

Public health aspects of tobacco control revisited

Jennifer E. Gallagher¹, Ivan Alajbeg², Silvia Büchler³, Antonio Carrassi⁴, Marjolijn Hovius⁵, Annelies Jacobs⁶, Maryan Jenner⁷, Taru Kinnunen⁸, Sabina Ulbricht⁹ and Liana Zoitopoulos¹

¹King's College London Dental Institute, London, UK; ²University of Zagreb, School of Dental Medicine, Gunduliceva 5, HR-10000 Zagreb, Croatia; ³Arbeitsgemeinschaft Tabakprävention (AT), Project Manager, Bern, Switzerland. ⁴Unit of Oral Medicine, Oral Pathology and Geriatric Dentistry, Department of Medicine, Surgery and Dentistry, University of Milan, Italy; ⁵School of Dental Hygiene, University of Applied Sciences, Amsterdam, Netherlands; ⁶University Medical Centre, St Rodboud, Nijmegen, Netherlands; ⁷Former Smoking Cessation Co-ordinator, England, UK; ⁸Department of Oral Health Policy and Epidemiology, Harvard School of Dental Medicine, Boston, USA; ⁹Institute for Epidemiology and Social Medicine, Greifswald, Germany.

The tobacco epidemic presents a major public health challenge, globally, and within Europe. The aim of the Public Health Work Stream at the 2nd European Workshop on Tobacco Use Prevention and Cessation for Oral Health Professionals was to review the public health aspects of tobacco control and make recommendations for action. The paper reports on the size of the tobacco challenge; from the associated mortality and morbidity to the prevalence of exposure to, and use of, tobacco. It provides a review of progress on tobacco control measures, as monitored by the World Health Organisation, and the impact of multiple influences on tobacco use. Every member of the dental team was considered to have a role as a public health advocate in promoting health and preventing disease in order to address health inequalities. A range of evidence-based approaches to tobacco control from clinical practice through to public policy are advocated, using the principles of the Ottawa Charter, recognising the multiple determinants of health. Tackling the tobacco epidemic may require a paradigm shift in oral healthcare. Therefore, key resources for health professionals on tobacco control are discussed and the implications of the findings for research, policy and practice in Europe are explored.

Key words: Public health, tobacco control, dental practice

Tobacco is a freely and legally available product that harms those exposed to its effects. The tobacco epidemic presents a global challenge, affecting all continents, including Europe. Tobacco has been responsible for 100 million deaths worldwide in the 20th century, but is predicted to be responsible for a staggering one billion deaths in the 21st Century unless urgent action is taken¹. These statistics highlight the enormity of the challenge that affects all countries.

The Public Health Work Stream sought to build on the work of Watt *et al.*², updating the public health aspects of tobacco control from the First European Workshop and answer three questions:

- What is the size of the tobacco control challenge in Europe, including evidence of trends?
- What is the role of oral health professionals in relation to tobacco control?
- What are the possible approaches for strengthening the role of oral health professionals in relation to tobacco control?

The First European workshop in 2005^{2,3}, highlighted the importance of the WHO Framework Convention on Tobacco Control [FCTC] published in 2003⁴. Since then, the WHO has continued to work actively with governments and agencies on this issue. The latest reports suggest that the tobacco epidemic is at different stages in the process when comparisons are made between Europe

and the rest of the world, and also within Europe^{1,5}. This has implications for the global economy as treatment of smoking-related diseases is one of the most significant costs for medical care worldwide. Tobacco cessation products are now an important part of the pharmacological market, particularly in western countries.

Tobacco industry

While the public health efforts by scientists, clinicians, policymakers, governmental and non-governmental organisations have been significant over the past 30 years; the tobacco industry still remains vital and strong⁶. Not only can it deploy novel, large-scale and evolving alternative strategies to undo or hinder the efforts put forth by tobacco control, it also has the financial means to do so. The role of the media has been undeniable both in promoting initiation and maintenance of tobacco use. While there are many restrictions on direct tobacco marketing, indirect marketing such as tobacco displays and depicting tobacco use in entertainment, continue to strongly promote initiation. The industry itself presents a significant public health problem, as a vector for an epidemic which requires a multi-faceted approach. And all the more so, as its major business in developed countries is being curtailed; tobacco companies are actively targeting developing countries, which form the majority of the world, where there are limited resources for healthcare. The public health challenge of how to succeed in the dynamic game of tobacco promotion against tobacco control remains an active one for us all (*Figure 1*).

Tobacco control

Tobacco control encompasses a range of supply, demand and harm reduction strategies that aim to improve the health of a population by eliminating, or reducing, consumption of tobacco products and exposure to tobacco smoke⁴. Tobacco control is important for both general and oral health. Of particular concern for dental professionals, tobacco is a risk factor for oral cancer, periodontal disease and poor wound healing. Given the size of the challenge and implications for oral health, it is important to review the dental public health approach to tobacco control. Dental public health is *'the science and art of preventing oral disease, promoting oral health and quality of life through the organised efforts and informed choices of society, organisations (public and private), communities and individuals'* (adapted from⁷). A public health approach involves harnessing all sectors of society and agencies to tackle this important global issue.

The 2006 WHO Bangkok Charter for 'Health Promotion in a Globalised World'⁸ reminds us of the United National declaration in 1948 that 'health is a human right'⁹, and that 'health promotion is the process of enabling people to increase control over their

health and its determinants, and thereby improve their health' (*Figure 2*). It is a core function of public health and contributes to the work of tackling communicable and non-communicable diseases and other threats to health⁸. In building on the Ottawa Charter¹⁰, the Bangkok Charter recognises that the world is changing with the effects of globalisation and endorses the role for a range of agencies including private sector and government in promoting health⁸ (*Figure 2*).

Size of the challenge: tobacco related mortality and morbidity

Tobacco use is the chief avoidable cause of mortality and premature death. It predominately involves smoking, and second-hand smoke, but includes other forms of tobacco. Smoking harms nearly every organ of the body, leading to a range of morbidities and premature mortality^{11,12}. There are some 4,000 known chemicals in tobacco smoke; more than 50 of them are known to cause cancer in humans. Nicotine is the addictive element, although not all tobacco users are addicted. Tobacco smoke in enclosed spaces is breathed in by everyone, exposing smokers and non-smokers alike to its harmful effects. Mortality and morbidity associated with tobacco use is the result of a myriad of complex interactions in the human body.

Globally the WHO MPOWER Report, monitoring tobacco use, presents the shocking statistics that tobacco use kills 5.4 million people a year, an average of one person every six seconds, and accounts for one in 10 adult deaths worldwide; it kills up to half of all users and is a risk factor for six of the eight leading causes of deaths in the world¹. Furthermore, 200,000 workers die every year due to exposure to second-hand tobacco smoke at work¹³.

Smoking remains the largest single cause of preventable death in Europe¹². It particularly affects the lower socioeconomic groups, i.e. it is associated with poverty¹⁴. About half of all continuing regular smokers will be killed by their smoking and those that die in middle age as a result of their smoking lose on average 22 years of life, with a larger proportion of that shortened life span being spent in ill health¹². Tobacco use affects almost every organ in the body. There is sufficient evidence of a causal relationship between the disease and smoking, compiled from the Surgeon General^{11,15} and the WHO¹. Warnakulasuriya reports that in 2004, there were 67,000 new cases registered in the countries of the European Union (EU)¹⁶. Oral cancer rates for selected countries are outlined in *Table 1*. Oral cancer is a serious and growing problem in many parts of the globe. Combined with pharyngeal cancer, oro-pharyngeal cancer is the sixth most common cancer in the world; there is a wide geographical variation with areas characterised by high incidence rates for oral cancer including parts of Western (e.g. France) and Eastern Europe (e.g. Hungary, Slovakia and Slovenia)¹⁶.

