

HARVARD  
School of Public Health



# The Greek Tobacco Epidemic

Prepared by the Faculty  
of the Harvard School of Public Health

in collaboration with colleagues at the

The Hellenic Ministry of Health and Social Solidarity  
The Hellenic Ministry of Education,  
Life-time Learning, and Religious Affairs  
and The Hellenic Anti-Cancer Society

December 2011

This project was funded by the George D. Behrakis Foundation  
as part of the Hellenic Action through Research  
against Tobacco (HEART) Project

CENTER FOR  
GLOBAL TOBACCO  
CONTROL



# The Greek Tobacco Epidemic

Prepared by the Faculty of the Harvard School of Public Health

in collaboration with colleagues at the

The Hellenic Ministry of Health and Social Solidarity  
The Hellenic Ministry of Education, Life-time Learning, and Religious Affairs  
and  
The Hellenic Anti-Cancer Society



## CONTENTS

PREFACE .....	7
EXECUTIVE SUMMARY .....	9
AUTHORS' INTRODUCTION .....	11
AUTHORS' ACKNOWLEDGMENTS.....	13
PART I:	
TOBACCO USE, DEATH, AND DISEASE IN GREECE.....	15
• Tobacco Consumption.....	17
• Youth Smoking .....	17
• Adult Smoking.....	19
• Lung Cancer Mortality Trends in Greece.....	31
PART II:	
ECONOMIC HARM OF TOBACCO IN GREECE .....	35
• The Domination of the Greek Tobacco Market by Foreign Multinationals.....	37
• Cigarette Prices and Taxation.....	41
• Tobacco Agriculture.....	43
• Illicit Trade.....	45
• The Burden of Tobacco on the Greek Economy.....	46
PART III:	
THE CHALLENGE OF TOBACCO CONTROL IN GREECE.....	53
• The International Experience.....	55
• The European Union Directives On Tobacco Control.....	57

- Implementation of a Tobacco Control Program for Greece.....61
- Tobacco Advertising.....62
- The Issue of Secondhand Smoke.....68
- Youth Access to Tobacco Products.....72
- Countermarketing Activities.....77
- Countermarket Messages.....79
- World Health Organization Scientific Advisory Committee  
on Tobacco Product Regulation.....81
- Reduced Ignition Propensity (RIP) Cigarettes.....82
- Package Labeling.....84
- Treating Tobacco Dependence in Greece.....86
- Tobacco-Free Schools.....89
- Tobacco-Free Healthcare Services.....91

**PART IV:**

**RESEARCH, EVALUATION, AND KNOWLEDGE TRANSLATION TO ACHIEVE A SMOKE-FREE SOCIETY.....95**

- Secondhand Smoke Exposure (SHS).....97
- Exposure to SHS.....103
- Hellenic Action through Research against Tobacco Project  
(HEART)-Funded Clinical Research Projects.....106
- The Cyprus Success in Tobacco Control: Lessons Learned  
for Greece.....112
- Monitoring and Surveillance Activities.....114
- Education in Schools.....117
- Involvement of Youth in Change.....118

**REFERENCES.....121**

**APPENDIX.....133**

***The vast majority of Greek adults do not smoke.***

***Let's invest in our future!***





## PREFACE

Why still another book on ways and means of tobacco control, when the literature on the topic is immense? One can only quote André Gide, the 1947 Nobel laureate in literature: “Everything that needs to be said has already been said. But since no one was listening, everything must be said again.” In more recent times, the legendary Harvard epidemiologist Brian MacMahon once addressed an audience indicating that a visitor from another world would question the mental capacity of the dominant species on our planet that failed to fight the principal, yet preventable, cause of premature mortality: active and passive tobacco smoking. In this context, the implicit criticism would weigh heavily on the shoulders of us Greeks, since within four decades we managed to slip from the top to the middle of the life expectancy ranking, largely on account of our persistently poor smoking habits. There is another reason for a book by distinguished colleagues focusing on the tobacco problem in Greece today. Greece is fighting for its economic survival, and in times of need, the country cannot afford the waste of human and material resources from a habit that is aesthetically offensive as well as health destructive.

Introductory chapters pay tribute to philanthropist George D. Behrakis and provide an outline of the memorandum of understanding between the Hellenic Ministries of Education and Health and the Harvard School of Public Health. Following these, the book traces the roots of the tobacco problem in Greece and describes complementary approaches toward a smoke-free Greece. Additional chapters outline measures specifically focusing on reducing adult smoking, as well as means of appropriately conveying the message to the public, and point to accomplishments and prospects of related research. The book concludes with the administrative dimensions of the program for tobacco control in Greece, as critical as any other dimension for the successful implementation of this complex and demanding project.

The combination of commitment, knowledge, and thoughtful planning and organization characterizes the project overall and is reflected in the structure



and content of this book. When expertise meets dedication to serving public health, the future appears promising. And it is about time for the Greek population.

December 2011

Pagona Lagiou, MD, PhD  
*Associate Professor of Hygiene & Epidemiology*  
*University of Athens Medical School*  
*and*  
*Adjunct Professor of Epidemiology*  
*Harvard School of Public Health*

Dimitrios Trichopoulos, MD, PhD  
*Vincent L. Gregory Professor of Cancer Prevention*  
*and*  
*Professor of Epidemiology*  
*Harvard School of Public Health*

***Dr. Trichopoulos made a historic discovery in 1981 proving that exposure to secondhand smoke causes disease in nonsmokers. This information changed the world forever.***

## EXECUTIVE SUMMARY

*He who learns must suffer, and, even in our sleep, pain that cannot forget falls drop by drop upon the heart, and in our own despair, against our will, comes wisdom to us by the awful grace of God.*

AESCHYLUS (*Agamemnon* 458 BCE)

The tobacco epidemic represents one of the most serious public health problems in human society. Although cigarette smoke contains many chemicals that have been listed by the International Agency for Research on Cancer (IARC) as directly associated with cancer in humans (“class A” carcinogens), cigarettes continue to be sold as a legal product. This is remarkable, because no other product with such dire consequences to human health is legally manufactured, distributed, and sold in the developed world. Based on conservative estimates, about 5 million people worldwide die prematurely every year due to tobacco-related diseases, including cancer and cardiovascular problems. By 2020, this figure is projected to climb to 10 million smoking-related deaths every year. In addition to premature death, tobacco use is associated with a variety of disease and disability resulting in decreased quality of life and high social costs, including costs of medical care, lost economic productivity, and damage to property due to smoking-attributable fires. Smoking not only constitutes a burden for individual smokers, it also is a major risk factor for passive smokers—those who are exposed to secondhand smoke. Young children of smokers are especially at risk from their parents’ smoke, as well as secondhand smoke in public places.

The Greek government has shown strong interest in developing and implementing a long-term strategic plan for tobacco control in Greece. On January 26, 2006, Greece ratified the World Health Organization Framework Convention for Tobacco Control (WHO FCTC), which requires participating countries to implement measures to reduce tobacco use. This is particularly noteworthy considering the high smoking prevalence in Greece compared with other European Union countries as well as the rest of the world.

In this report, we have set forth a detailed strategic plan for tobacco control in Greece organized into the following parts:

- ❖ **Part I** summarizes the problem of tobacco in Greece and refers to further details included in the Appendix.
- ❖ **Part II** provides a detailed report of the impact of tobacco on the Greek economy, health and healthcare costs, tobacco-attributable diseases, and their effect on loss of productivity.
- ❖ **Part III** discusses the problem of tobacco control in Greece.
- ❖ **Part IV** provides a summary of cutting-edge research conducted on secondhand smoke exposure and measurement in Greece, with several study designs including cross-sectional, cohort, and natural experiments to measure the efficacy of smoking bans. These studies form the basis for knowledge translation and policy change.
- ❖ **References** provide a listing of literature cited or quoted as well as other sources consulted.
- ❖ **Appendices** present detailed information about Greece's tobacco problem, including the prevalence of youth and adult smoking; the consequences of smoking on the population; smoking-related morbidity and mortality; the economics of smoking, such as effects on agriculture, tobacco market, and overall burden of tobacco on the Greek economy; and current policies affecting tobacco control in Greece.

In Plato's *Phaedo*, the King of Syracuse (Kleinias) asks the stranger who will lead the city to new greatness. The stranger does not answer, but states: *Greece is a vast land... You must search for him in company with one another, too, for perhaps you wouldn't find anyone more able to do this than yourselves.*"

**We can make smoking history in Greece.**

## AUTHORS' INTRODUCTION

December 2011

Dear Colleagues, Friends, and Supporters,

It is our distinct honor and privilege to release this document to you at the Second Pan-Hellenic Tobacco Congress in Athens, Greece. Our goal has been to conduct new, state-of-the-art scientific knowledge on tobacco in Greece and use it to develop evidence-based policies and programs to curb this epidemic. We are confident that it will serve as a vehicle for continued discussion and advocacy among scientists, policymakers, medical and public health practitioners, the media, and the public to design, implement, monitor, and evaluate comprehensive tobacco control programs and policies.

We would like to express our deepest and most sincere gratitude to Mr. George D. Behrakis and his family for their leadership and generosity, without which our work would not have been possible. Their support has enabled us to bring this publication and the issue of the tobacco control epidemic to the attention of the public.

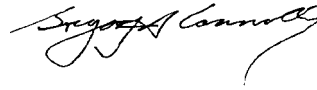
This plan was developed for the government and people of the Hellenic Republic of Greece by faculty of the Hellenic Action through Research against Tobacco (HEART) Project. The HEART Project is a working collaboration between many stakeholders, including the Hellenic Ministry of Health and Social Solidarity; the Hellenic Ministry of Education, Life-time Learning and Religious Affairs; the Hellenic Anti-Cancer Society; and the Harvard School of Public). In addition, we are extremely grateful to our research collaborators in Greece, Professor Jenny Kresmastinou (National School of Public Health), Professor Ioannis Kyriopoulos (National School of Public Health), and Professor Yiannis Tountas (University of Athens), for their scientific

rigor and passionate determination. Our program model is based on our collective research throughout the world, including Cyprus and other countries in the Eastern Mediterranean region, which culminated in a substantial reduction in smoking prevalence. We believe that by replicating this model and creating a strong working collaboration between multiple stakeholders, we can make significant advances in our goal to make smoking history in Greece and throughout the region.

We hope that you find this information both informative and relevant and look forward to working hand in hand with you to realize our dream of a smoke-free Greece.



