Smoking

"Sight for more eyes"

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The case against smoking

Smoking is topical. Smoking can cause a slow and painful death; it says so on cigarette packets smoked by a quarter of the UK population. Smoking can also cause blindness, but this fact is less well known, despite the accumulating evidence. The debate about smoking involves many complex issues: societal, political, economic, environmental, and health related. It is a global issue, as five million people die from tobacco related illness each year and many will also become blind.

In the United Kingdom the consultation on the smoke free elements of the Health Improvement and Protection Bill closed on 5 September 2005. The Royal College of Ophthalmologists, in its response, supported a total ban on smoking in all enclosed workplaces and public places because the planned legislation, despite "shifting the balance," would have failed to protect the vulnerable in our society, 10 000 of whom die annually from exposure to secondhand smoke.¹

The importance of drawing attention to the risk of blindness from smoking was also stressed in the response, as at present, despite growing evidence, there is a remarkable lack of awareness by both the public and medical profession. In a survey conducted by AMD Alliance International,² 41% of respondents did not think that smoking would harm their eyes and in a recent study reporting the attitudes and behaviours of ophthalmologists to smoking cessation, it was concluded that the assessment of smoking status and provision of targeted support for smokers to quit could be substantially improved in UK ophthalmology departments (S Kelly, personal communication).

However, public support for a comprehensive smoking ban has been increasing, with 72% of Britons now in favour,³ as well as an increasing number of MPs. The historic 200 vote majority in the recent House of Commons free vote on the health bill now means that a full ban will become a reality in the summer of 2007.

There is no shortage of facts concerning the poisonous effects of tobacco smoke, whether inhaled actively or passively. "No Smoking" returns over

18 million hits on Google and organisations such as the World Health Organization and Action on Smoking and Health (ASH) provide a wealth of information. But taking risks in life is fundamental to the human condition and when these involve the ingestion of a powerfully addictive drug such as nicotine, which is promoted by companies that spend \$34 million on advertising every day in the United States alone,⁴ it is not surprising that the number of smokers worldwide is at an all time high and expected to increase to 1.3 billion by 2010.

The consequences for health are staggering as smoking has more than 50 ways of making life a misery through illness, including blindness, and more than 20 ways of causing death. In the United Kingdom, there are 1000 hospital admissions per day as a result of diseases caused by smoking⁵ and half of all teenagers who are currently smoking will die from diseases caused by tobacco if they continue to smoke.⁶

Ophthalmologists and eye clinic staff should publicise the adverse effects of smoking on eyesight and facilitate access to smoking cessation services

Health warnings concentrate on the three main causes of death—lung cancer, chronic obstructive lung disease, and coronary heart disease, although other effects such as premature ageing, impotence, and damage to the fetus are starting to appear. Damage to eyesight is conspicuously absent in UK health warnings, but in Australia, a strong advertising campaign⁷ has helped to spread the message and video footage of an exploding blood vessel inside a smoker's eye has weakened the resolve of some committed smokers. Furthermore, in 2006 the Australian government will require new mandatory pictorial warnings on cigarette packets, a strategy that is known to be effective.

There is increasing evidence for an association between smoking and eye diseases, particularly age related macular degeneration (AMD) and cataract, but also diabetic retinopathy, thyroid eye disease, and optic neuropathy.

Previous studies of pooled data from three different study populations in North America, Australia, and Europe have identified smoking as a risk factor for AMD⁸ and recently a strong association has been demonstrated between the risk of AMD and pack years of cigarette smoking.⁹ The elderly UK smoking population have been shown to be significantly at risk¹⁰ and it has been estimated that approximately 53 900 UK residents over 69 may have visual impairment because of AMD attributable to smoking, of whom 17 800 are blind.¹¹

Longer term follow up further confirms the link between smoking and AMD with both the Beaver Dam Eye Study¹² and Australian Blue Mountains Study¹³ showing that smokers develop late AMD 10 years earlier than non-smokers.

Smoking also has a strong causal association with nuclear cataract^{14–16} and a recent prospective study, which investigated the association of smoking and smoking cessation with the incidence of cataract extraction, found a significant dose-response association between intensity of smoking and risk of cataract surgery.¹⁷

Although it is evident that smoking exacerbates age related changes and is harmful to eyesight, the exact mechanisms by which it does so remain unclear. Tobacco smoke is a complex mixture of more than 4800 chemical compounds, including 69 known carcinogens and is known to contain free radicals that can cause oxidative damage to the retina, lower antioxidant protection,¹⁸ and reduce choroidal blood flow.¹⁹ Oxidative damage may also play a part in cataract formation.²⁰ In addition, tobacco smoke contains heavy metals such as cadmium, lead, and copper, which accumulate in the lens and may cause direct toxicity.²¹

Despite the evidence, which clearly incriminates smoking as a major cause of general and visual disability, the attitude to anti-smoking legislation varies widely throughout the world. Other countries have led the way in attempting to reduce smoking rates by banning advertising (Finland, France, New Zealand, and Norway) but the European Union's tobacco advertising ban, prohibiting advertisements in most print publications, radio and the internet, which came into force in July 2005, has been ignored by nine member states (Germany, Spain, Luxembourg, Sweden, Czech Republic, Greece, Slovenia, Cyprus, and Hungary).

England's neighbours have already taken the plunge and passed legislation to ban smoking in public places. Ireland took the lead in March 2004 with

Scotland and Northern Ireland set to follow (2006 and 2007 respectively). Wales has indicated that it may amend the English law. Meanwhile, such diverse countries as India, Norway, New Zealand, Bhutan, Uganda, Sweden, and Cuba now ban smoking in enclosed public spaces. Despite these good intentions, 10.5 billion cigarettes were successfully smuggled into the United Kingdom last year as some European cigarettes are incredibly cheap and, even within the law, 3200 cigarettes may be legally brought into the United Kingdom, which will keep the average smoker coughing for at least 6 months.

The importance of tobacco control and smoking cessation cannot be over-estimated, particularly as there is no effective long term treatment for AMD. The public work places ban will undoubtedly help reduce the number of deaths from passive smoking and will encourage many smokers to successfully quit.

Ophthalmologists and eye clinic staff should publicise the adverse effects of smoking on eyesight and facilitate access to smoking cessation services. Media campaigns such as the European Campaign on Smoking and Blindness supported by the Royal

National Institute for the Blind, AMD Alliance, and Royal College of Ophthalmologists will help to spread the message and reduce blindness attributable to smoking.

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