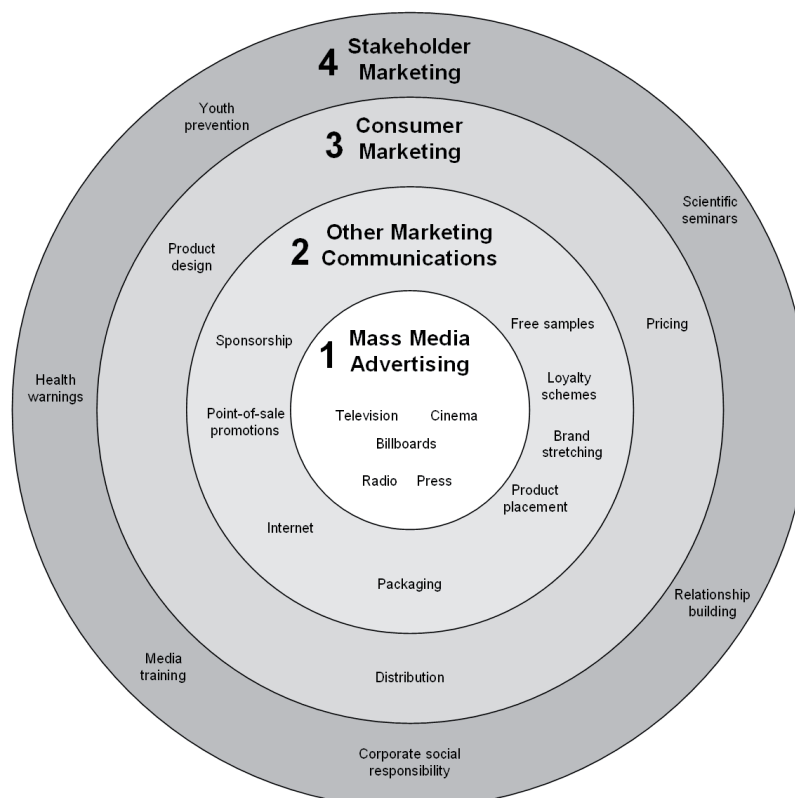


Figure 1. The Nested Relationships among Advertising, Marketing Communications, Consumer Marketing, and Stakeholder Marketing in Tobacco Promotion. Adapted from Tobacco Control Monograph Series #19⁶. National Cancer Institute. The Role of the Media in Promoting and Reducing Tobacco Use. Tobacco Control Monograph No. 19. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute. NIH Pub. No. 07-6242, June 2008.

Ottawa Charter for Health Promotion in a Globalised World, 1986
1. Build healthy public policy
2. Create supportive environments
3. Strengthen community actions
4. Build personal skills
5. Re-orientate health services
The Bangkok Charter for Health Promotion in a Globalised World, 2005
1. Advocate for health based on human rights and solidarity
2. Invest in sustainable policies, actions and infrastructure to address the determinants of health
3. Build capacity for policy development, leadership, health promotion practice, knowledge transfer and research, and health literacy
4. Regulate and legislate to ensure a high level of protection from harm and enable equal opportunity for health and well-being for all people
5. Partner and build alliances with public, private, nongovernmental and international organizations and civil society to create sustainable actions.

Figure 2. Health Promotion: WHO Charters. Source: WHO, 1986; 2005.

Table 1 Oral Cancer Rates in selected European Countries: new cases per year and deaths. Source In. <http://www-dep.iarc.fr/eucan/eucan.htm> (02.11.08) via http://www.wcrf.org/research/cancer_statistics.lasso

	New cases per year						Deaths per year					
	Males		Females		All		Males		Females		All	
Population	Cases	ASR (W)	Cases	ASR (W)	Cases	ASR (W)	Deaths	ASR (W)	Deaths	ASR (W)	Deaths	ASR (W)
European Union	42109	15.92	11447	3.21	53556	9.28	15744	5.77	4434	1.12	20178	3.31
Austria	834	15.73	278	3.98	1112	9.57	346	6.32	97	1.13	443	3.56
Belgium	1008	14.38	336	3.81	1344	8.93	419	5.77	132	1.34	551	3.47
Denmark	450	11.48	206	4.41	656	7.77	172	4.31	99	1.77	271	2.99
Finland	290	7.76	179	3.4	469	5.33	76	2.06	48	0.78	124	1.4
France	12892	33.61	1905	3.98	14797	18.15	4289	10.75	714	1.31	5003	5.76
Germany	8748	14.64	3000	3.71	11748	8.96	3827	6.29	1138	1.27	4965	3.64
Greece	420	4.89	171	1.54	591	3.14	149	1.69	75	0.66	224	1.15
Ireland	246	10.9	86	3.13	332	6.85	90	3.83	43	1.41	133	2.55
Italy	4862	10.68	1582	2.44	6444	6.28	2274	4.9	669	0.98	2943	2.8
Luxembourg	56	19.76	18	5.04	74	12.19	21	7.18	11	3.63	32	5.22
The Netherlands	947	8.76	529	4.03	1476	6.27	304	2.79	173	1.23	477	1.97
Portugal	1577	23.25	246	2.33	1823	12.03	457	6.59	78	0.71	535	3.43
Spain	6275	23.09	1069	2.72	7344	12.39	1841	6.6	364	0.85	2205	3.56
Sweden	491	6.7	258	3.05	749	4.77	188	2.46	84	0.76	272	1.57
United Kingdom	3013	7.12	1584	2.84	4597	4.88	1291	2.91	709	1.13	2000	1.97

Table 2 Tobacco Prevalence in Europe, 2002-2006. Source: EUR WHO, 2007

Year	Male	Female	All
2002	40.9%	17.8%	28.8%
2006	40.0%	18.2%	28.6%

Prevalence of tobacco use in Europe and globally

Tobacco use includes smoking, other forms of tobacco such as snus and paan, as well as passive smoking or 'second hand smoke'. Definitions of tobacco use are outlined in *Figure 3*. They assist in interpreting statistics, providing comparison of prevalence across countries. Recent data compiled by the WHO as part of their role in global monitoring suggest that almost one billion men and 250 million women worldwide are daily smokers. There are marked differences between developed and developing countries: 35% of men and 22% of women smoke in developed countries, compared with 50% of men and 9% of women in developing countries¹. Use of tobacco products is increasing globally, although it is decreasing in high-income countries and the epidemic is shifting to the developing world. More than 80% of the world's smokers live in low- and middle-income countries¹. Furthermore, the WHO estimates that around 700

million children (almost half of the world's children) breathe air polluted by tobacco smoke¹³.

According to the most recent available data, smoking prevalence in the Regional Office for Europe of the WHO has stabilised around 28.6% in the adult population; 40% amongst males and 18.2% in females⁵ (*Table 2*). Whilst cigarette smoking is declining in many developed countries, such as Australia, Canada, the UK and the USA, it is still increasing, or has not shown any decline in many developing countries and in southern, central and eastern Europe¹⁷ (*Tables 3 and 4*).

In the eastern part of the region, smoking rates tend to be higher in men, with prevalence of over 50% in Belarus, Georgia, Greece, Turkey, Latvia, rising to 70% in the Russian Federation¹⁸. In contrast the smoking rates in women are below 10% in some eastern European countries: Albania, Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova and Uzbekistan; however, overall trend data suggest that rates in women continue to rise whilst those in men are falling¹⁸ (*Figure 4*).

Currently uses any tobacco product
Consumed any smokeless or smoked tobacco product at least once during the last 30 days prior to the survey
Currently smoke cigarettes
Smoked at least 1 cigarette during the last 30 days (at the time of survey)
Daily smoking
Smoking every day
Exposed to smoke
During the last 7 days, prior to the survey, people smoked at least once in the presence of the interviewee
Tobacco control
Tobacco control means a range of supply, demand and harm reduction strategies that aim to improve the health of a population by eliminating or reducing their consumption of tobacco products and exposure to tobacco smoke (WHO FCTC, 2003).

Figure 3. WHO Definitions of tobacco use, Source: WHO 2003; 2008.