Panagiotis Behrakis, MD, PhD  
Associate Professor, University of Athens  
Adjunct Associate Professor, HSPH  
Co-Principal Investigator, HEART Project



Gregory N. Connolly, DMD, MPH  
Professor, HSPH  
Co-Principal Investigator, HEART Project

## AUTHORS' ACKNOWLEDGMENTS

This document represents a collaborative effort between many scientists and practitioners affiliated with the HEART Project. These include, in alphabetical order, Dr. Israel Agaku, Mr. Hillel Alpert, Ms. Monique Bertic, Professor Panagiotis Behrakis, Professor Gregory N. Connolly, Dr. Filippos Filippidis, Ms. Glykeria Hadjisimos, Dr. Soula Ioannou, Dr. Constantine Vardavas, and Dr. Athanassios Vozikis. We are grateful for their dedication to this project and hope that it serves as a vehicle for a long-term, robust conversation about ways to advance tobacco control in Greece.

In addition, we would like to recognize the leadership of Professor Julio Frenk, Dean, Harvard School of Public Health, in advancing our efforts to combat the tobacco epidemic in Greece. His guidance and support of our project have been invaluable.



PART I:  
TOBACCO USE, DEATH,  
AND DISEASE IN GREECE





## Tobacco Consumption

Greece has one of the highest per capita consumption rates of tobacco products among European Union (EU) member states. According to the World Health Organization (WHO), the smoking population in Greece steadily increased from 2000 to 2009, contrary to the declining trend in many other European countries. According to Euromonitor International, the average consumption was 3,055 sticks per capita in 2008, 2,942 per capita in 2009. However, with passage of new policies, including clean air laws and excise tax increases, cigarette consumption fell to 2,458 per capita in 2010, with a total of 27.7 billion cigarettes consumed by the Greek population in 2010. Yet this figure still is of epidemic proportions.

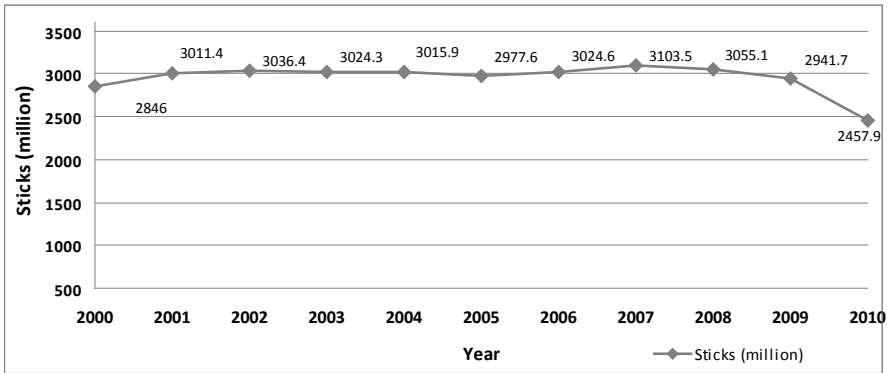


Figure 1, Trends in volume of consumption of cigarettes in Greece indicating a steady decline in both volume and per capita from cigarettes since 2007

Source: Euromonitor International: Country Market Insight August 2010

## Youth Smoking

There is limited information available in Greece on the prevalence of smoking among youth younger than age 15. The largest study among youth in Greece was the Global Youth Tobacco Survey (GYTS) implemented during the academic year 2004–2005 by the University of Thessaly and the National School of Public Health. Data were collected using the GYTS’s self-administered

anonymous questionnaire to a nationally representative sample of middle-school students ages 13–15 (through randomly selected schools and classes), randomly selected through a two-stage cluster sample design. **The results indicated that about one-third of the students (32%) reported that they had tried tobacco (at least once, in the past), while 16.2% (17.1% of boys and 14.4% of girls) reported being current users of tobacco products.** In addition, 1 in 4 of all smokers reported that they began smoking before the age of 10. It is alarming to note that almost 1 in 5 adolescents who had never smoked reported being susceptible to initiating smoking in the next year, with boys and girls indicating the same susceptibility. Additional analyses revealed that cigarette smoking was associated with male gender (odds ratio, or OR: 1.62), parental smoking (OR: 2.59), and having pocket money  $>$  or  $=$  16 euros (OR: 2.64). In 2005, Sichletidis et al. performed a survey among 15–18 year olds in northern Greek cities and estimated lyceum smoking prevalence at 30% (32.6% among boys and 26.7% among girls). It is possible that urban vs. rural differences exist among age groups, as other studies have estimated prevalence to be as low as 10% in remote rural areas. There is a necessity to stress the importance of education and public health policy for the prevention of tobacco use during adolescence. In countries like Greece, many young adults become daily smokers between 18 and 22 years old; thus, they are susceptible to change and can be deterred from initiating smoking. This fact is demonstrated by the results of the above studies in teenagers, which show that the prevalence of smoking among Greek teenagers is not higher than in many other countries that end up having significantly lower prevalence in the adult population. This strongly supports that Greek youth take up smoking at a later age in comparison with youth from other countries.

Currently, the National School for Public Health is conducting the 2011–2012 GYTS study among a representative sample of Greek middle-school students ages 13–15, and the results are expected to be available early 2012 and will be used to update this report.

### ***Youth Smoking Prevalence: Comparison with European Union and Other Countries***

Findings from the European School Survey Project on Alcohol and Other Drugs (ESPAD) show that in 2007, 45% of boy students and 46% of girl students in Greece age 15 or older had ever smoked, compared with averages of 59% and 58% respectively in 35 other countries.

While the ESPAD survey allows comparisons between countries across Europe, a major advantage of the GYTS and the Global School Personnel Sur-

vey (GSPS) surveys currently under way in Greece is the use of standardized methodologies, which have been used by countries around the world. This allows for direct comparisons of the results in Greece with countries not in the EU.

Table 1, *Cigarette use during the last 30 days by gender, 2001 (%)*

Country	Number of cigarettes per day										No response			
	0		<1		1-5		6-10		11-20		20+		Boys	Girls
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls		
Armenia	83	99	9	1	4	0	2	0	1	0	1	0	0	0
Austria	58	52	12	17	11	13	10	10	8	6	2	2	0	0
Belgium (Flanders)	76	77	10	9	8	7	2	3	3	2	1	1	1	1
Bulgaria	64	56	8	10	7	11	10	10	7	9	4	5	0	0
Croatia	62	62	9	12	9	10	8	8	7	5	5	4	0	0
Cyprus	71	83	8	6	6	4	5	3	6	3	5	2	1	1
Czech Republic	64	55	12	18	8	10	7	8	4	5	3	3	0	0
Estonia	68	73	11	12	7	9	6	3	4	1	3	1	1	0
Faroe Islands	69	66	10	13	7	5	6	8	7	8	2	1	0	1
Finland	71	69	10	13	7	9	6	6	5	3	2	1	0	0
France	71	69	11	14	8	7	4	5	3	3	2	2	0	0
Germany (7 Bundesl.)	69	65	10	13	8	10	6	6	4	5	3	1	0	0
Greece	77	79	8	9	3	4	4	3	5	3	4	2	0	0
Hungary	69	66	9	10	11	13	6	7	4	3	1	1	1	1
Iceland	85	82	5	7	3	5	3	3	2	2	1	1	1	0
Ireland	81	73	9	10	3	6	4	6	2	4	1	1	0	0
Isle of Man	81	72	8	10	4	7	5	7	2	4	1	0	0	0
Italy	66	61	11	15	9	10	7	8	6	5	2	2	1	1
Latvia	56	61	11	14	11	13	9	6	7	3	6	3	0	0
Lithuania	61	71	12	14	10	9	9	3	4	1	2	1	0	0
Malta	74	74	13	14	6	6	3	3	2	2	1	1	0	0
Monaco	84	65	8	13	3	10	2	7	2	4	0	2	0	0
Netherlands	73	67	8	11	7	8	5	7	5	5	2	2	0	0
Norway	83	78	9	10	3	5	3	4	2	2	1	0	1	0
Poland	78	80	8	10	7	6	3	3	2	1	2	1	1	0
Portugal	80	82	10	9	5	5	3	2	1	1	0	0	0	0
Romania	74	77	8	8	7	7	5	4	5	3	2	2	1	0
Russia	59	71	9	10	13	11	9	6	6	2	3	1	1	0
Slovak Republic	65	62	12	14	9	12	7	7	5	4	3	1	0	0
Slovenia	72	69	8	9	7	9	6	7	5	5	2	1	0	0
Sweden	81	76	11	12	4	6	2	4	1	2	1	1	0	0
Switzerland	70	71	12	14	7	8	5	4	4	2	2	1	1	1
Ukraine	62	76	9	10	12	8	9	4	4	2	3	1	0	1
United Kingdom	83	75	7	10	4	6	3	6	2	3	1	1	0	0
Average (unw.)	72	71	10	11	7	8	5	5	4	3	2	1	0	0
Denmark	70	66	10	11	7	8	5	8	6	6	2	1	0	1
Spain	77	71	-	-	15	20	5	7	3	2	0	0	-	-
USA	85	87	7	7	5	4	-	-	3a)	3a)	-	-	-	-

a) USA: "About ½ pack or more"

## Adult Smoking

Information regarding adult smoking prevalence in Greece is available through a number of surveys conducted over the previous decade. According to the 2003 ATTICA cohort results, smoking prevalence in the greater Athens area was estimated at 51% for males and 39% for females (ages 18–89). How-

ever, more recent evidence is available over the past three years as nationwide surveys have been performed in 2009 by the Ministry of Health and Social Solidarity, in 2010 by the Hellenic Action through Research against Tobacco (HEART) Project (the Hellas Tobacco Survey performed in collaboration with the Hellas Health Survey III), and in early 2011 by the Greek Center for Disease Control (KEELPNO). Moreover, the Hellas Health Survey performed in 2006 (survey I and in 2010, survey III) provide additional insight into the trends in prevalence.

Comparing the findings from the nationwide 2011 survey performed by the Ministry of Health and Social Solidarity with the 2009 survey performed by KEELPNO, which had comparable questions and methodology, we can identify that smoking prevalence has dropped by 4.7% (in absolute prevalence, from 38.2% to 33.5% over the past two years among both males and females. The largest reduction in prevalence was mainly among moderate smokers (-2.3%) and heavy smokers (-2%). In 2011, more than half of the interviewed smokers (57%) reported that they have tried unsuccessfully to quit smoking in the past year, a fact that indicates the necessity to aid smoking cessation services within Greece to motivate and support current smokers to quit and create a social environment that promotes no smoking in public places.

