



WHAT EXACTLY IS ENVIRONMENTAL TOBACCO SMOKE?

When non-smokers share a space with someone who is smoking they are being exposed to environmental tobacco smoke (ETS), second-hand smoke or passive smoke.

ETS is a complex mixture of several thousand compounds, and it contains many toxic agents that are known to cause heart disease, cancer and other diseases.

ETS is made up of:

- exhaled mainstream smoke
- sidestream smoke emitted from smouldering tobacco
- contaminants emitted during the puffs
- contaminants that diffuse through the cigarette paper
- contaminants that diffuse through the mouth end of cigarettes between puffs.

Sidestream smoke and mainstream smoke contain over 4,000 compounds including more than 50 known or suspected human carcinogens i.e. known or suspected cancer causing substances such as 4-aminobiphenyl, 2-naphthylamine, benzene, nickel and a variety of polycyclic aromatic hydrocarbons and N-nitrosamines.

A number of irritants such as ammonia, nitrogen oxides, sulphur dioxide and various aldehydes and cardiovascular toxicants, such as carbon monoxide and nicotine are also present.

Various factors, including the fact that sidestream smoke is produced at lower temperatures than mainstream smoke mean that many carcinogens and other toxicants are generated in greater amounts in sidestream smoke than in mainstream smoke.

Sidestream smoke is more potent than mainstream smoke per unit of tobacco smoked.





BACKGROUND TO PUBLICATION OF THIS REPORT

As far back as 1986, the US Surgeon General proclaimed that passive smoking was a cause of disease, including lung cancer, in healthy non-smokers. Since then agreement that environmental tobacco smoke (ETS) is harmful to health has been growing steadily among members of the international scientific community.

Increasing public awareness, coupled with media reports of recent court cases in the United States, Australia and The Netherlands - where employees successfully sued their employers - place an onus on governments to safeguard public health by providing the requisite legislation.

Existing Irish legislation, which prohibits or restricts smoking in most public places, serves to protect a significant number of employees from passive/involuntary smoking in the workplace. However, there are significant exemptions - restricted smoking is allowed in restaurants, trains and psychiatric hospitals; unlimited smoking is allowed in prisons, bookmakers, bars and nightclubs and many other workplaces.

Various international research studies have demonstrated serious adverse health

consequences associated with passive smoking. Among these consequences are cancer, heart disease, increased risk of respiratory disease in both adults and children and low birth weight in babies.

Given the increasing concern about the health effects of ETS, the Health and Safety Authority and the Office of Tobacco Control commissioned an independent scientific working group to investigate the health risks posed by environmental tobacco smoke in the workplace.

A summary of the group's main findings is presented here. The full report (60 pages) is available from the Health and Safety Authority at 10 Hogan Place, Dublin 2, Tel (01) 614 7000, or the Office of Tobacco Control at Clane Shopping Centre, Clane, Co. Kildare. Tel (045) 892 015. It is also published on the Authority's website at www.hsa.ie and the Office of Tobacco Control's website at www.otc.ie

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MEMBERS OF THE WORKING GROUP

The seven members of the independent scientific working group are:

Dr Shane Allwright (Chairperson), Senior Lecturer in Epidemiology, Trinity College Dublin

Dr James McLaughlin, Radiation/Aerosol Physicist, University College Dublin

Dr Dan Murphy, Director of Occupational Medical Services, Health and Safety Authority

Dr Iona Pratt, Chief Specialist in Toxicology, Food Safety Authority of Ireland

Professor Michael Ryan, Professor of Pharmacology, University College Dublin

Dr Alan Smith, Specialist Registrar in Public Health Medicine, Faculty of Public Health Medicine, Royal College of Physicians of Ireland

Brenda Guihen, Health and Safety Authority, Secretary to the Group

None of the members of this group has any vested interest in the tobacco industry, nor with smoking cessation products, nor have they been involved with any anti-tobacco lobby groups.





SCOPE AND RANGE OF THE RESEARCH

The scientific working group was specifically commissioned to 'identify and report on the degree of consensus that exists among leading international scientific authorities on the question of the hazard and risk posed by environmental tobacco smoke to human health in the workplace'.

This investigation was carried out over a five month period, beginning in May 2002 and concluding in September 2002.

During this time the working group reviewed 126 individual academic papers/studies by researchers in the US, UK, Australia, Canada, New Zealand, Japan, France, Luxembourg, Belgium, Ireland, Switzerland and Hong Kong.

They also examined position statements on the health effects of environmental tobacco smoke published by the World Health Organization's International Agency for Research on Cancer (IARC-a scientific working group of 29 experts from 12 countries); the European Network for Smoking Prevention 2001; US National Institute of Health; American College of Occupational and Environmental Medicine; UK Chartered Institute of Environmental

Health; World Bank; Institute for Global Tobacco Control; Johns Hopkins School of Public Health; UK Scientific Committee on Tobacco and Health; UK Committee on the Carcinogenicity of Chemicals in Food; Consumer Products and the Environment; UK Department of Health White Paper on Tobacco; California Environmental Protection Agency; Australian National Health and Medical Research Council; US Occupational Safety and Health Administration; US Environmental Protection Agency; US Department of Health and Human Services; Health Promotion Unit, Department of Health and Children (Ireland) in conjunction with IBEC and ICTU; Department of Health and Children (Ireland).