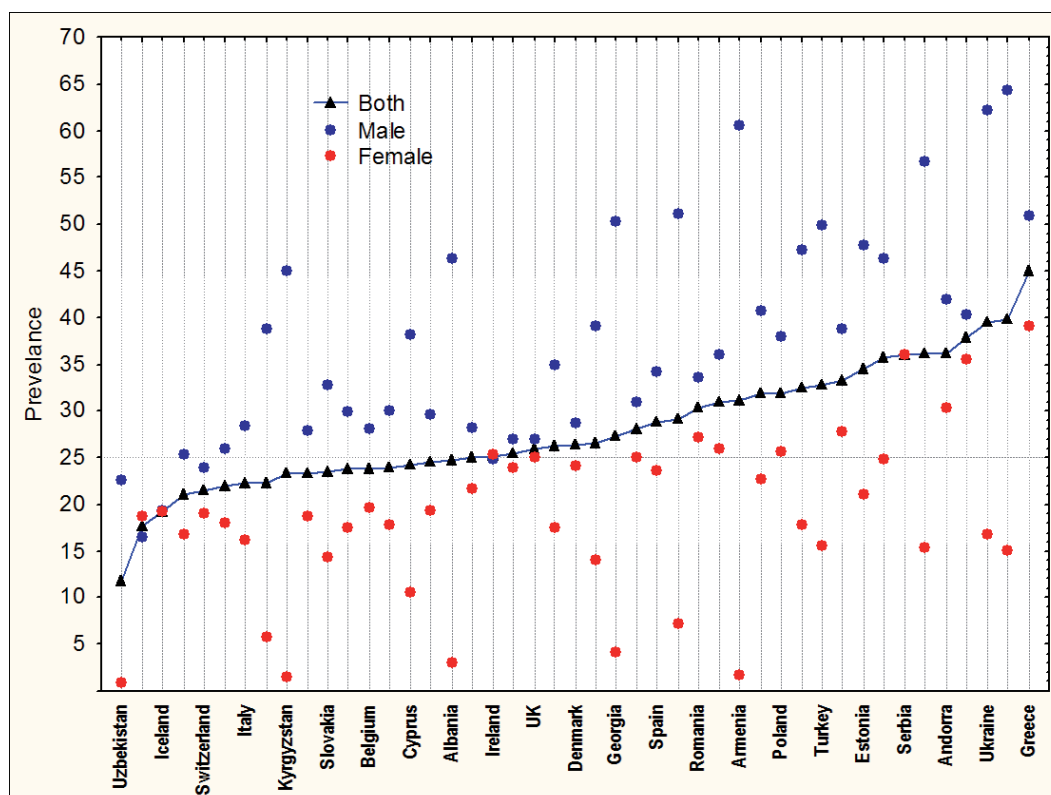


Figure 4. Current prevalence of tobacco use in adults across Europe, WHO 2008

Table 3 Daily tobacco smoking prevalence in Europe, latest available data, by country. Sources: <http://www.who.int/whosis/en/> (September 2008); http://www.who.int/tobacco/mpower/gtcr_download/en/index.html

Country	Value	Latest Year	Males	Females
Albania	22.4	2005	40.5	4
Andorra	32.9	2005	36.5	29.2
Armenia	29.6	2005	55.1	3.7
Austria	43.3	2005	46.4	40.1
Azerbaijan		2005		0.9
Belarus	42.6	2005	63.7	21.1
Belgium	27.1	2005	30.1	24.1
Bosnia and Herzegovina	42.3	2005	49.3	35.1
Bulgaria	37.7	2005	47.5	27.8
Croatia	34	2005	38.9	29.1
Czech Republic	31	2005	36.6	25.4
Denmark	33.4	2005	36.1	30.6
Estonia	38.8	2005	49.9	27.5
Finland	28.1	2005	31.8	24.4
France	31.7	2005	36.6	26.7
Georgia	31.9	2005	57.1	6.3
Germany	31.6	2005	37.4	25.8
Greece	51.8	2005	63.6	39.8
Hungary	39.8	2005	45.7	33.9
Iceland	26.3	2005	26.1	26.6
Ireland	26.3	2005	26.5	26
Israel	24.6	2005	31.1	17.9
Italy	26.1	2005	32.8	19.2
Kazakhstan	26.6	2005	43.2	9.7
Kyrgyzstan	24.7	2005	46.9	2.2
Latvia	39.4	2005	54.4	24.1
Lithuania	33	2005	45.1	20.8
Luxembourg	34.7	2005	39.1	30.3
Malta	28.7	2005	32.8	24.5
Netherlands	34.3	2005	38.3	30.3
Norway	32	2005	33.6	30.4
Poland	35.6	2005	43.9	27.2
Portugal	35.8	2005	40.6	31
Republic of Moldova	26	2005	45.8	5.8
Romania	32.6	2005	40.6	24.5
Russian Federation	48.5	2005	70.1	26.5
Serbia	42.3	2005	42.3	42.3
Slovakia	30.9	2005	41.6	20.1
Slovenia	26.5	2005	31.8	21.1
Spain	33.7	2005	36.4	30.9
Sweden	22	2005	19.6	24.5
Switzerland	26.5	2005	30.7	22.2
Turkey	35.5	2005	51.6	19.2
Ukraine	37.4	-	63.8	22.7
United Kingdom	35.7	2005	36.7	34.7
Uzbekistan	12.8	2005	24.2	1.2

In countries in the western part of the European Region such as the UK, Ireland and Iceland, differences between smoking rates in men and women are generally small. The majority of tobacco use starts in young people. Smoking is a habit that is usually established or reinforced during the teenage years; some 80% of adult smokers started before the age of 18. Tobacco use and exposure rates for young people are outlined in *Table 4* and presented in *Figure 5*; exposure to tobacco appears high across all countries. An international comparative study by Currie *et al.*¹⁹, reported in 2000 that weekly smokers comprise 11–57% of boys and 12–67% of girls aged 15 years; most of the teenagers reported smoking daily. Although boys tend to start smoking at an earlier age, WHO data suggest that the proportion of girls who smoke is increasing in a number of countries. The rates are similar for both males and females in southern and central European countries; whereas more boys than girls smoke at age 15 years in eastern Europe, the opposite is the case in northern and western parts of the region (*Table 4* and *Figure 5*).

Young people take up tobacco use for a variety of reasons. Young smokers may acquire the habit and become addicted before reaching adulthood, making them less able to quit and more likely to have a tobacco-related health problem. Smoking is perceived by those in mid to late adolescence as an ‘important’ lubricant for social relations²⁰; it is important to acknowledge that around this time of life young people may well move from social smoking unless there are other counter influences. The late teens are an important transitional period for adolescents as they move into new social worlds which support or challenge their smoking²¹. Young people link cannabis use to cigarette smoking with the former being regarded by many as an important and enjoyable part of their lives. Grimshaw *et al.*²², suggest that smokers are extremely unlikely to quit using cigarettes while continuing to smoke cannabis mixed with tobacco, and for some young people this may be an insurmountable barrier to quitting. The challenge is for young people not to start smoking.

Second hand smoke, involuntary exposure, passive smoking

The statistics for reported second-hand smoke, outlined in *Figures 3* and *4* respectively for adults and young people, show a marked difference country by country. Further information is available in the Surgeon General’s Report^{11,15}.

Waterpipe smoking

The WHO Advisory note on waterpipe smoking highlights the need for more research to look at the effects, risks and health effects²³. There is some evidence that water pipe smoking is increasing amongst young people

Table 4 Youth prevalence of tobacco-use, and exposure to smoke, in Europe (13-15 years): latest available data by country. Sources: <http://www.who.int/whosis/en/> (September 2008); http://www.who.int/tobacco/mpower/gtcr_download/en/index.html

Country	Latest Year for which data available	All	Males	Females	Total exposed to smoke in homes
Albania	2004	13	17.3	9.4	84.8%
Armenia	2004	7.3	13	2.7	89.8%
Belarus	2004	26.9	31.6	22.2	75.3%
Bosnia and Herzegovina	2003	13	15.1	9.9	96.5%
Bulgaria	2002	34.3	28.6	39.2	67.7%
Croatia	2007	24.9	23.3	25.6	94.9%
Cyprus	2005	10.9	13.2	8.4	86.8%
Czech Republic	2007	35	35.8	34.1	41.1%
Estonia	2007	30.8	33.8	27.8	80.6%
Georgia	2003	24.6	36.4	13.6	95.0%
Greece	2005	16.2	17.1	14.4	89.8%
Hungary	2003	27.8	28	26.9	84.0%
Kazakhstan	2004	11.4	15.2	8.1	72.7%
Kyrgyzstan	2004	7.2	10.8	4.8	64.4%
Latvia	2007	37.6	41.8	33.9	59.0%
Lithuania	2005	32.1	36.8	28.1	43.1%
Montenegro	2003		7.0	6.2	96.1%
Poland	2003	19.5	21.4	17.3	86.7%
Republic of Moldova	2004	16	25.3	7.9	62.3%
Romania	2004	18.3	22.2	14.8	90.4%
Russian Federation	2004	27.3	30.1	24.4	76.4%
Serbia	2003	13.5	12.8	13.7	97.7%
Slovakia	2007	26.6	28.5	24.5	79.5%
Slovenia	2007	21.8	16.9	24.2	65.9%
Tajikistan	2004	5.1	6.8	2.8	51.5%
The former Yugoslav Republic of Macedonia	2003	9	9.6	8.2	91.9%
Turkey	2003	8.4	11.1	4.4	81.6%
Ukraine	2005	26	29.8	22.2	70.1%

in Europe. A recent cross-sectional survey of students at one British university revealed that almost four out of ten students had tried waterpipes, the prevalence of trying rising with duration at university²⁴. There was a similar prevalence of regular waterpipe smoking to cigarette smoking (8.0% cf 9.4%), with cigarette smoking being a major risk factor for being a regular waterpipe smoker, however, 65% of waterpipe smokers did not smoke cigarettes²⁴.