The HEART-funded Hellas Tobacco Survey is a nationwide household survey conducted in 2010. A three-stage sampling design was employed and representative samples of 1,000 adults (506 males, mean age  $47.1 \pm 17.1$  years) were interviewed. According to the analysis, the prevalence of smoking was calculated at 41% (45% among men and 38% in women,  $p=0.04$ ). In regards to current tobacco use, the majority of male smokers, (83.3%) and female smokers (91.8%) smoke manufactured cigarettes, whereas 18.6% of male and 8.7% of female tobacco users smoke hand-rolled cigarettes, also called roll your own (RYO). Use of other tobacco products was reported by less than 1% of the respondents. Greek men were reported to be heavier smokers than women (23.2 vs. 19.3 cigarettes per day,  $p=0.006$ ). Additionally, more women (47.9% of female and 29% of male smokers,  $p<0.001$ ) and people older than age 54 report consumption of so called “light” cigarettes; many more women smoke “slim” cigarettes as well (26.6% of female vs. 3.6% of male current smokers,  $p<0.001$ ), whereas 29% of male smokers and 12.8% of female smokers reported purchasing soft packs of cigarettes ( $p<0.001$ ).

*Every day, more than 75 million cigarettes are smoked in Greece, more than 800 cigarettes per second.*



*The tobacco industry targets young Greek females with “slim,” stylish cigarettes emphasizing beauty and thinness. In reality, 1 out of 2 Greek women who smoke will be killed by cigarettes.*

More males than females (68% vs. 48%,  $p < 0.001$ ) and more people ages 35–54 (65.9%) compared with those ages 18–34 (56.7%) and those older than 54 (50.9%) have ever smoked at least 100 cigarettes. Men were also more likely to have quit smoking (23.3% vs. 10.2% among the general population,  $p < 0.001$ ), even though this difference is not statistically significant under the age of 55 (14% of men vs. 10% of women). Assessing the proportion of ex-smokers among people who have smoked at least 100 cigarettes in their life, men were still more likely to have quit smoking (34.3% vs. 21.1%,  $p = 0.001$ ). Additionally, socioeconomic status and area of residence did not affect the smoking prevalence and the tobacco-related habits. This stresses the need to focus on women.

What is of interest to note is that in comparison with 2006, smoking prevalence, especially among young adults, fell from 48% to 35% in 2010. Specifically among young adults ages 18–24, smoking prevalence dropped by 12%, mainly due to the statistically significant reduction in smoking among males rather than the noted reduction among females. Moreover, a substantial

*Between 2006 and 2010, the prevalence of smoking among young adults ages 18–24 dropped by 12%. This reduction was most significant in males.*

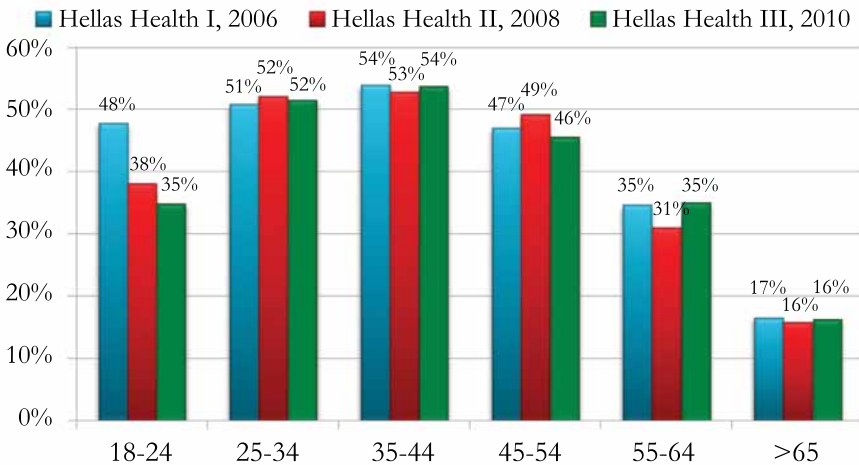
reduction in the number of cigarettes smoked among all age groups was noticed.

More research is certainly needed to estimate the smoking prevalence of different age groups in both men and women and the reasons why smoking rates are decreasing slower in women, especially in younger ages.



*Price discounting can contribute to youth.*

Figure 2, Prevalence of daily smoking in Greece by age group, 2006–2010



## ***Adult Smoking Prevalence: Comparison with European Union and Other Countries***

Greece's smoking rates are the highest not only in the Europe but across all WHO regions globally. Many European countries, including the United Kingdom (not shown), France, Italy, Ireland, Sweden (not shown), and Poland, have made significantly greater progress compared with Greece in decreasing smoking prevalence among both males and females.

Note that comparison of Greece with the other nations must be viewed cautiously, since MPOWER may use information based on a variety of data collection methods, definitions, and survey instruments, and these may differ from those utilized in Greece. In addition, telephone and household surveys may employ a variety of methodologies, posing limitations to cross-country comparisons. We note that high smoking rates for males and relatively low rates for females differ from findings in Greece, where female smoking rates are closer to male smoking rates.

*Of all the Greeks alive, 3.8 million smoke and 19,000 of them will die every year prematurely. In 25 years, close to half a million preventable deaths will have occurred from tobacco use if current smoking trends continue.*

WHO's (*World Health Statistics 2011*) report estimates that 63.4% of adult males and 39% of females  $\geq 15$  years are smokers. Greek women are the heaviest smokers in the world, while Greek men hold fourth place. In addition, 53% of Greek smokers smoke more than 20 cigarettes per day.

The finding of higher smoking rates among women most likely reflects on the aggressive targeting of women and teenage girls by the tobacco industry advertisement campaigns. More research is certainly needed to determine factors driving smoking rates rapidly in women, especially in younger ages.

## ***Smoking-Related Morbidity and Mortality in Greece***

Smoking has been associated with many health problems that affect both smokers as well as nonsmokers exposed to secondhand smoke. Smoking constitutes the main direct etiologic factor for lung cancer and is one of the etiologic factors for cancers of the oral cavity, esophageal cancer, stomach and bladder cancer, breast cancer, and cervical cancer. Smoking also is a contributing etiologic factor for cardiovascular disease, including coronary heart disease and cerebrovascular disease. A number of other respiratory diseases also are



associated with smoking, such as chronic bronchitis, emphysema, and chronic obstructive pulmonary disease.

Mortality due to smoking is a major cost to society. Cigarettes kill half of all lifetime users of tobacco and half die on average in middle age—between 35 and 69 years old. No other consumer product is as dangerous, or kills as many people, as cigarettes. According to recent scientific research findings, approximately 30% of morbidity from cancer diseases (90% of lung cancer), 25% of morbidity from ischemic heart disease and stroke, and 75% of morbidity from chronic respiratory diseases including emphysema and bronchitis are attributable to tobacco use.

As part of this study, smoking-attributable deaths in Greece were calculated on the basis of US Centers for Disease Control and Prevention (CDC) procedures for the United States. The methodology is described below. An estimated 18.1% of about 105,619 deaths per year occurring in Greece among individuals ages 35 and older are attributable to smoking; (19,094 individuals die of smoking-related diseases every year). The percentage is estimated to be 28% among men, and 8% among women. However, given the proportion of deaths from smoking-related diseases such as lung cancer, the recent uptake of smoking by women points to a rapid increase in deaths unless urgent action is taken. The figures are based on limited mortality data available for Greece and most likely underestimate the number of deaths due to the time lag between smoking and the onset of disease.

Smoking-attributable mortality is calculated using population-attributable fraction methods. A population-attributable fraction (AFp) is equal to the incidence rate in the exposed (target) population (smokers) minus the incidence rate in the unexposed population (non-smokers), divided by the incidence rate in the unexposed population. The number of deaths attributable to smoking per disease is the product of the population-attributable fraction and the number of deaths per disease.

*If the proportion of smokers in Greece remains unchanged, the International Agency for Research on Cancer (IARC) predicts that by 2020, 7,415 people will die from lung cancer in Greece—equivalent to more than 20 lung cancer deaths per day.*

The incidence rates in exposed and unexposed populations are not usually known directly. The population-attributable fractions are therefore estimated by the method used by the CDC (Smoking Attributable Morbidity, Mortality and Economic Costs, or SAMMEC). The SAMMEC method uses an attributable-fraction formula originally described by Levin.

The smoking-attributable fractions of deaths for 19 smoking-related diseases are calculated using gender-specific smoking prevalence and relative-risk-of-death data for current and former smokers ages 35 and older. This method uses relative risks from age-adjusted relative risk estimates for persons ages 35 and older from the second wave of the American Cancer Society's Cancer Prevention Study (CPS-II) over a six-year follow-up. Smokers' and former smokers' prevalence data are derived from the 2010 Hellenic Tobacco Survey. The number of deaths per disease used in the calculations and age-specific populations are derived from the European detailed mortality database (2008).

The main causes of death in Greece and their proportion compared with the overall mortality in 2008 were cardiovascular diseases (46.4%), cancer (25.7%), and diseases of the respiratory system (9.6%). As discussed above, smoking accounts for significant portions of each of the above causes of death. The estimated numbers of smoking-attributable deaths by each disease are shown in **Table 2** and are found to be about 19,094 deaths per year.

Table 2, *Number of smoking-attributable deaths by disease in Greece*

<b>Disease Category</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
<b>Malignant Neoplasms</b>			
Lip, Oral Cavity, Pharynx	145	38	183
Esophagus	114	21	135
Stomach	270	42	312
Pancreas	249	139	388
Larynx	288	22	310
Trachea, Lung, Bronchus	4,830	764	5,594
Cervix Uteri	0	16	16
Kidney and Renal Pelvis	166	8	174
Urinary Bladder	468	37	505
Acute Myeloid Leukemia	125	15	140
<b>Subtotal</b>	<b>6,655</b>	<b>1,102</b>	<b>7,757</b>
<b>Cardiovascular Diseases</b>			
Ischemic Heart Disease	2,098	570	2,668
Other Heart Disease	3,602	793	4,395
Cerebrovascular Disease	1,191	722	1,913
Atherosclerosis	7	3	10
Aortic Aneurysm	386	83	469
Other Arterial Disease	3	3	6
<b>Subtotal</b>	<b>7,287</b>	<b>2,174</b>	<b>9,461</b>
<b>Respiratory Diseases</b>			
Pneumonia, Influenza	135	61	196
Bronchitis, Emphysema	6	4	10
Chronic Airway Obstruction	1,114	556	1,670
<b>Subtotal</b>	<b>1,255</b>	<b>621</b>	<b>1,876</b>
<b>Total</b>	<b>15,197</b>	<b>3,897</b>	<b>19,094</b>

It is important to note that current estimates of mortality based on past smoking patterns would most likely underestimate the adverse impact on the population. Greater mortality rates are expected in the population based on the current smoking rates and the projected smoking rates of the adult population in the coming decades due to the increased prevalence of smoking among younger people. Smoking-attributable deaths are projected to increase for many reasons, including the increases in the susceptible population size and increases in the age-specific disease rates. The potential for a large increase in deaths among women as their smoking rates increase is of major concern.

