

## **Health effects of second-hand smoke**

Second-hand smoke is a combination of the sidestream smoke that flows directly from the burning end of a cigarette and the mainstream smoke that smokers inhale and then exhale.

The process of breathing other people's smoke is called 'passive smoking'.

### **What's in second-hand smoke?**

Second-hand smoke contains a lethal mix of more than 4000 chemicals, including ingredients found in products such as paint stripper (acetone), toilet cleaner (ammonia), rat poison (cyanide), insecticide (DDT) and car exhaust fumes (carbon monoxide).

Many of these chemicals are present in higher concentrations in sidestream smoke than in the mainstream smoke that the smoker inhales. Nearly 85% of the smoke in a room results from sidestream smoke.

At least 50 of the 4000 chemicals found in second-hand smoke are known to cause cancer, including hydrogen cyanide, arsenic, formaldehyde and sulphur dioxide.

### **How does second-hand smoke affect non-smokers?**

Some of the immediate effects of being exposed to second-hand smoke can include eye irritation, headache, cough, sore throat, dizziness and nausea. Adults with asthma can also experience a significant decline in lung function when exposed to second-hand smoke.

Short-term exposure to tobacco smoke also has a measurable effect on the heart in non-smokers. Just 30 minutes exposure is enough to reduce blood flow to the heart.

In the longer term, second-hand smoke exposure has been shown to increase the risk of developing a range of smoking-related illnesses. These include lung cancer, heart disease, stroke, respiratory illnesses, and many childhood illnesses.

### *LUNG CANCER*

The link between second-hand smoke exposure and lung cancer has been established since the mid-1980s. Studies have shown that non-smokers exposed to second-hand smoke have around 20% increased risk of developing lung cancer. The more they inhale, the higher the risk.

### *HEART DISEASE*

An association between heart disease and second-hand smoke exposure was found in the early 90s. At that time it was estimated that heart disease caused by second-hand smoke was the third leading cause of preventable death in the USA. In New Zealand it has been estimated that around 240 people die and 1200 are admitted to hospital every year as a result of heart disease relating to second-hand smoke exposure.

Studies have shown that non-smokers have a 23% increased risk of developing heart disease when living with a smoker. This risk does not relate to the quantity of second-hand smoke inhaled – even short periods of exposure can increase heart disease risk.

- As little as five minutes exposure to second-hand smoke can stiffen the aorta, making the heart work harder to pump blood.
- The cell linings of the coronary arteries of non-smokers can be affected by as little as 30 minutes exposure, increasing the likelihood of fat deposits building up in the arteries.
- For people with coronary heart disease, increased carbon monoxide levels caused by short-term exposure to second-hand smoke can trigger rapid onset of angina.

While the risk of heart disease in non-smokers exposed to second-hand smoke is large, research does suggest that early damage to arteries caused by second-hand smoke may be reversible if second-hand smoke is avoided for two years.

### *STROKE*

Findings of a New Zealand study suggest that long-term sustained exposure to second-hand smoke increases non-smokers' stroke risk by around 82%. Each year in this country about 85 people die and 500 are admitted to hospital as a result of strokes relating to second-hand smoke exposure.

### *RESPIRATORY ILLNESSES*

The link between respiratory illnesses and exposure to second-hand smoke is well documented. Some of the subtle but significant effects of second-hand smoke exposure on respiratory health include increased coughing, phlegm production, chest discomfort and reduced lung function.

For people with asthma, exposure to second-hand smoke can cause asthma attacks, increased sensitivity and reduced lung function, as well as irritation of the eyes, nose and throat. Research has also shown that adults exposed to second-hand smoke at home or in the workplace have a 40-60% increased risk of asthma compared with people who are not exposed in these places.

In work environments, studies have shown that the greater the exposure to second-hand smoke the higher the risk of developing a respiratory illness. However, Californian studies have also shown significant and speedy improvement in workers' respiratory symptoms following the introduction of smokefree workplaces legislation.

### *CHILDHOOD ILLNESSES*

Young children are particularly vulnerable to the harmful effects of second-hand smoke exposure. In young children exposure to second-hand smoke is linked to increased risk of middle ear disease, lower respiratory illnesses (croup, bronchitis, bronchiolitis and pneumonia), the onset of asthma and worsening of asthmatic symptoms, and reduced lung growth.

In addition, exposure to second-hand smoke through maternal smoking has been shown to cause sudden infant death syndrome (SIDS, or cot death). It has been estimated that 50 New Zealand babies die every year from SIDS caused by second-hand smoke exposure.

### **Deaths and hospitalisations from second-hand smoke**

A recent New Zealand study found that people who had never smoked and lived with smokers had a mortality rate that was around 15% higher than the mortality rate of those who lived in a smokefree household.

Exposure to second-hand smoke has been estimated to cause around **350** deaths of New Zealanders every year and be responsible for around **3,200** hospitalisations.

*As New Zealanders become increasingly aware of the dangers of second-hand smoke and as more workplaces go smokefree we can look forward to a reduction in second-hand smoke related deaths and illnesses.*