Snus

As smoking prevalence falls, the use of other forms of tobacco such as snus (snuff) may rise²⁵. WHO European statistics reported in 2007 identified high rates of daily snus use amongst Swedish men (23.4%) and 8% amongst Norwegian men^{5,25}. Rates amongst women were about eight times lower than men.

Evidence of positive action in support of WHO tobacco control policies over the past few years

Fighting tobacco use has been a public health priority for the European Community since 1985 and the launch of the Europe Against Cancer Programme; community tobacco control has developed into three broad areas: legislation; European and International action; and programme actions¹². The WHO Framework Convention on Tobacco Control (WHO FCTC)⁴ adopted by the 56th World Health Assembly in May 2003 was the first globally binding public health treaty. The Convention entered into force on 27 February 2005, some 90 days after it had been acceded to, ratified, accepted, or approved by 40 States. Globally, it has been signed by 168 countries and is legally binding in 161 ratifying/accesioned countries representing over 3 billion people

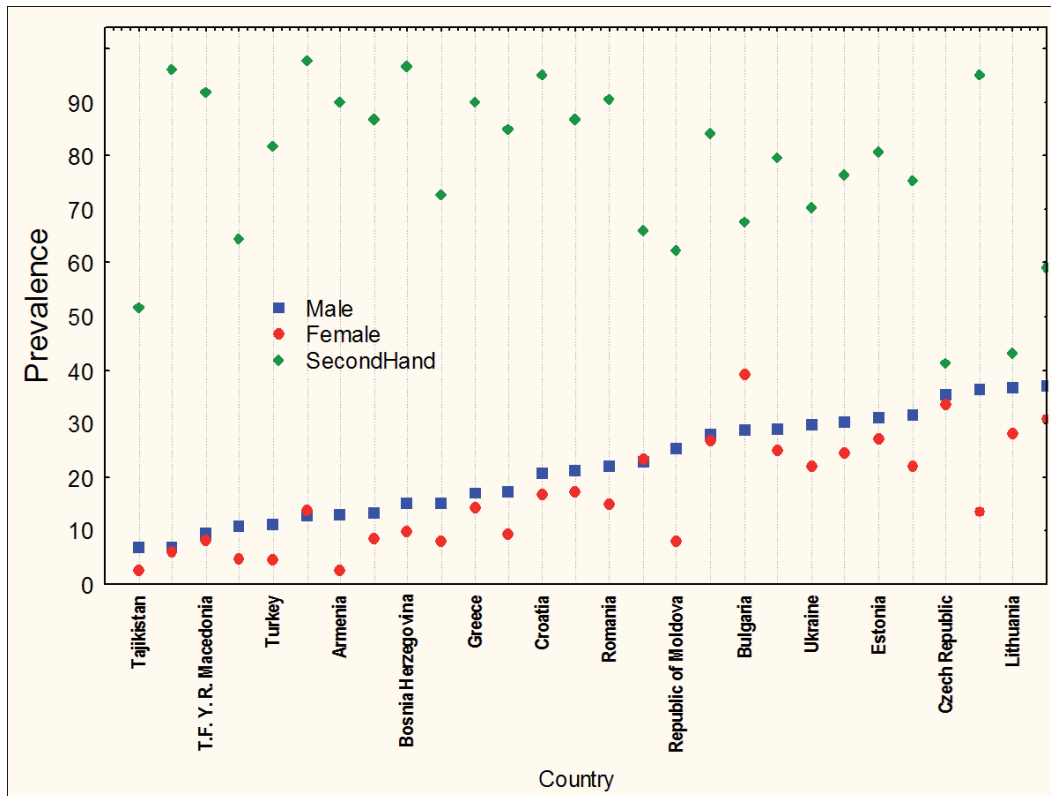


Figure 5. Youth Prevalence of tobacco use and exposure to second-hand smoke, WHO 2008

worldwide. By November 2008 there were 34 non-parties to the treaty (14 have not signed and 20 have signed but not ratified). *Figure 6* provides an overview of the key elements of the WHO FCTC.

Recent years have produced evidence within the European Union that tobacco control works. Although results vary from country to country, many EU Member States have reduced their prevalence of male smokers, some by as much as 15-20%¹².

Smoke-free public places

Ireland led the way in Europe with smoke-free public places in April 2004. Since then Scotland, Wales, England and the Netherlands (2008) have gone smoke free in public places such as restaurants, bars, shopping malls, recreational centres, transport, public buildings and schools. In the Netherlands, nearly 75% of the youth between 10-19 years old think this is a good idea. An active stop-smoking action accompanied the event. The vast majority (94%) of the non-smokers give their sense of 'well-being' a grade between 7-10 compared with 81% of the smokers. Whereas in 2006, 28.2% of the population were smoking, by 2007 this had gone down to 27.5% and the Netherlands are working towards a goal of 20% in 2010. WHO European member states are increasing their legislation on direct advertising⁵, and there has been some progress on indirect advertising, Italy introduced comprehensive smoke-free legislation

in 2005; as a result the proportion of smokers declined from 26.2% (30.0% of men, 22.5% of women) in 2004, to 25.6% (29.3% of men, 22.2% of women) in 2005 and to 24.3% (28.6% of men, 20.3% of women) in 2006²⁶.

Price increase through taxation

The WHO MPower Report¹ reveals that price and taxation policies of tobacco products vary across Europe in their nature and impact. Within Europe the price of tobacco appears to be increasing at a rate higher than inflation in EU countries when compared with the Commonwealth of Independent States (CIES) and South Eastern European Countries. Price may not relate directly to affordability. According to the WHO affordability decreased in 13 and increased in 20 countries where data were available between 2001 and 2003⁵. However, in monitoring the current situation, the WHO highlight that few countries earmark tobacco tax revenues for tobacco prevention¹.

Economic aspects seem to be one of the most important strategies for tobacco control²⁷. The relationship between average national income and prevalence of current smokers in Europe, by sex, shows a markedly different picture for males and females (*Figure 7*). Price increases have been shown as the most effective, and cost-effective, deterrent to tobacco use, particularly for young people. According to the World Bank, a price rise of 10% promotes an 8% decrease of tobacco use in low

1. Monitor tobacco use and prevention policies
 - country specific comparable data
 - sign up to WHO FCTC
 - ratify WHO FCTC
 - national tobacco control policies

2. Protect people from tobacco smoke

Core demand reduction provisions are:

 - Price and tax measures to reduce the demand for tobacco, and
 - Non-price measures to reduce the demand for tobacco, namely:
 - Protection from exposure to tobacco smoke;
 - Regulation of the contents of tobacco products;
 - Regulation of tobacco product disclosures;
 - Packaging and labelling of tobacco products;
 - Education, communication, training and public awareness;
 - Tobacco advertising, promotion and sponsorship; and,
 - Demand reduction measures concerning tobacco dependence and cessation.

Core supply reduction provisions are:

 - Illicit trade in tobacco products;
 - Sales to and by minors; and,
 - Provision of support for economically viable alternative activities.