*Every day, more than 53 Greeks die from smoking-related disease. Smoking-attributable diseases such as cancer and cardiovascular disease remain the most common cause of death in Greece.*

In **Table 3**, we present years of potential life lost per year attributable to smoking among persons ages 35 to 65. Premature deaths due to smoking amount to multiple costs to the population in terms of years of potential life lost, and in terms of productivity losses for the society as a whole, not taking into consideration the cost of healthcare for those who become sick and die due to tobacco. Smoking-attributable years of potential life lost are calculated as the product of smoking-attributable mortality and the relative life expectancy at the midpoint of each age category.

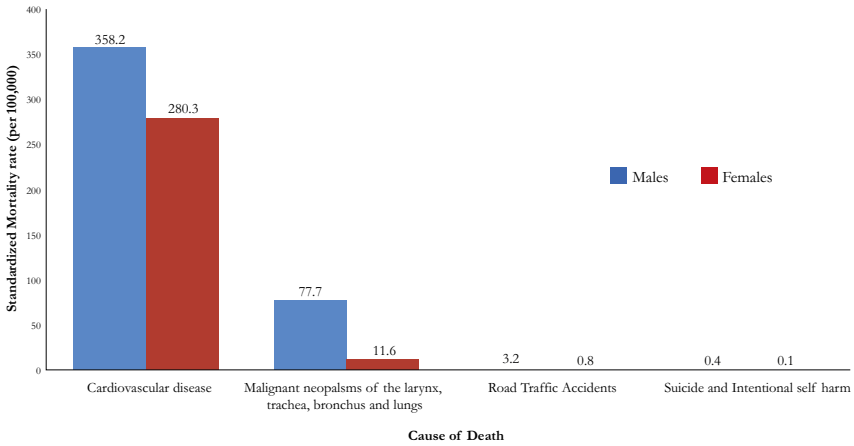
Table 3, *Years of potential life lost per year attributable to smoking among persons 35 to 65 years old*

<b>Disease Category</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
<b>Malignant Neoplasms</b>			
Lip, Oral Cavity, Pharynx	2,680	664	3,344
Esophagus	1,796	266	2,062
Stomach	4,075	807	4,882
Pancreas	4,310	2,563	6,873
Larynx	4,460	338	4,798
Trachea, Lung, Bronchus	78,375	14,821	93,196
Cervix Uteri	0	441	441
Kidney and Renal Pelvis	2,513	140	2,653
Urinary Bladder	5,642	458	6,100
Acute Myeloid Leukemia	1,617	217	1,834
<b>Subtotal</b>	<b>105,468</b>	<b>20,715</b>	<b>126,183</b>
<b>Cardiovascular Diseases</b>			
Ischemic Heart Disease	43,483	10,688	54,171
Other Heart Disease	43,890	7,348	51,238
Cerebrovascular Disease	16,754	10,116	26,870
Atherosclerosis	47	19	66
Aortic Aneurysm	5,673	1,156	6,829
Other Arterial Disease	44	39	83
<b>Subtotal</b>	<b>109,891</b>	<b>29,366</b>	<b>139,257</b>
<b>Respiratory Diseases</b>			
Pneumonia, Influenza	1,625	770	2,395
Bronchitis, Emphysema	73	51	124
Chronic Airway Obstruction	11,366	5,173	16,539
<b>Subtotal</b>	<b>13,064</b>	<b>5,994</b>	<b>19,058</b>
<b>Total</b>	<b>228,423</b>	<b>56,075</b>	<b>284,498</b>



*Smoking causes severe disabling diseases from which people needlessly suffer for many years before dying*

Figure 3, *Standardized mortality rate, all ages per 100,000, 2002, for most common COD in Greece*



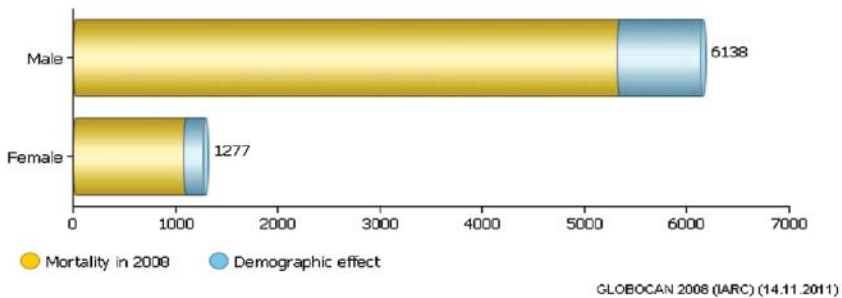
For both men and women in Greece, cardiovascular diseases were the major cause of death from 1997 to 2002. The second most frequent cause of death was cancer. Among the cancers, malignant neoplasms of the larynx and trachea/bronchus and lungs were the most common cause of death.

*Source: Office for Official Publications of the European Communities. Health in Europe, Data 1998–2003. Eurostat, 2005*

## Lung Cancer Mortality Trends in Greece

The International Agency for Research on Cancer (IARC) predicts that by 2020, 7,415 people will die from lung cancer in Greece—equivalent to more than 20 lung cancer deaths per day; a 15.8% increase over the mortality rate in 2008. **Figure 4** shows the predicted mortality of lung cancer (by gender) in 2020 using the 2008 mortality as base line.

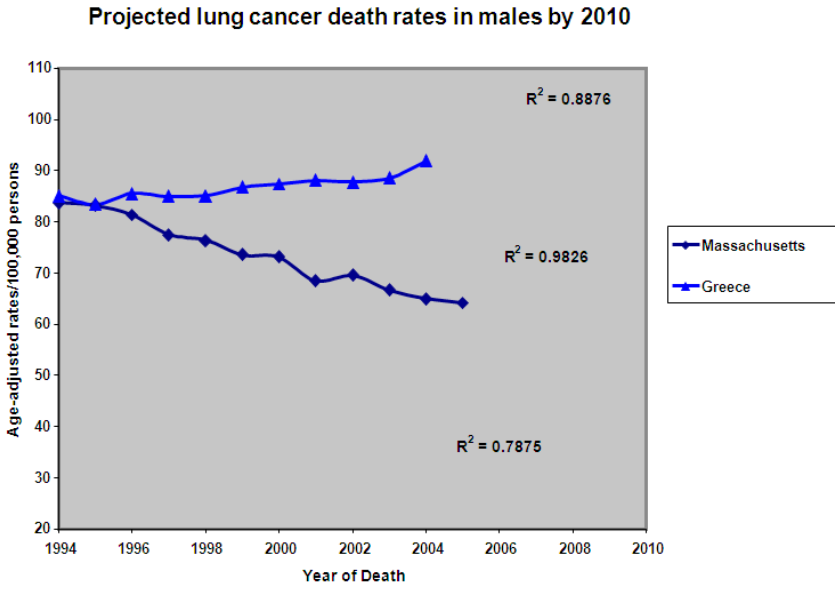
Figure 4, *Predicted lung cancer mortality in Greece in 2010 (all ages)*



Comparison of lung cancer mortality between Massachusetts in the United States and Greece shows markedly divergent temporal trends in mortality from lung cancer in men (**Figure 5**). While lung cancer death rates in men have been declining since the early 1990s in Massachusetts, largely due to the increased number of people quitting smoking and effective implementation of smoking bans, the reverse is true for Greek men, as there has been a steady increase in lung cancer mortality corresponding to the increasing prevalence of smokers. The predominant cause of lung cancer is exposure to tobacco smoke, with active smoking causing most cases, but passive smoking also contributing to the lung cancer burden. Cigarette smokers can benefit at any age by quitting smoking. The likelihood of lung cancer developing decreases among those who quit smoking as compared with those who continue to smoke. As the period of abstinence from smoking cigarettes increases, the risk for lung cancer decreases. However, even for periods of abstinence of > 40 years, the risk for lung cancer among former smokers remains elevated compared with never-smokers. The benefits derived from smoking cessation also depend on the duration of smoking; for a given period of abstinence, the decrease in risk increases as the duration of smoking decreases. In general, studies have shown comparable reductions in risk after cessation regardless of gender, type of tobacco smoked, and histologic type of lung cancer.



Figure 5, Trends in Massachusetts (USA) lung cancer death rates in males by 2010



*The US state of Massachusetts launched the first international comprehensive tobacco control campaign in 1993 and lung cancer rates fell dramatically while in Greece*