MAIN FINDINGS - SCIENTIFIC WORKING GROUP REPORT

- ETS is carcinogenic, causes lung cancer and probably other cancers.
- It causes heart disease.
- It causes respiratory problems in adult and children.
- It has adverse effects on pregnant women and causes low birth weight in their babies.
- The current range of available air conditioning technologies is ineffective in removing the risk of ETS to health.
- The requisite legislation needs to be put in place to ensure that employees are protected from exposure to ETS at work.
- High risk categories of workers require special consideration. These include pregnant workers and waiters, bar staff and counter staff in the hospitality industry who may be exposed to extreme levels of ETS due to smoking by their customers.
- Also in the high risk category are those with enhanced susceptibility to ETS due to genetic variations.
- People at special risk of exposure to ETS are infants, young children, asthmatics and people with other risk factors for cardiovascular disease.





SPECIFIC HEALTH RISKS

Cancers

Both the World Health Organization, International Agency for Research on Cancer (IARC) and the US National Institutes of Health National Toxicology Programme have declared ETS to be carcinogenic. More specifically, the IARC, a global public health agency, asserts that ETS causes lung cancer.

Several government/scientific agencies state that there is compelling evidence that working with smoking co-workers increases the risk of lung cancer in non-smokers by between 20% and 30%.

The California Environmental Protection Agency claims that ETS causes nasal sinus cancer while other groups maintain it increases the risk of sinus cancer. The Californian agency also claims that there is a causal link/suggestive causal link with ETS and cervical cancer.

Heart disease

The general consensus among government/scientific agencies is that ETS causes heart disease.

Involuntary smoking increases the risk of heart disease in non-smokers by between 25% and 30%.

Because heart disease is the most common cause of death in Ireland and a major cause of premature death, the association of ETS with heart disease is of the utmost importance, from a public health perspective.

Cardiovascular disease

Chemicals known to be present in ETS have effects on the heart and blood vessels (cardiovascular system). Studies have shown that non-smokers exposed to ETS have an increased risk (possibly almost double) of suffering a stroke.

RESPIRATORY DISEASE

Passive smoking causes chronic respiratory symptoms such as cough, phlegm production, shortness of breath and chest colds.

There is evidence to show a cause/effect relationship between exposure to ETS and emphysema in non-smoking adults and in children.

The World Health Organization Air Quality Guidelines for Europe 2000 report states that ETS increases the severity and frequency of asthma attacks.

Risks to babies and children

The exposure of pregnant women to passive smoking causes lower birth weight in their babies. (Low birth weight babies i.e. those weighing less than 2,000 grams tend to be more susceptible to a range of health problems.)

Children who are exposed to passive smoking in adult workplaces (e.g. in a crèche or a school) are at increased risk of lower respiratory tract infections such as bronchitis and pneumonia.

Most government/scientific agencies consider that children exposed to ETS are at increased risk of respiratory disease and sudden infant death syndrome (cot death).

ETS-exposed children may be more susceptible to middle ear infections - as stated in a 1997 California Environmental Protection Agency report.

Irritation of the eyes, nose and respiratory tract

Irritation of the eyes, nose and respiratory tract is the most common and best-established adverse health effect associated with ETS.

Additional consequences of passive smoking

Passive smoking at work is strongly associated with absence from work, doctor consultations and use of medications, thereby resulting in costs to employers, non-smoking employees and the health services.





CONTROLLING EXPOSURE TO ETS

There are two standard ways to reduce exposure to ETS - ventilation and legislation.

Ventilation

Research studies show that the current range of ventilation technologies, including conventional air-conditioning systems, cannot adequately control worker exposure to ETS. While proposed new technologies such as displacement ventilation have the potential to reduce ETS levels by 90%, this would still mean exposure levels 1,500 to 2,500 times the acceptable risk level for hazardous air pollutants.

Using ventilation to eliminate ETS presents a considerable if not impossible task for ventilation engineering professionals. Smoking bans remain the only viable control measure to ensure that workers and patrons of bars, nightclubs and restaurants are protected from exposure to the toxic by-products from tobacco combustion.

Legislation

In Ireland ETS exposure in the workplace can be controlled using both public health legislation and health and safety legislation.

The Public Health (Tobacco) Act, 2002 will give the Minister for Health and Children powers to make regulations including the banning of smoking in any 'place of work'.

There is potential in general health and safety legislation, such as Section 6 of the Safety, Health and Welfare at Work Act, 1989, and the Safety, Health and Welfare at Work (Carcinogens) Regulations, S.I. No. 078 of 2001, to identify ETS as a hazard and controllable risk from which workers must be protected.

The Finnish and United States experience has clearly shown the advantage of using a legislative approach as opposed to a voluntary code on workplace smoking, which up to now has been the approach adopted in Ireland and the UK.