3. Offer help to quit tobacco use
 - quitlines (toll-free)
 - treatment services, including brief advices, behavioural support and NRT
 - training of educators in tobacco control and smoking cessation

4. Warn about the dangers of tobacco
 - education, information and public awareness
most countries provide information and education on the harm caused by tobacco through school programmes and/or public awareness campaigns
 - consumer information, packaging, warnings, etc

5. Enforce bans on tobacco advertising, promotion and sponsorship
 - direct and indirect advertising
 - promotion of tobacco products on non-tobacco products
 - sponsorship of events, etc

6. Raise taxes on tobacco
 - price and taxation policy

Figure 6. Key elements of the WHO FCTC

and middle-income countries²⁷. In a survey of 52 European countries, it has been shown that smoking consumption decreases by 5-7% for a 10% increase in the real price of cigarettes supporting an inverse association between price and cigarettes smoking²⁸. Price increases could be made by raising taxes and the revenues from higher taxes could also be used to generate additional income for anti-smoking campaigns. Clearly, increasing price of tobacco products has other implications such as an increase in the risk of smuggling. Smuggling can influence the estimated rate of cigarette consumption. In certain European countries including Spain, Italy, Austria, Germany, Greece, Albania, it is suggested that smuggling can account for 10-40% of cigarette sales²⁹.

Better consumer information about the harms of smoking-mass media campaign

A systematic review assessing the effectiveness of mass media interventions in reducing smoking among adults found 11 studies which met inclusion criteria for the review as described by Bala *et al.*³⁰. There is evidence that comprehensive tobacco control programmes which include mass media campaigns can be effective in changing smoking behaviour in adults, but drawn from a heterogeneous group of studies of variable methodological quality³⁰; however, given that a multimedia campaign is usually part of a more comprehensive tobacco control programme it becomes difficult to evaluate the specific contribution of the mass-media component to health promotion.

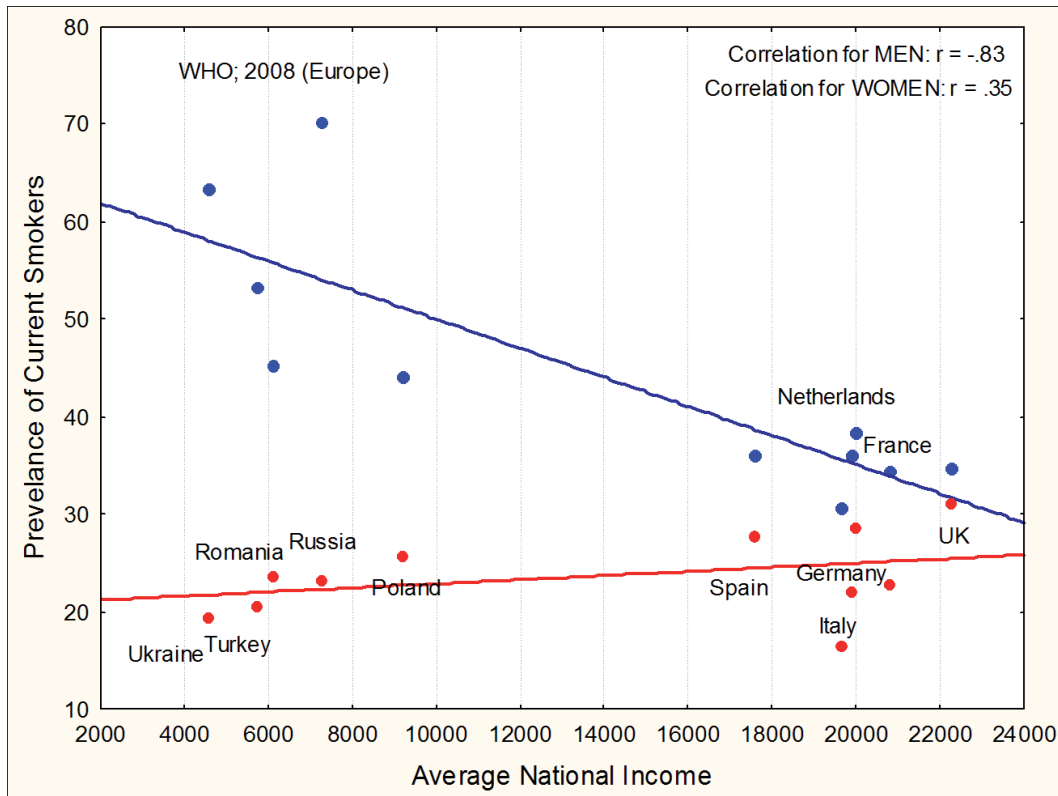


Figure 7. Relationship between average national income and prevalence of current smokers in Europe, by sex, WHO 2008

Comprehensive bans on the advertising and promotion of all tobacco products

Whatever the lack of evidence in support of health promotion and the media, tobacco industry marketing can be considered one of the major factors that influences smoking behaviour. The budget dedicated to tobacco advertising is impressive. In the USA the tobacco industry spends more than US\$ 13,000 million a year for marketing and it could be argued that tens of billions of US dollars are spent globally for tobacco marketing every year³¹. Advertising bans could be greatly effective in reducing smoking prevalence if they are part of a more comprehensive programme and if they preclude both direct and indirect advertising³², and if companies are not allowed tax deductions for marketing and promotion as business expenses. During the last two decades there has been a re-orientation of how the tobacco industry spends in marketing it is now mainly orientated towards providing price discount promotions to merchants and trying to overcome the downward pressure of higher prices of tobacco products³³. To be effective, advertising bans should be complete and apply to all marketing categories. If the campaign is limited to a singular medium such as television or radio or newspapers, the tobacco industry will move their budget to a medium not covered by the ban.

Large health warnings on cigarette boxes and unappealing tobacco products packaging

Cigarette packaging can be attractive and highly representative of the tobacco brand. It has been proposed that the use of unappealing generic package with written warnings regarding the harmfulness of tobacco will reduce the attractiveness of the product. Evidence from several countries such as Canada, Brazil, Netherlands and Australia shows that large warnings discourage smoking and that labelling information on tobacco's harms can be effectively spread^{27,34}. WHO FCTC recommends that it should be '50% or more of the principal display areas, but shall be no less than 30% of the principal display areas'²⁴. Within Europe, western Europe, EU countries and Scandinavian countries have placed greater emphasis on tobacco warnings than former CIG countries (EU Tobacco and WHO Europe)

Use of medication to stop smoking

Many smokers are able to quit alone. However, quitting smoking is very difficult and only a third of the smokers that would like to stop make an attempt. Whereas the psychological dependence requires mainly a change of behaviour which can be supported by counselling and behavioural therapy, the physical addiction can more easily be overcome with the use of appropriate

medication. Effective cessation strategies include therefore counselling, behavioural therapy and medication¹⁵. There are numerous effective medications for tobacco cessation and clinicians should encourage their use by all patients attempting to quit smoking. Smoking cessation induces a series of withdrawal symptoms such as irritability, anxiety, insomnia, increased appetite and craving³⁵.

Cessation products

Medication to attenuate these withdrawal symptoms includes either 'Nicotine Replacement Therapy' (NRT) or other medication that affect the central nervous system. The 2008 US Clinical Practice Guidelines³⁶, recommend that each treatment for tobacco dependence includes both pharmacotherapy and behavioural counselling. Currently there are several first-line pharmacological treatments for smoking cessation: nicotine patch, nicotine gum, nicotine inhaler, nicotine lozenge, nicotine sublingual tablet, and nicotine nasal spray. As non-nicotinic medicines, an atypical antidepressant which increases dopamine and noradrenaline and blocks nicotinic receptors. Bupropion (HCL, SR, and XL) and nicotinic receptor partial agonist, varenicline, are available by prescription. Nicotine replacement patches, gum, and lozenges are available over the counter (OTC) and therefore widely used. In general, the nicotine patch has attained higher compliance rates and subsequent nicotine replacement levels mainly because of its ease of use³⁷. Unfortunately nicotine replacement therapy is often not used as required so that its effect is diminished. Efforts should be made to improve information on correct use of NRT, for example through training of pharmacy or drugstore staff. Alternative medication includes Bupropion or Varenicline. Both these active ingredients have shown good results in studies. In addition to NRT bupropion or varenicline have shown good results in studies Varenicline increased the odds of successful long-term smoking cessation approximately threefold compared with pharmacologically unassisted quit attempts³⁸ while the effect of bupropion is about the same as NRT. Both these medications have side-effects.