## HIGHLIGHTS

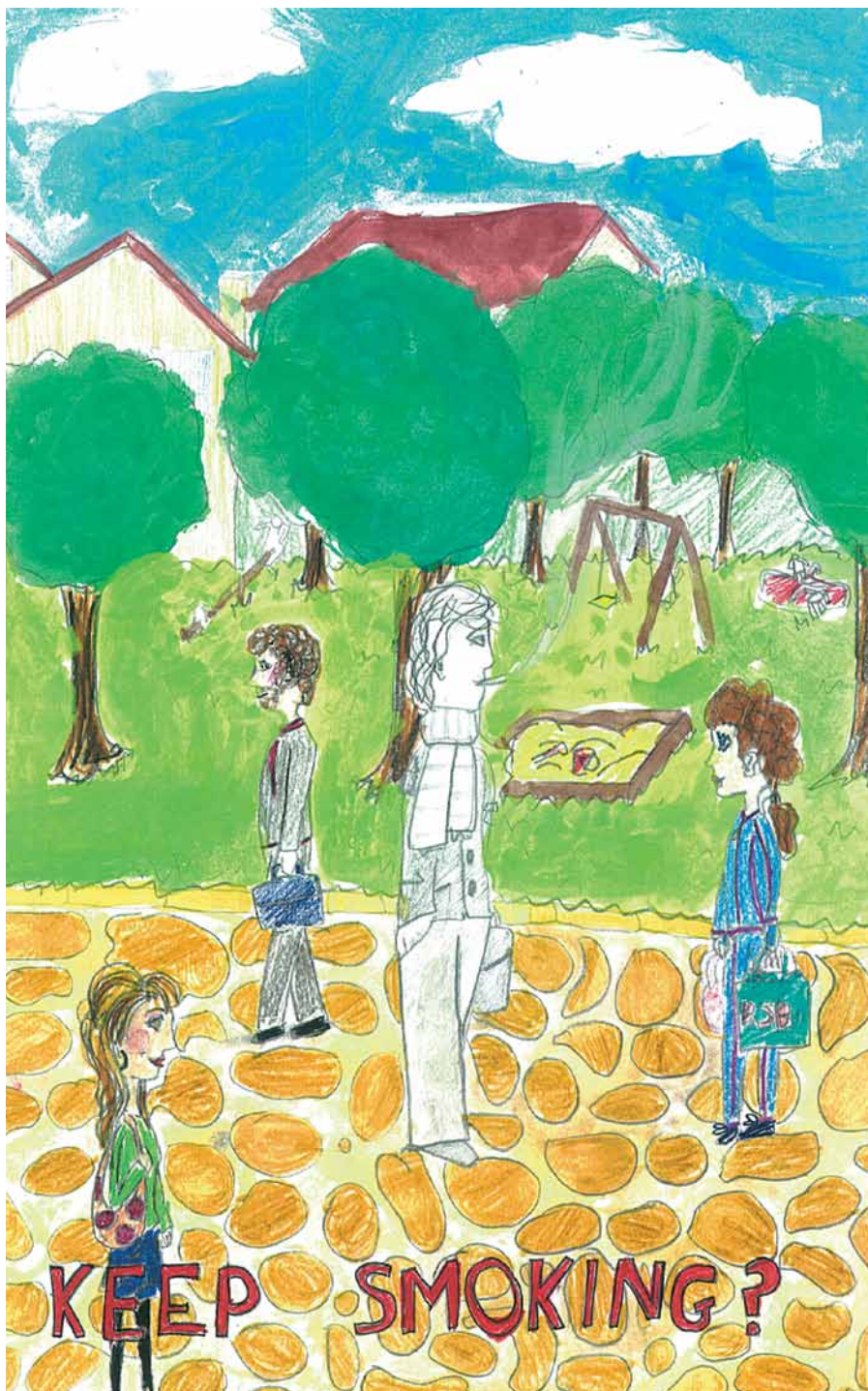
- ◆ The total number of smokers in Greece as of 2010 (3.8 million) is approximately equal to the pooled population of 14 EU countries [Andorra, Cyprus, Estonia, Gibraltar, Guernsey, Iceland, Isle of Man, Jersey, Lichtenstein, Luxembourg, Malta, Monaco, San Marino, and Vatican City].
- ◆ 27.7 billion cigarettes were consumed by the Greek population in 2010. This is equivalent to about 4 cigarettes for every man, woman, and child on the planet!
- ◆ Annually, more than 19,000 Greeks die from tobacco-attributable causes such as various cancers, cardiovascular, and respiratory disease. Premature deaths due to smoking amount to multiple costs to the population in terms of years of potential life lost, and in terms of productivity losses for the society as a whole.



## PART II: ECONOMIC HARM OF TOBACCO IN GREECE

*As far back as 1983–84, Greece was a priority target of multinational tobacco industries, constituting 43.7% of all UK cigarette exports. British American Tobacco characterized Greece as “a strategically important market where the price changes and market structure changes will offer considerable opportunity over the long term...” This culminated in a proposal to redirect their brand efforts behind the strategic international brands whose market potential was considered to be greater than that of national brands over the long term.*

British American Tobacco, October 24, 1988



## The Domination of the Greek Tobacco Market by Foreign Multinationals

The tobacco market in Greece is dominated by Philip Morris International-PMI (Papastratos SA), which controls 37% of the market. British American Tobacco (BAT) Hellas SA, J T International Hellas SA, Imperial Tobacco Hellas SA, Karelia Tobacco Co., and SEKAP SA share the rest of the market.

Table 4, *Multinational tobacco companies in Greece with estimated market shares as of 2009*

Tobacco Market Share	
Company	Market Share (2009)
Philip Morris International-PMI USA/Switzerland (Papastratos SA)	37%
British American Tobacco (BAT) United Kingdom Hellas SA	16%
Japan Tobacco International (JTI) Japan Hellas SA	15%
Imperial Tobacco United Kingdom Hellas SA	11%
Karelia Tobacco Greece	10%
SEKAP Greece	9%

*Source: ICAP SA & own calculations*

*Let us dedicate ourselves to what the Greeks wrote so many years ago: to tame the savageness of Man and make gentle the life of this world.*

*Robert F. Kennedy (1968)*

The cigarette import market is dominated by Japan Tobacco International Hellas SA, Imperial Tobacco Hellas, and British American Tobacco (BAT) Hellas SA, which control 80% of the market. Athanassiou SA controls the rest of the industry sales.

Table 5, *Estimated import sales by multinational tobacco companies in Greece as of 2008*

<b>Cigarette Import Companies' Sales</b>	
<b>Company</b>	<b>Cigarette Industry Share (2008)</b>
Japan Tobacco International (JTI) Japan Hellas SA	≈32%
Imperial Tobacco United Kingdom Hellas SA	≈26%
British American Tobacco (BAT) United Kingdom Hellas SA	≈22%
Athanassiou SA	≈12%

*Source: ICAP SA & own calculations*

Philip Morris International-PMI (Papastratos SA), the largest cigarette manufacturing company in Greece, is certainly committed to the market and is completing a multimillion-dollar building program that will provide it with new manufacturing and administrative facilities in Attica.

Imperial Tobacco Hellas (ITH) is aiming to maintain the momentum that, according to market data, has made it the fastest-growing tobacco company in Greece, both in terms of volume and value, during the past decade. The company has achieved consistent double-digit growth and more than doubled its market share during the past decade. It accounts for 10.7% of the market in volume and 11.8% in value, and it is currently the fourth-largest tobacco company in Greece. In 2008, ITH integrated Altadis's cigarette business in Greece following the takeover of Altadis by the Imperial Tobacco Group.

Japan Tobacco International Hellas (JTIH) has also been doing well. The company says that following the acquisition of Gallaher in 2007 and based on market data, JTIH was the fastest-growing tobacco company last year in

respect of volume and market share, which stood at 14.9% of the ready-made cigarette market. Furthermore, the company maintained its number-one position on the RYO market and grew significantly in volume and market share, which stood at 49.7%.

British American Tobacco Hellas (BATH) became the second player on the Greek market with about 16% of the total after its acquisition of Skandinavisk Tobakskompagni.

The Greek market is highly competitive and image-driven, with the result that it is fragmented with more than 300 SKUs. Prices of packs of 20 cigarettes range from €1.50 to €4.10, but there is currently no sign of the price volatility that broke out in 2003. Greek smokers have an increasing preference for products with lower tar and nicotine deliveries and, though full-flavor cigarettes are still dominant, lower-tar cigarettes are gaining ground. “Slim” products currently account for 9% of the market and growing, and market data show that the premium segment is increasing also, though this trend might come under pressure as the economic slowdown bites.

It’s not surprising that fine-cut tobacco has less than 10% share of the total market for manufactured and RYO cigarettes, but its sales are fast growing by about 20% for every one of the last three years.

Although cigarette prices and, therefore, margins are relatively low, the Greek market is profitable, and manufacturers are clearly keen to be part of it.

The increasingly competitive international tobacco environment, characterized by continuous mergers and acquisitions, led to a loss of volume share for Greek manufacturers during the review period. Greek manufacturers’ attempts to fight back by introducing cheap cigarettes soon failed, as governmental tax increases particularly impacted cheap brands. Unlike their multinational competitors, Greek companies did not have the economic capacity to absorb such increases. In 2009, the top two cigarette manufacturers were both multinationals.



Table 6, *Multinational cigarette companies' annual profits from sales in Greece (Euros)*

	2010	2009	2008
<b>BAT</b>			
PL per million sticks	6.374,70	6.109,20	4.944,80
Greece million sticks sold	4.768,66	4.570,05	3.699,01
Profit in Greece	30.398.764,68	27.919.338,17	18.290.850,25
<b>Imperial</b>			
PL per million sticks	6.083,80	2.628,56	1.991,43
Greece million sticks sold	3.188,90	3.705,90	3.735,00
Profit in Greece	19.400.644,14	9.741.172,44	7.437.987,92
<b>JTI</b>			
PL per million sticks	1.985,30	1.631,16	2.994,74
Greece million sticks sold	3.883,90	4.774,10	5.160,40
Profit in Greece	7.710.687,29	7.787.321,40	15.454.038,86
<b>PMI</b>			
PL per million sticks	6.432,55	5.738,65	6.223,92
Greece million sticks sold	9.307,00	11.949,80	12.527,40
Profit in Greece	59.867.773,81	68.575.676,48	77.969.503,34
<b>Greece Total Profit</b>	<b>117.377.869,92</b>	<b>114.023.508,49</b>	<b>119.152.380,36</b>

*Data Sources: Orbis, Euromonitor*

## Cigarette Prices and Taxation

Tobacco, unlike most other goods, imposes social costs (called externalities) when consumed. The existence of these costs justifies Greek government involvement in regulating tobacco consumption and constitutes an economic rationale for the excise tax on tobacco products. An economically efficient excise tax should at least cover smoking-related external costs.

Tobacco products in Europe are subject to both excise tax (which is levied either as a percentage of some value, “ad valorem tax,” or as a specific amount per cigarette, “specific tax”) and value added tax (VAT). The excise tax structure (ad valorem versus specific tax) has implications for cigarette tax revenue as well as for tobacco industry incentives and final cigarette prices. The advantage of ad valorem tax is that it keeps pace with overall price inflation. As a result, both cigarette prices and tobacco tax revenue are automatically indexed for inflation. The disadvantage of the ad valorem tax is that it is vulnerable to industry pricing strategies. Manufacturers can lower their tax liability by decreasing prices of their products (e.g., by lowering its quality, reducing retailers’ margins, or other marketing techniques), which can have negative impacts on state revenue.

The advantage of the specific excise tax is that it is much harder to avoid compared with ad valorem tax. This makes tax collection much less dependent on industry decisions. A specific rate, applied to cheap as well as expensive tobacco, will induce consumers to upgrade their choice of cigarettes, because the relative price of high-quality cigarettes falls. A disadvantage of a specific rate is that, unlike the ad valorem rate, its revenue does not change with the price level. To avoid this effect, the specific rate can be adjusted periodically for changes in the general price index.

Tobacco products in Greece are required to carry a stamp from the Ministry of Finance, indicating that tax has been paid. This requirement was introduced in 1950 and was initially a label showing that tax had been paid for the armed forces. After the re-establishment of democracy in the early 1970s, the sign was changed to show “duty paid.” The main benefit of this mark is that it makes it easy to distinguish between legal and illegal cigarettes. This is an important weapon in the elimination of contraband, which, despite its decreasing course over the recent years, accounts for several millions of euros of unpaid tax money.

