

## **“Even non-smokers are affected by dreaded lung disease”**

Experts are presenting new research: Several million non-smokers in recent years have died as a result of the lung disease COPD. The disease, previously associated only with smoking, seems also to occur in connection with poor ambient air. New research results indicate that in the space of just three years, contaminants in inhaled air have claimed the lives of two million Chinese non-smokers. A new report from WHO, to be presented tomorrow at the European Respiratory Society congress in Stockholm, also shows that 10 years from now, lung diseases will be the third greatest cause of death in the world. Even now, one billion of the world's inhabitants are affected. For this reason, Sweden must work now within the EU to lower emission limit values on air pollutant particles. “That would save half a million European lives annually,” write Professors at Karolinska Institutet, Sven-Erik Dahlén and Gunilla Hedin.

**THE LUNGS ARE MEANT TO SUPPLY** fresh oxygen and eliminate the greenhouse gas carbon dioxide, which is also a product of the body's metabolism. The obvious way to detect lung diseases is to investigate how well the lungs are functioning. Unfortunately, lung function examinations are often overlooked, meaning that lung diseases are often detected too late to commence effective treatment.

The need for lung function examinations is being highlighted at the European Respiratory Society congress (ERS), starting tomorrow.

**In conjunction with the Congress, WHO is publishing a report stating that one billion of the world's inhabitants now have chronic lung diseases and that by 2020, these will be the world's greatest cause of death. This applies to pulmonary infections such as tuberculosis as well as lung cancer and chronic obstructive pulmonary disease (COPD), plus a range of respiratory diseases such as asthma and diseases involving defective breathing regulation, like sleep apnoea and sudden infant death. Whilst the incidence of many other major disease groups is declining, lung diseases are on the increase.**

At the 2002 ERS congress in Stockholm, COPD was recognised for the first time as a public health problem (DN Debate: “Swedish doctors unable to diagnose deadly disease”).

**The international research front presented at the annual congress has been changed from a one-sided emphasis on the role of smoking to the identification of general mechanisms of progressive lung damage and invalidity caused by chronic inhalation of harmful substances. Although smoking has in Sweden been the dominant cause of COPD, in other parts of the world COPD largely occurs amongst non-smokers due to inferior indoor and outdoor environments etc. In addition, it will be reported that passive smoking killed almost two million Chinese non-smokers over the three-year period 2003 to 2006.**

In Sweden, COPD is inadequately diagnosed. Mortality is on the increase particularly amongst middle-aged women. Today, at least 2500 people per year in Sweden die from COPD, and new studies indicate that those living with the

disease are costing society around SEK 2 billion per year.

Lung function examinations, known as spirometry, are the only way to diagnose COPD. The forerunner to the EU, the European Coal and Steel Union, made spirometry a priority in order to detect risks in the industrial working environment. Examining lung capacity is just as important today. A human being can inhale hundreds of tons of air per year, which means the lungs are exposed to large volumes of various substances. A variety of potentially harmful substances, such as new nanoparticles, are being introduced into the working environment and the home without our knowing their effect. Fresh research into this is needed.

**Ambient air is also a major source of particles and other harmful substances. In Sweden, this applies to industrial emissions, wood-burning, fuel and material churned up by studded tyres. The European Parliament is currently discussing the Air Quality Directive. According to experts at ERS and the Swedish Environmental Protection Agency, the proposed pollutant particle limit values for air allow too high a content. Limit values are actually being proposed within the EU which are twice as high as those in the US.**

At the congress, Thomas Sandström and staff at Umeå University will be presenting recently completed studies which show that the hearts of coronary patients are negatively affected by carrying out mild work for an hour whilst breathing in low levels of diesel particles. This direct experimental evidence confirms a previously demonstrated epidemiological correlation between exposure to diesel and increased cardiovascular disease and steps up demand for regulation of the particle content in ambient air.

The European countries opposing reductions in the limit values are doing so for short-term savings; it costs money to produce cleaner energy. They are disregarding the price which must be paid due to increased sickness.

**In the US, it is estimated that the cost of reducing limit values should reduce the cost of healthcare and other burdens on society in a highly cost-effective fashion. It would also save up to half a million lives annually in Europe.**

**Since the Swedish government has said it will give priority to long-term environmental issues, we hope that the Prime Minister and Environmental Secretary will actively push this important question of limit values within the EU. There are probably few occasions where political decisions can save the health and lives of millions of citizens and also be cost-effective.**

It is now well known that many children in our school classes have asthma. At the congress, new results will be presented showing that more than one in 10 Swedish adults have asthma. Apart from the suffering and handicap this causes to the individual, asthma costs Swedish society at least SEK 7 billion per year.

Whilst asthma in children is due to allergic reactions, asthma in adults is often due to as yet unknown factors. In the same way that a person can get high blood pressure due to many different causes, asthma may be down to a number of different factors. Some of these we know, but we still lack knowledge about very many of them.

**At the Congress, the highly promising results from the first major investigation of anti-TNF medicines in the treatment of the most severe forms of asthma will be presented. These drugs have previously**

**revolutionised the treatment of rheumatoid arthritis. The new knowledge today is that many of the chronic inflammatory diseases such as asthma, COPD, brittle bones and arterial sclerosis have common roots.**

Swedish researchers have been at the forefront and contributed to the development of new asthma medicines. 25 years ago, Professor Bengt Samuelsson was awarded the Nobel Prize for, amongst other things, discoveries leading to a whole new group of asthma medicines. At this year's congress, discoveries of new molecules will be presented from this research environment which can lead to new ways of treating chronic inflammation in asthma and COPD.

Due to financial controls on the health service, there is insufficient time and resources to conduct clinically well-grounded scientific studies of those patients suffering from the diseases. It is astonishing that the medical research council puts comparatively limited resources into lung diseases. Without major contributions from the Swedish Heart-Lung Foundation, the Swedish Asthma and Allergy Association and other not-for-profit organisations, Swedish pulmonary medical research would not stay on the front line at all.

**ORDINARY** spirometric testing is the most important method we have of detecting COPD and many other lung diseases. It is therefore most unfortunate that lung function tests are carried out far too infrequently in outpatient care. There are enthusiasts and dedicated asthma/COPD teams at certain clinics, but in general the spirometers go unused. Carrying out spirometry should be just as much a matter of course as measuring blood pressure and blood sugar when conducting a medical.

Society would save large sums of money and individuals would be spared life-long suffering if lung diseases were detected and treated early. Unfortunately we have to say that, five years after COPD was discovered, we are still deficient at diagnosing and preventing the disease.

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