The most common side effects associated with are nausea, insomnia, and changes in dreams. Less than 10% of patients have to stop varenicline due to adverse events³⁹. Regarding reports of psychiatric disturbances in smokers taking varenicline, warnings such as "there have been reports of depressed mood, agitation, changes in behaviour, suicidal ideation and suicide in patients attempting to quit smoking while taking Chantix/Champix", and "Because these events are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure" have been issued by the US FDA, the Australian TGA, and the European EMEA in a recent report⁴⁰. However, a

recent study argues that varenicline is effective and safe in routine treatment of tobacco dependence, in smokers with or without mental illness. In regard to bupropion dry mouth, nausea, and insomnia are commonly experienced, but rates of premature discontinuation due to an adverse event are typically low (7-12% compared to 5-10% for NRT)⁴¹.

These cessation products are only available on prescription. Tobacco dependence treatments are both clinically effective and highly cost-effective relative to interventions for other clinical disorders. Providing coverage for these treatments increases quit rates. Insurers and purchasers should ensure that all health care insurance plans include counselling and medication.

It must be recognised that following cessation of tobacco use, the health effects are evident almost immediately¹: within one day, the heart, blood pressure and circulation show improvements, and carbon monoxide is reduced; within one week, breathing and energy levels should improve. After 10 years, the risk of lung cancer is reduced to less than half that of continuing smokers and after 15 years the risk of coronary disease is similar to that of non-smokers and the risk of death for all causes returns to that of non-smokers, especially for people who quit before illness develops¹.

Tobacco growth and subsidies in Europe

Europe's share of world tobacco growing has been declining since the mid-1980s; nevertheless, tobacco is the most heavily subsidised crop per hectare in Europe¹². There has been a policy to reduce the level of dependence on subsidy within the European Union¹²; however, to date this has not moved as far as it might. Thus a tension exists between health policy and healthy general policies in support of health, due to political and economic influences.

Progress on tobacco control

The strength of these initiatives appears to be in their combination. There is clear evidence from the work of Joossens and Raw⁴², mapping tobacco use against the WHO data for 30 different countries^{1,18}, that tobacco control policies translated into a scale, show an inverse relationship to tobacco use prevalence (*Figures 8 and 9*). These findings at a population level lend support to multi-agency and multi-disciplinary approach to tobacco control, to which dental professionals can contribute.

Harm reduction

A comprehensive review by the Royal College of Physicians of England discusses the ethics of harm reduction in great detail⁴³. Regardless of state of the art treatments or national quit lines, many smokers failed to quit, thus the report argues that different approaches such as harm

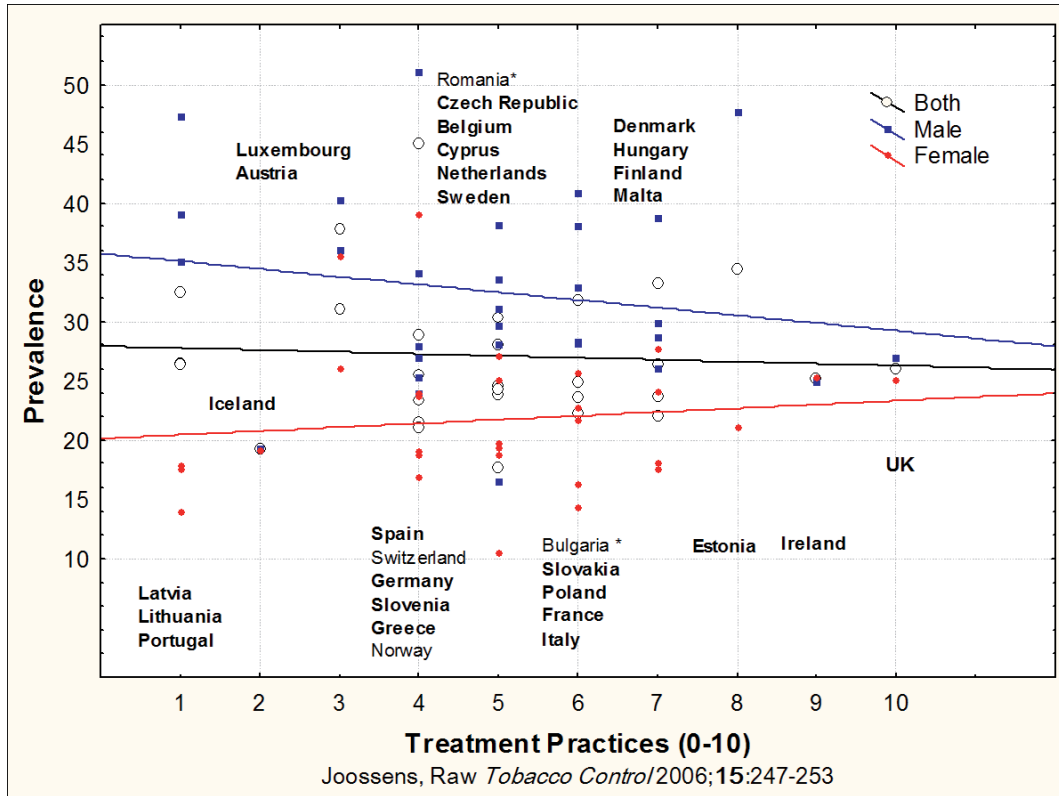


Figure 8. Treatment Practices and Tobacco Prevalence

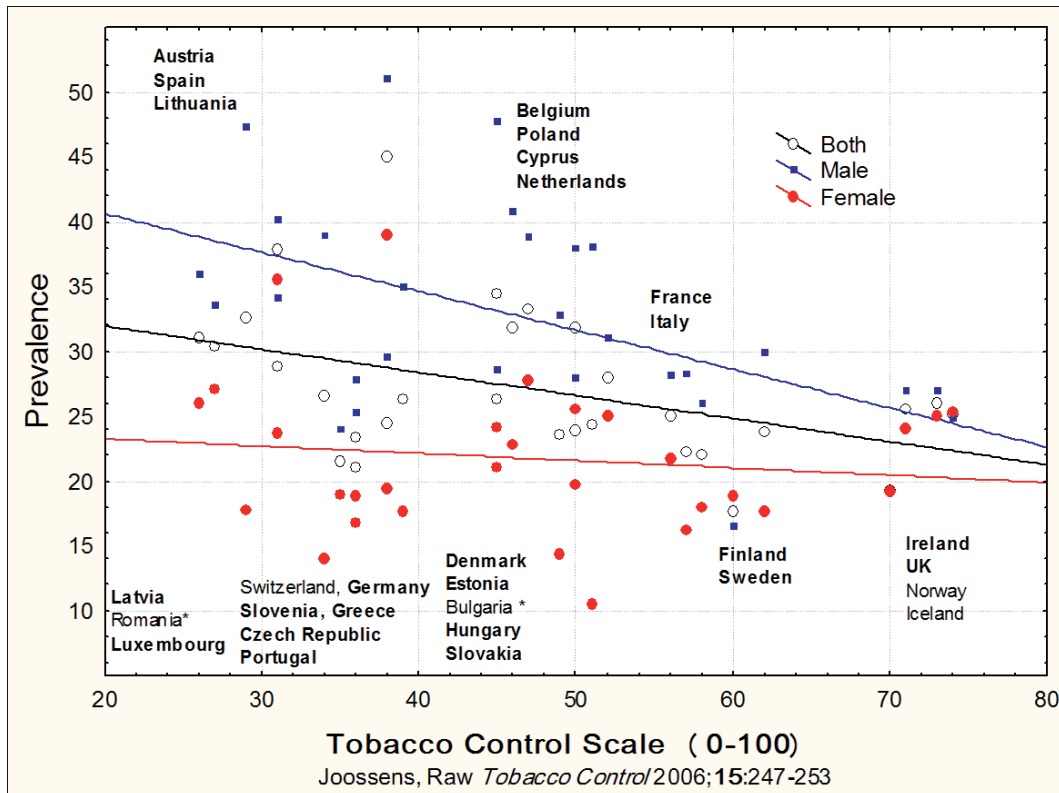


Figure 9. Tobacco Control and Tobacco Prevalence

reduction (e.g., reducing number of cigarettes smoked or switching from cigarettes to other tobacco products) need to be considered. In tobacco control, harm reduction can be defined as “efforts to reduce health harms among continuing tobacco users, such as reducing toxins in tobacco smoke, promoting conversion of smoking to smokeless tobacco, or long-term complete substitution of nicotine as replacement therapy for tobacco”⁴⁴. A further harm reduction strategy is reduced tobacco use – with or without conjoint use of NRT⁴³. With the exception of medicinal nicotine products, no scientific evidence exists that these harm reduction strategies reduce tobacco-related morbidity or mortality^{45,46}. It has been suggested that a broader range of potentially effective harm reduction strategies should be considered. Criteria for potential novel harm reduction approach have been presented by Hatsukami *et al.*⁴⁷. Based on those criteria, an innovative harm reduction approach should reduce the occurrence of disease and death, not present additional health or safety risks, not reduce the likelihood of eventual cessation, not increase the level of tobacco dependence, and allow smokers to become free of tobacco.