All shops are required to sell the product at this price, leaving no space for price competition. There is no minimum or maximum price, in the sense that there is one selling price for each product throughout Greece. Retail prices

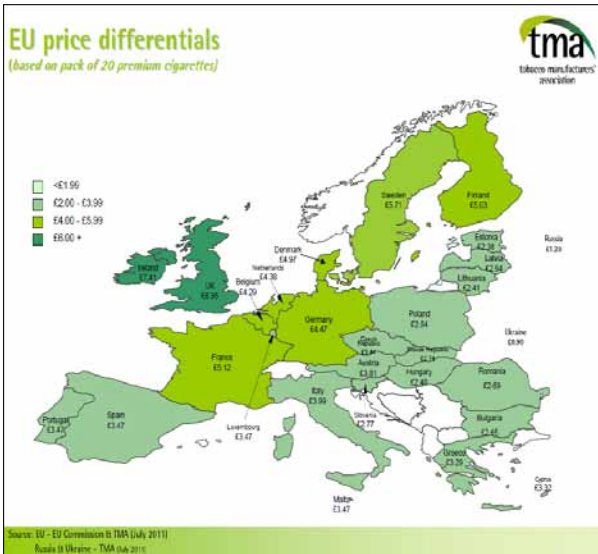
of cigarettes in Greece are mainly determined by tax rate variations each year. For cigarettes, special excise was imposed on the Most Popular Price Category (MPPC).

The MPPC concept was introduced 30 years ago. At that time, the national cigarette markets in the European Community were typically dominated by one brand. However, the average market share of the MPPC today is approximately 35%. Under current EU rules, excise duties levied on cigarettes must include an ad valorem and a specific component. The emphasis member states put either on the ad valorem or on the specific element depends on the policy objective pursued.

Starting January 1, 2011, the EU shifted to an obligatory calculation of Weighted Average Price (WAP). WAP is determined annually by the Ministry of Finance. The special excise tax can be broken into:

- Fixed tax on WAP. This tax is the same for all brands of cigarettes, regardless of their retail price.
- Proportional tax, as percentage of the retail price of 1,000 cigarettes. (For cigars and cigarillos, a special excise tax on the retail price per kilo. For RYO and other smoking tobacco, a special excise tax on the retail price per kilo.)

Figure 6, *Differential pricing of cigarettes among EU countries*



*The retail prices of popular brand cigarettes in Greece are half the price in the UK. Increasing taxes to UK levels would decrease smoking and smoking-related disease, particularly among children, and would generate enormous needed revenue for our nation.*

### Tobacco Agriculture

Greece has been a traditional producer of raw tobacco. Major parts of northern Greece were dominated by production solely of raw tobacco. Cities such as Serres and regions of Macedonia rely on European tobacco subsidies. However, with the implementation of the Common Agricultural Policy (CAP) in 2006 and the elimination of subsidies (according to CAP, 50% of

subsidies for tobacco cultivation will be cut down for the years 2010–2012), tobacco production in Greece has suffered a severe blow. In 2005, 544 million square miles of tobacco were cultivated, dropping to 234 million square miles in 2006 (58% decrease). In 2007, only 185 million square miles were cultivated. Tobacco production dropped from 124,000 tons in 2005 to 37,000 tons in 2006 and to 31,000 tons in 2007—a 75% decrease in three years.



*While the economic condition in Greece worsens each day, multinational tobacco industries in Greece make a daily profit of nearly €500,000. In stark contrast, the estimated net profit of tobacco farmers in Greece is about €3,000 a year.*

*The average Greek farmer earns €3,000 per year growing tobacco, while the CEO of Philip Morris International received \$21 million or almost €16 million in compensation in 2010*

During 2002 to 2004, in the Karditsa region (northern Greece), 17,750 square miles of tobacco were being cultivated each year. In 2006, only 97 square miles were cultivated, while in 2007, the figure dropped to 52 square miles. The cultivation of certain tobacco varieties, such as *mavra*, *tsempelia*, and S-79 disappeared. The number of tobacco producers in the area decreased from approximately 1,000 in 2005 to 4 in 2007. Cultivation of raw tobacco in Greece is expected to decrease further, as the CAP will force farmers to turn toward subsidized crops.

The only tobacco varieties still cultivated in Greece are *Basmas* and *Katerinis*. The only regions still producing raw tobacco are Serres, Xanthi, Rodopi, and Pieria. In 2007, there were 14 tobacco processing companies, the most important of which were Michaelides Tobacco, SocotabHellas, Papadopoulos, SEKE, and Kavex (each achieving annual sales of more than €25 million).

The drastic decrease in the cultivation of raw tobacco in Greece has shrunk the tobacco manufacturing industry. At the end of the review period, there

were four Greek cigarette manufacturing companies (Papastratos Cigarette Manufacturing Co. SA, Karelia Tobacco Co. Inc., S Georgiadis SA, and SEKAP SA), representing 50% of total tobacco value sales.

As regards exports of raw tobacco, the companies that remained active continued exporting their stock, mainly to the US, Japan, Korea, Russia, and France.

According to a survey published by the Centre of Export Research (KEEM), the international economic crisis will have a negative impact on the exports of tobacco and its products over the forecast period.

Cigarette production in Greece has been steadily decreasing since 1997, at an average annual rate of 1%. Prices of raw tobacco have also been decreasing, with the few remaining farmers frequently demonstrating and asking for higher prices.

### **Illicit Trade**

Smuggling is illegal trade, which means that statistics are rarely reliable. Although the exact size of illicit trade in cigarettes is not known, market officials estimate that it represented nearly 5% of the total cigarette market in 2009. Illicit trade commonly takes place in outdoor flea markets (and is especially attractive to poorer parts of the population, especially immigrants), and therefore increases during warm months. High prices of tobacco products and porous borders and ports are the main factors behind illicit trade.

In addition, the geographical location of Greece makes it a conduit for smuggling to other countries. Illicit cigarettes coming from Balkan or Asian countries pass through Greece before being forwarded to Western European countries through Italy. Illicit cigarettes come to the port of Piraeus from Mediterranean ports (such as Cyprus, Egypt, and Malta), Ukraine, and China. For instance, in January 2009 the coast guard seized 44,500 cartons of illicit cigarettes in the port of Patras, destined for Italy. There have also been many incidents of illicit cigarettes entering Greece through its northern borders, frequently with the aid of corrupted customs officials. These cigarettes are falsely reported as other kinds of goods and never reach their officially declared destination but instead are sold in the Greek market or forwarded abroad.

A slight but steady decline in illicit trade of cigarettes was observed during the review period. Following the introduction of cheap cigarettes by tobacco manufacturers, such as Leader and Next brands, the volume of illicit trade

declined by 4%–7% during 2004–2009. The effort to reduce illicit cigarette trading has been partially successful, although tobacco manufacturers were anticipating a bigger decrease in the illicit trade volume.

The upcoming tax increases are expected to boost illicit cigarette trade, given the harsh economic situation faced by the majority of Greek consumers. Should the price of a €3.2 pack rise to €5.4, illicit trade will increase impressively. That would of course lead to an unprecedented loss in tax money; in this context, the Ministry of Finance has stated that the price will rise to €3.6 and not €5.4.

### **The Burden of Tobacco on the Greek Economy**

Smoking places a tremendous economic burden on society. The WHO estimates the annual global cost of tobacco at €374 billion. This drain is so large that it exceeds the total annual expenditure on health in all low- and medium-resource countries. Tobacco's total economic costs reduce national wealth in terms of gross domestic product (GDP) by as much as 3.6%.

According to the WHO, the economic burden is particularly high in the developing world—4 out of 5 tobacco-related deaths worldwide will be centered in this region by 2030. The poor are disproportionately affected, because the money they spend on tobacco cannot be spent on necessities, including food, shelter, education, and healthcare.

Tobacco's economic costs extend beyond the direct costs of tobacco-related illness and death and the related productivity losses. The substantial economic impact of tobacco can be traced to three central elements:

- Direct healthcare expenditures attributable to the treatment of tobacco-related diseases—in both active smokers and those affected by secondhand smoke
- Employee absenteeism and reduced workplace productivity
- Other consequent costs, such as:
  - Fire damage related to smoking
  - Costs related to cleaning up after smoke and discarded litter (e.g., cigarette butts)
  - Widespread environmental harm from large-scale deforestation required for further tobacco farming, pesticide and fertilizer contamination from this tobacco farming, and cigarette butts.

## ***Direct Medical Expenditures Attributable to the Treatment of Smoking-Related Diseases***

Total healthcare costs in Greece are estimated as €23.6 billion; smoking-related conditions account for about 14.4% of the total, approximately €3.4 billion. The World Bank estimates that in high-income countries, smoking-related healthcare accounts for between 6% and 15% of all annual healthcare costs. According to Lightwood in 2000, the gross healthcare costs associated with smoking in high-income countries was 0.10% to 1.1% of GDP. Studies conducted in Europe suggest that these costs could be even higher. The direct and indirect costs of smoking in the EU were estimated at €98–€103 billion in 2000 or around 1% of EU GDP. The WHO quotes annual tobacco-related healthcare costs at nearly €5.24 billion in Germany. Available data show that the costs are more substantial in some of the newer EU member states, where the burden of disease and the death rates related to smoking are higher. For example, studies in Hungary concluded that the cost of smoking represented 3.2% of GDP. SHS exposure also imposes economic burdens, both in the costs of direct healthcare as well as in indirect costs, such as reduced productivity.

### ***Other Consequent Costs***

These costs include fire damage and increased cleaning costs, as well as damage to the environment from deforestation, contamination caused by pesticides/fertilizers, and litter. Worldwide, it is estimated that 10% of all fire deaths involve smoking materials. A recent publication indicated

*Smoking-related disease conditions account for 14.4% of healthcare costs or €3.4 billion. Thus an estimated €9.4 million are spent daily on direct medical expenditures attributable to smoking-related diseases. The government bears this healthcare cost.*

that the annual cost to the UK economy of smoking-related house fires is £507 million, while cleaning up cigarette butts costs £342 million each year. The global environmental burden of discarded cigarette butts is significant: It is estimated that 845,000 tons (1.69 billion pounds) of cigarette butts finish up as litter worldwide each year.

### ***Economic Effects***

The PESCE report (General Practitioners and the Economics of Smoking Cessation in Europe) was a partly EU-funded program involving clinicians and researchers from 27 European countries. One of the work packages



within the PESCE project examined the health and economic benefits that could result from a 3% reduction in smoking. An economic model was used to predict the health and economic effects of this level of reduced smoking for each country providing data. An analysis of ten European countries showed that a 3% reduction in smoking prevalence would yield annual savings in disease-specific healthcare costs alone (related to a reduction in incidence of lung cancer, chronic heart disease, stroke, and COPD) amounting to over €166 million by 2030. Using the UK as an example, it can be seen that the economic benefits are even greater when the value of deaths avoided, reduced sickness absence, and reduction in fires are taken into account. Naidoo and colleagues postulated that reducing the UK smoking prevalence in accordance with government targets (from 28% in 1996 to 26% by 2005, and 24% in 2010) would prevent 6,386 hospitalizations for acute myocardial infarction (AMI) and 4,964 hospitalizations for stroke by 2010, saving a total of £524 million in healthcare costs. Reducing smoking prevalence to the more ambitious targets observed in California in the US (from 28% in 1996 to 22% in 2005, and 17% in 2010) would prevent 14,554 hospitalizations for AMI and 11,304 hospitalizations for stroke, saving £1.14 billion in healthcare costs by 2010. A Danish study considered the economic effects of smoking cessation from a lifetime perspective and showed that the total, direct, and productivity lifetime cost savings of smoking cessation in moderate smokers who quit smoking at age 35 were €24,800, €7,600, and €17,200 respectively in men, and €34,100, €12,200, and €21,800 respectively in women. The UK's National Institute for Health and Clinical Excellence (NICE) found GP smoking cessation services to be highly cost effective. Such services provide a quit rate between 3% and 15%. Relative to their cost, these services are just about the most cost-effective interventions available to health services. In 2004, Parrott et al. found that face-to-face cessation interventions offer excellent value for the money when compared with some other healthcare interventions such as aspirin after myocardial infarction and statins in primary prevention.

A recent study from Hungary concluded that the total cost of smoking (including the direct and indirect costs) was about 1.146 billion ECUs in 1996 about €1.072 billion in 1998. This represents a loss of 2.7% and 3.2% of GDP in 1996 and 1998 respectively. An updated estimate for 2002 indicates that the costs of smoking represent up to 4% of Hungarian GDP. This estimate indicates that the relative economic burden of smoking may be larger among the new EU10 countries. It is important to realize that the estimate for the European region of interest is rather conservative, because it does not take into account the costs of informal care, costs related to SHS, the costs of reproduction diseases, and the social costs of unwanted nicotine addiction, which can be quite substantial. In addition, the intangible costs such as costs of pain and suffering have not been included in these estimates.

In Greece, there is limited scientific and research evidence on the matter. Nonetheless, draft calculations estimate smoking-related healthcare expenditure at €3.4 billion annually, i.e., approximately 15% of total health expenditure. This significant impact of smoking on healthcare expenditure in Greece underlines the need for immediate and widespread smoking cessation programs as well as for intense research and data analysis into smoking-related economic evaluations.

In Greece, smoking is the major risk factor for population health, both in terms of mortality and morbidity. According to estimates, 20,000 people a year die due to diseases related to smoking. In addition, smoking is the major cause of deterioration of the load of morbidity in the country, accounting for 12.9% of all lost disability-adjusted life years (DALYs), as much as the cumulative effect of risk factors, which rank in fifth to tenth places of the major causes of morbidity of the Greek population.

Male lung cancer rates have been rising rapidly in Greece over the last few decades. By 1993, the age-standardized death rate had reached 75 per 100,000, or twice the level observed in 1960. There is no clear evidence that female lung cancer rates have begun to rise.

A complete research effort (cost-of-illness study) on health expenditure due to smoking in Greece has not yet been conducted. The National Plan of Action on Smoking in 2008, based on the assumption that relevant costs in the EU are ranging from 1.04% to 1.39% of GDP, estimates the costs of smoking in Greece at €2.14 billion per year as the lower assessment.

There are several reasons to expect that the true costs are larger. Only major diseases associated with smoking (respiratory diseases and CVD) are included in these estimates, and even for these diseases, not all costs are considered (e.g., the costs of informal care, the costs linked to the treatment of reproduction problems, the costs related to SHS, and budgetary costs related to social services are not included). The amount, however, which represents 10% of total health expenditure, is a serious underestimation of the actual expenditure for two reasons:

1. The above study is based on an estimation of an average smoking prevalence of 29.1% (calculations based on data of the European Union), while the corresponding prevalence in Greece is estimated at 45%.
2. Because of the dose-dependent relationship between quantity of cigarettes and expenditure (as Greeks are the leading per capita consumers of cigarettes in Europe).

So we have to employ the widely used prevalence-based approach to estimating the cost of smoking, based on the estimated prevalence of smoking-related illnesses in a given year and on the costs associated with those illnesses. Because of the long time lag between smoking initiation and the onset of most smoking-related illnesses, these estimates reflect historical trends in smoking and tend to mask the magnitude of future costs, which depend on current smoking prevalence.

Therefore, health expenditure as a result of smoking should be estimated at a level of more than €3.4 billion annually, representing approximately 15% of total health expenditure. This amount is much higher than for diseases or conditions such as morbid obesity (€1.2 billion annually) and diabetes mellitus (€2.3 billion annually).

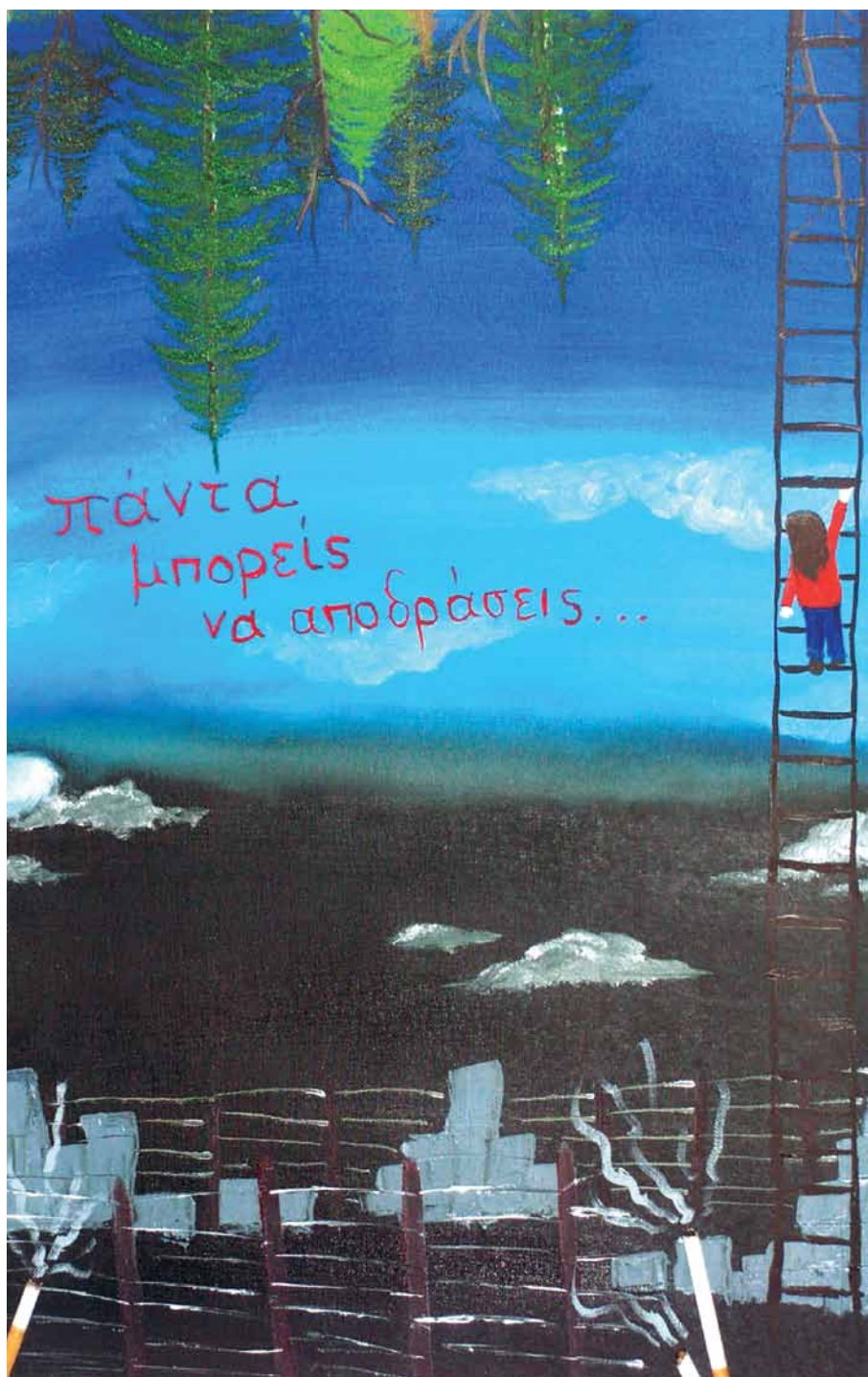
Therefore, Greece, which is suffering from governmental austerity actions, must immediately adopt tobacco control measures, focusing on improving the efficiency of the system.

## HIGHLIGHTS

- ◆ The average household annual tobacco expenses in 2010 were €998 or an average of €83.2 per month. This is money that could be spent on healthy products for our economy.
- ◆ The 27.7 billion cigarettes smoked by Greeks in 2010 are the equivalent of €4.8 billion in tobacco expenditures. This staggering amount of money could create employment opportunities for tens of thousands.
- ◆ Tobacco-attributable disease accounts for about 14.4% of total healthcare expenditures in Greece or €3.4 billion.
- ◆ The average Greek farmer earns €3,000 per year growing tobacco while the CEO of a major multinational tobacco company in Greece made US\$21 million or almost €16 million in compensation in 2010 (5,000 times greater than that of the farmer).



PART III:  
THE CHALLENGE  
OF TOBACCO CONTROL  
IN GREECE



πάντα  
μπορείς  
να αποδράσεις...

## The International Experience

The implications of long-term exposure to tobacco smoke for smokers and to secondhand smoke for nonsmokers are known and well documented. In addition, the health consequences of exposure to environmental tobacco smoke in the workplace have been increasingly recognized in Europe as in much of the rest of the world. Several legislative and public health programs around the world have been implemented to eliminate exposure to tobacco smoke and improve the health of the population.