Harm reduction and the role of smokeless tobacco as an alternative for cigarette smoking is hotly debated²⁵. From a purely medical point of view, some would suggest that harm reduction is probably something that should be recommended to the individual who is chronically addicted. But as a strategy/recommendation on a public level, harm reduction opens the doors (or new doors) for the tobacco industry. The discussion stems mostly from these different points of view: benefit to the individual versus creating new marketing possibilities for the tobacco industry.

The role of oral health professionals in tobacco control

It is now accepted internationally that ‘helping tobacco users to quit is part of the role of health professionals, including dentists and other oral health professionals’ and that ‘tobacco cessation is part of the practice of dentistry’⁴⁸. The ethical, moral and practical reasons why oral health professional should strengthen their contributions to tobacco cessation programmes have been strongly argued by Peterson⁴⁹, and spelt out in the first tobacco cessation workshop^{2,3}.

Whilst the majority of oral health professionals provide one-to-one clinical care in the dental office; there are differences between, and within, countries that must be taken into account when considering how they can be facilitated to take a public health approach. For example, payment systems have traditionally been orientated towards clinical treatments (reactive action), rather than wider health management such as risk assessment and preventive counselling (proactive action). This clearly needs to change whether care is completely or partially

state funded, privately funded by patients or based on insurance schemes. Including a charge for advice will of course increase the cost of care; this has implications for both the uptake of dental care as ‘cost’ and ‘fear of cost’ are two important barriers to dental care⁵⁰ and for the willingness of funders to pay for prevention. However, the role of oral health professionals and supporting rationale was agreed as follows:

- Every member of the dental team should recognise their ethical responsibility as a public health advocate in promoting health and preventing disease
- Prevention and cessation of tobacco use contributes to general and oral health
- It involves team work with other health professionals in multi-disciplinary, multi-agency system
- The team should use the ‘common risk factor approach’ to focus on diet, hygiene, tobacco, alcohol, thus promoting general health.

Oral health care professionals regularly examine many smokers in Europe and their advice could be effective in promoting better life styles. Their activity in the tobacco control field will have a double benefit for their patients: not only to improve oral health but also to contribute to the prevention of all the smoking related diseases.

Currently much depends on the philosophical approach to dental care and the level of access to care which varies between countries across Europe. Guidelines in England suggest that adults should attend once every two years⁵¹, which if followed, would provide many opportunities for preventive support, given that in many European countries dental attendance is relatively high. In England, around 50% attend state dental care⁵², and over 20% privately within a two-year-period⁵³. In a study comparing dental attendance data from recent household and living condition surveys among adults in 21 OECD countries showed that between one third of adults in southern European countries, 60–70% in Sweden and UK, and up to around 80% in Denmark and the Netherlands were estimated to attend for dental care⁵⁴. It is suggested that attendance levels in Denmark are around 78%⁵⁵. There is therefore an important role for dental professionals to play in addressing tobacco use. However, to do so effectively requires a paradigm shift in the provision of dental care and its funding.

Within the USA, 63% of adults were reported as having visited an oral healthcare professional in the preceding 12 months⁵⁶. The overarching goal of the Surgeon General’s recommendations in the USA is that clinicians strongly recommend the use of effective tobacco dependence counselling and medication treatments to their patients who use tobacco and that health systems, insurers, and purchasers assist clinicians in making such effective treatments available¹⁵. It is anticipated that this action gives hope to seven out of ten smokers per year. A similar approach is emerging in England where there is increasing emphasis on staying healthy and promoting

health, ensuring that health consultations are supporting health promotion⁵⁷⁻⁵⁹.

The public health approach of oral health professionals in tobacco cessation

The Ottawa Charter for Health Promotion launched in 1986 by the WHO (*Figure 1*) provides a helpful framework for promoting health¹⁰. It includes high level actions at public policy level and influencing the environment, through to strengthening community action, practically developing personal skills and re-orientating health services to prevention¹⁰. Each of these aspects was explored in turn to provide a 'whole systems approach' to tobacco control in support of oral and general health.

Health cannot be promoted, facilitated and maintained by the health sector alone. However, professionals have a major responsibility to mediate between different interests in society for the pursuit of health. Whilst it is accepted that the majority of dental professionals will work mainly in the clinical arena, it is important that some operate strategically to facilitate coordinated and appropriate action by all concerned: governments, health, social and economic sectors, non-governmental and voluntary organisations, industry and the media.

Building health public policy

Healthy public policy is required nationally and internationally across Europe at government and professional levels. High level action should focus on supporting and implementing WHO FCTC policies which appear to have a combined effect in reducing tobacco use. Senior dental professionals working at strategic level, such as chief dental officers and leaders of professional groups who hold particular authority and others such as dental public health academics with a strong interest in the population health trends and behaviours must provide leadership to ensure appropriate professional and public policy within and across countries. Examples to date include professional WHO/FDI support for tobacco control⁴⁸, and English policy documents which actively support tobacco control directly⁶⁰, and as part of oral health promotion in general^{59,61}. Within Europe there are professional routes for harmonisation of education and training on prevention of disease and promotion of oral health through fora such as ADEE (Association for Dental Education in Europe) which has developed Competencies of Dentist⁶², and EDHF (European Dental Hygienists Federation) looking at dental hygienist curricula in support of a public health approach. Practical actions should include monitoring tobacco control, comparative evaluation of health policies and their impact on sub-groups within the population to address health and inequalities, input to working groups, leading on policy documents and reports, ensuring relevant

health policy is disseminated to dental professionals and providing professional views to the media. Networking with other health professionals on integrated health policy is particularly important to facilitate co-ordinated action in support of patients and the public. There was also strong support for professional leadership to facilitate policy change so that health systems actively support and remunerate a health promoting approach for dentistry in future.

Create supportive environments

Supportive environments should encourage smoke free public and work spaces. Leadership for such change should come from national and international bodies, ministries of health and oral health institutions, providing guidelines and policy support. Dental teams can develop supportive environments at local level, taking action to ensure that practice environments are smoke-free across Europe, and promoting tobacco cessation services through the practice website, leaflets and available literature. They can provide access to tobacco cessation services. All of this will contribute to the wider challenge of facilitating a change in social norms, attitudes and behaviours. Recommended actions include dental practices and officers. In the longer term, accreditation and reaccreditation of dental professionals should include prevention.

Strengthen community actions

Strengthening community actions provide social support and enhance self-help through a range of initiatives which include community development programmes, patient support groups and schools-based work, involving multi-agency working and using a range of resources such as media and the internet. Dentists working at all levels from chief dental officers to academics and oral healthcare professionals working in dental offices can support and facilitate community action for prevention. Evidence of effective community schemes includes smoking cessation services for young people⁶³⁻⁶⁵. Applying Community-Based Participatory Research Principles to the Development of a Smoking-Cessation Program for American Indian Teens: 'Telling Our Story'⁶⁴. Recommendations for future action include active partnership with policy makers (Healthcare ministries, National health insurance companies, Dental regulators/chambers, etc), and NGOs to ensure that there are increased numbers of TUPAC (Tobacco Use Prevention and Control) projects and free tobacco cessation services in smoke-free health premises. Oral health promoters should work with local communities to address primary and secondary prevention of smoking behaviours of youth, with evaluation contributing to evidence. There should also be coalitions with environmental protection agencies, and organisations against abuse of other sub-

<p>WHO International, Tobacco http://www.who.int/tobacco/en/</p> <p>WHO Tobacco and Oral Health www.who.int/oral_health/publications/ohpd01/en/</p> <p>WHO Tobacco Control country profiles www.whocollab.od.mah.se/expl/tobacco.html</p> <p>and 'Smokefree and smiling'⁶⁰.Independent tobacco treatment http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_074970</p> <p>Independent, evidence-based information about the treatment of tobacco dependence http://www.treattobacco.net</p> <p>US Department of Health and Human Sciences: Office of the Surgeon General, USA http://www.surgeongeneral.gov/tobacco/</p> <p>Action on smoking and health, UK http://ash.org.uk/</p> <p>Global tobacco research network http://tobaccoresearch.net</p> <p>Free Online Tobacco Control Training from the Johns Hopkins Bloomberg School of Public Health http://www.globaltobaccocontrol.org/</p> <p>FDI World Dental Fédération : tobacco http://www.fdiworldental.org/content/tobacco</p> <p>An international peer-reviewed journal for health professionals and others in tobacco control http://tc.bmjournals.com</p> <p>Tobacco control supersite in Australia http://tobacco.health.usyd.edu.au</p> <p>Campaign for tobacco-free kids USA http://www.tobaccofreekids.org/index.php</p> <p>Tobacco Industry Documents made available as part of the Master Settlement Agreement www.tobaccodocuments.org</p> <p>The World Bank Group, Economics of Tobacco Control http://www1.worldbank.org/tobacco/</p> <p>Lead federal agency for comprehensive tobacco prevention and control, USA http://www.cdc.gov/tobacco/data_statistics/sgr/sgr_2004/sgranimation/html/index.html</p>

Figure 10. Key Website Sources of Information on Tobacco and Tobacco Control

- Tobacco dependence is a chronic disease: required repeated intervention and multiple attempts to quit
- Consistent tackling of tobacco use: clinicians and health care delivery systems must identify, document and treat tobacco use
- Tobacco dependence treatments are effective: willing patients willing to quit should be encouraged to use tobacco counselling and medications
- Brief tobacco dependence treatment is effective: clinicians should offer brief treatments as a minimum
- Individual group and telephone counselling are effective: effectiveness increases with treatment intensity
- Numerous effective medications are available for tobacco dependence: use except where contra-indicated
- Combinations: counselling and medication are more effective than either alone
- Telephone quit-lines are effective with diverse populations: ensure access to telephone help-lines
- Motivational treatments: use with those currently unwilling to quit as effective in increasing future quit attempts
- Tobacco dependence treatments are both clinically effective and highly cost-effective: insurers, purchasers, etc should provide coverage of these services

Figure 11. Surgeon General's Guidelines on Treating Tobacco Use and Dependence, 2008. Source: Clinical Practice Guideline (CDC, 2008).

stances, although one should be aware of likely emerging problems in such multi-agency collaborations⁶⁶.

Building personal skills

The skills of dental health professionals should be developed as well as those of patients and the public. Building the skills of dental health professionals should enable them to ask about smoking, assess patients' willingness to quit, advise and assist smokers willing to quit, motivate those who are not ready to quit, inform the patient that they followed up^{67,68}, educate about second hand smoke (a smoking patient should be told about the risk of exposing children and spouse⁶⁹), illustrate to a smoker how smoking is evidently damaging their oral health e.g., show staining of teeth, lesions and abrasion due to tobacco use etc.⁷⁰, for smokers unable to quit completely promote temporary abstinence prior to dental procedures that are severely affected by tobacco use⁷¹. This should increase

the options available to people, including dental care professionals, to exercise more control over their own tobacco related behaviour. This can be supported in oral healthcare settings and community based programmes aiming at training to obtain skills and confidence in all aspects of tobacco control in primary and secondary prevention including advising and assisting in health change behaviour. There is some evidence of effectiveness of this intervention⁷². In oral healthcare settings there is some evidence supporting impact on tobacco use with brief intervention⁷². There is some evidence supporting 'a teachable moment' approach⁷⁰. Evidence from general oral health promotion in integrated community based programmes provided evidence of efficacy⁷³. Recommended actions include developing a training pathway to obtain proficient interpersonal skills to foster good oral health practices and instigate health behaviour change, gaining competencies and confidence in all aspects of tobacco control in primary and secondary prevention

including advising and assisting in health behaviour change, appreciating psychological, physiological, and social aspects of tobacco dependence i.e., it is a chronic relapsing condition and sub-groups needing additional intervention, using evidence of disease is a trigger for preventive advice and consider additional measures for measuring change (decreased periodontal disease, improved wound healing, fewer implant failures, reduction in caries, lower oral cancer rates).

Re-orientate dental services

Finally, the re-orientation of health services towards tobacco control requires changes in professional education at all levels. Clinical practice should be re-orientated to embrace health promotion with a preventive approach that embraces 'common risk factors'⁶¹. This can be achieved through acknowledgement of the role of the dental team as a public health advocate in the surgery and community settings as well as the wider healthcare system. *Figure 10* provides a list of useful websites where health professionals can keep up to date with tobacco. Every medical history should include comprehensive questions on tobacco use, drugs and alcohol consumption (can be used as a starting point for discussion) and the desire to quit. Individual treatment plans should include prevention and oral health promotion. Patients should be followed up for early detection of oral cancer and all the common risk factors should be addressed throughout the patient's contact with dental services, in support of general health.

Summary

This approach to promoting finds support with the WHO⁷⁴, and the US Surgeon General¹⁵. Peterson, the current Chief Dental Officer of the WHO places great importance on tobacco control in highlighting that "The WHO Oral Health Programme gives priority to tobacco control in many ways through the development of national and community programmes which incorporates oral health and tobacco issues, tobacco prevention through schools, tobacco risk assessment in countries, and design of modern surveillance systems on risk factors and oral health"⁴⁹. Recently published public health guidance by the Surgeon General on the most appropriate generic and specific interventions to support attitude and behaviour change at population and community levels, provides a set of generic principles that can be used as the basis for planning, delivering and evaluating public health activities aimed at changing health-related behaviours¹⁵. These are listed in *Figure 11*.

Future challenges

This paper has reviewed tobacco use and presented evidence of the impact of multi-disciplinary, multi-agency action in reducing tobacco use in certain parts of Europe. Tobacco dependence is a chronic disease for which there are treatments of proven effectiveness, but most effective of all is not to start using tobacco in the first place. Although there has been significant progress in certain countries in recent decades, there remains much to be done within Europe, and globally, to address the tobacco epidemic which affects a significant proportion of society, and which is at a different stage amongst European countries. Evaluation of tobacco-cessation interventions should recognise the range of psychosocial determinants of health, the complexity of behaviour change, and thus examine the range of influences on behaviour change; influences which may include the role of the dental team.

Further action is required to monitor and evaluate health policies and their impact on the determinants of tobacco use within, and between, nations. There needs to be greater understanding of the effectiveness of primary prevention amongst young people. Research on primary prevention in developing countries, which are being targeted by tobacco companies, would be an important area for research collaborations between countries, possibly supported by the WHO and FDI World Dental Federation. Valid reliable short-term outcome measures for health promotion and tobacco cessation evaluation are also required, in order to motivate further action until long-term goals are achieved: improved knowledge and confidence of oral health professionals to deliver smoking cessation counselling and patient satisfaction.

Future research should also focus on supporting and maintaining cessation, particularly amongst women and hard to reach groups. Community programmes and preventive actions in the dental office need to be evaluated to contribute to the evidence base and inform future action. Professionally, it will be important for dental professionals to work with funding agencies, government, patients and the public to facilitate the development of preventively focused dental healthcare systems, and their acceptance with patients.

Finally, as with any infective agent, ongoing action is required to monitor and report on tobacco companies and their strategies that are subject to change and thus require new combative action. This will be an important item for consideration at the next European tobacco control workshop. In addition, the impact of the global economic downturn on tobacco use will be important to examine as this will have a significant influence on the determinants of tobacco use whether it be the cost of tobacco products, illegal sales of unregulated tobacco or levels of unemployment and stress which influence smoking rates and health.

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Correspondence to: Dr. Jennifer E Gallagher, Ph.D., Head of Oral Health Services Research & Dental Public Health, King's College London Dental Institute, London, UK.
Email: jenny.gallagher@kcl.ac.uk