At the European level, two earlier directives deal directly but very narrowly with workplace smoking. For example, a directive of 1983 (83/477) stated that smoking should be banned in areas where the workers are exposed to asbestos dust. A directive of 1989 (89/654) dealt with air in enclosed workplaces. In particular, it ruled that appropriate measures should be taken to protect nonsmokers, for example in places where workers are allowed to rest. The Third Action Plan for a Tobacco-free Europe 1997–2001, adopted by the WHO Regional Committee for Europe, set fundamental targets to strengthen the European movement to reduce tobacco use, promote health and economic gain, and protect the public from the activities of the tobacco industry.

The plan's target by the year 2001 was for legislation to be enacted in all countries of the European Region to ensure that involuntary exposure to tobacco smoke is eliminated in all workplaces, all public buildings, and all forms of public transport. By 2001, nearly four-fifths of region countries had banned or restricted smoking in public buildings and public transport and had a range of restrictions on smoking in workplaces.

The WHO Framework Convention for Tobacco Control (FCTC), the first-ever treaty devoted to public health, calls for legislation to reduce or eliminate tobacco smoke air pollution. Since June 2003, 174 countries, including Greece, have signed the FCTC and are thus obligated to implement smoke-free legislation. The Public Health Commissioner of the EU, Markos Kyprianou, called for an **EU-wide ban on smoking** during his hearing in the European Parliament on October 8, 2004.

More and more countries in Europe have now adopted strict legislation on smoking in public places. The effectiveness of smoking restrictions, how-



ever, depends on their enforcement and the mobilization of public opinion through comprehensive information campaigns. The effective rule must be that smoking is completely banned in all public places, including workplaces, public buildings, and public transportation.

On March 29, 2004, the Republic of Ireland became the first nation in the world to implement comprehensive smoke-free legislation in all workplaces, including restaurants and pubs, with no allowance for designated smoking rooms and few exemptions. The smoke-free law has over 93% public support, including 80% of smokers, and the Irish government reports a 97% compliance rate. Smoke-free workplaces in Ireland, together with a telephone quit line, have been associated with a 33% reduction in smoking prevalence. A Harvard School of Public Health study of air quality in pubs in Ireland and in cities around the world, released on March 16, 2006, demonstrated a difference of 90% in the level of respirable suspended particles—RSPs (that represent primarily tobacco smoke pollution)—comparing Irish pubs that permit or prohibit smoking.

Norway has enjoyed comprehensive smoke-free protection in all its workplaces since June 1, 2004. Norwegian smoke-free legislation provides the same protection in bars and restaurants as in Ireland but is less strict in other workplaces, where designated smoking rooms are allowed.

Italy became the third European country to implement a smoking ban, which applies to all enclosed public places. Cigarette sales were reported to drop 20% within the month of January 2005, when the ban came into force. All restaurants, bars, and cafes in Sweden were required to be smoke-free as of June 1, 2005. The law in Sweden does allow separately closed and ventilated designated smoking rooms where no food or drink is to be served. Spain introduced a complete ban at the workplace on January 1, 2006. Most Spaniards support the new law, which prohibits smoking at work and in those bars and restaurants larger than 100 square meters that do not have a smoking section.

Belgium also banned smoking in all enclosed workplaces as of January 1, 2006. Smoking will be allowed only in established premises, but employers are not obliged to create such premises. From January 1, 2007, onward, Belgium will allow smoking in restaurants in separate rooms where no food is served. Bars and cafes are not yet concerned by the ban but are required to provide adequate ventilation and a nonsmoking zone to their patrons.

The United Kingdom is following suit with smoking bans in all states. A total ban on smoking inside offices, pubs, restaurants, and “virtually every enclosed public place and workplace” throughout England was slated to come into

force in the summer of 2007 after the British Parliament voted on February 14, 2006, to ban smoking in all enclosed public spaces. The total ban will extend to all enclosed areas except private homes, residential care homes, hospitals, prisons, and hotel bedrooms.

Scotland was set to ban smoking in public places effective March 26, 2006. The ban covers the workplace—including bars and restaurants with no designated smoking rooms. Licensees failing to enforce the ban face fines up to £2,500, and customers caught smoking could be fined £1,000. A share decline in cardiovascular disease hospital admissions occurred immediately after the ban.

Northern Ireland, which already had a standing ban on smoking in government offices and other institutions, was set to ban smoking in all enclosed public places—including pubs, restaurants, and hotels—starting April 2007. A parliamentary committee in Wales recommended that smoking should be banned in enclosed public spaces and in workplaces during the same time frame.

Some jurisdictions have adopted similarly strict, 100% smoke-free laws (e.g., Bhutan, New Zealand, nine US states, seven Canadian provinces and territories, and seven Australian states and territories). Partial bans have also been implemented in many other countries (Austria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Switzerland). Germany, however, a country in which the tobacco industry is firmly entrenched, is one of the few countries without meaningful smoke-free legislation.

## **The European Union Directives on Tobacco Control**

EU tobacco control policy rests on three pillars:

- legislation
- campaigning
- international treaties

### ***Legislation on Tobacco Control***

Since the 1980s, there have been legislative initiatives in the EU to curb tobacco use among citizens. The aim was, on the one hand, to regulate tobacco products to ensure harmonized standards and appropriate consumer information, and on the other hand to provide certain restrictions in the marketing of tobacco products for public health reasons. Today, the key legislation in

the field of tobacco control comes from two laws—the Directive on Tobacco Products and the Directive on Tobacco Advertising. The European Commission meets regularly with representatives from EU member states to ensure that the legislation is implemented effectively and takes account of new developments.

The Directive on Tobacco Products (2001) is the first major European legislation specifically related to tobacco products. The directive:

- requires manufacturers to put health warnings on tobacco products;
- bans the use of terms such as “light,” “mild,” or “low tar”;
- forces producers to provide full information on all ingredients utilized in their products; and
- sets maximum limits for tar, nicotine, and carbon monoxide in cigarettes.

The Directive on Tobacco Advertising (2003) bans cross-border advertising of tobacco products in printed media, radio, and online services. It equally bans sponsorship of cross-border events if it has the effect of promoting tobacco products. Tobacco advertising and sponsorship on television was already prohibited since 1989. Now the Audiovisual Media Services Directive extends this ban to all forms of audiovisual commercial communications, including product placement. This comprehensive advertising ban in the countries of the European Union is a central pillar of an efficient tobacco control policy and helps make smoking less visible and attractive in society.

### ***Smoke-Free Environment***

Many European citizens are still regularly exposed to secondhand smoke either at home, in public, or at the workplace. There is clear evidence that exposure to tobacco smoke causes death, disease, and disability and is particularly harmful to children and infants. About a third of European countries have implemented comprehensive smoke-free legislation, and the immediate positive health effects are impressive; for example, the incidence of heart attacks has decreased between 11% and 19%. The Commission on June 30, 2009, produced a Proposal for a Council Recommendation that calls on all member states to proceed with measures that protect their citizens from exposure to tobacco smoke by 2012.



*Enforced smoke-free regulations protect children and infants from the harmful effects of secondhand smoke*

The Proposal for a Smoke-Free Environment calls on member states to:

- adopt and implement laws to protect citizens from exposure to tobacco smoke in enclosed public places, workplaces, and public transport, within three years from the adoption of the recommendation;
- enhance smoke-free laws with supporting measures such as protecting children and encouraging efforts to give up tobacco use and pictorial warnings on tobacco packages; and
- strengthen cooperation at the EU level by establishing a network of national focal points of tobacco control.



*The EU Proposal for a Smoke-Free Environment calls on member states to adopt and implement laws to protect citizens from exposure to secondhand smoke at workplaces*

### ***Beyond Health Policy***

Measures to curb tobacco use are not found just in health policy; tobacco is a cross-cutting issue that affects numerous policy areas.

Evidence clearly shows that high taxes on cigarettes and other tobacco products are among the most effective instruments to reduce tobacco consumption, particularly in young people. This is why EU legislation on the taxation of tobacco is increasingly seen not only as a fiscal instrument but also as an instrument of public health policy. The Commission has made a proposal to increase the minimum tobacco tax levels. Discussions on this proposal are ongoing.

The European Anti-Fraud Office (OLAF) is investigating illicit trade of tobacco products that costs the EU billions of euros per year. In addition, illicit tobacco products are often cheaper and thus more easily affordable. This threatens EU efforts on tobacco control.

Tobacco subsidies used to be an important but controversial agricultural policy issue in the EU. In the interest of public health, tobacco subsidies were scheduled to be eliminated by 2010.

## ***Targeting the People***

Aside from legislation, the EU has developed several instruments to raise citizens' awareness of the negative health effects of tobacco and encourage them to stop using tobacco or to never start in the first place.

Health warnings are known to be an important and effective element of a comprehensive tobacco control policy. In 2005, the Commission developed a series of pictorial warnings that show the negative impact of tobacco through powerful visual images. Pictorial warnings are currently not mandatory in the EU, but the Commission is encouraging their wider use. Prevention is another key part of the EU's tobacco control policy. Aimed at young people, and started in March 2005, the campaign "HELP—for a life without tobacco" is one of the largest EU health-awareness-raising activities ever organized. The campaign is active in all 27 member states with television spots, a website in 22 languages, and a series of European and national press events. HELP 2.0 continues to target young people. The web-driven campaign is designed to give young people all the information they need about the dangers of smoking and how to quit. It encourages them to take control of their own lives and pay less attention to media influences.

During its first phase (2005–2008), more than 70,000 TV spots ran on more than 96 national channels and the HELP website received over 7.6 million visits. The campaign proved successful at reaching young people and informing them about the benefits of not smoking. Fifty-nine percent of Europeans under age 25 declared that they had seen the HELP campaign and 79% of young nonsmokers said the ads had made them think about the importance of not smoking.

## **Implementation of a Tobacco Control Program for Greece**

### ***Tobacco Control Agency***

In 2009, Greece created a national steering committee on tobacco control to advise the Ministry of Health and Social Solidarity on tobacco-related issues. Adjourning approximately monthly, the committee was charged with suggesting actions, coordinating activities including enforcement, and supporting the legislative actions of the ministry with current knowledge and indicating best practices in tobacco control. The current president of the National Committee of Tobacco Control is Professor Panagiotis Behrakis.

## Tobacco Advertising

International research shows that advertising increases tobacco consumption, and adolescents as well as young adults may be especially vulnerable to tobacco advertising. Ubiquitous tobacco advertising also can create a conflicting environment that makes it difficult for consumers to fully absorb messages about the health hazards of tobacco use and exposure to tobacco smoke, and to benefit fully from awareness campaigns. Measures to eliminate tobacco advertising and promotion thus will support governments' health education campaigns and other tobacco control interventions by removing messages that glamorize tobacco use. There is also evidence that media that rely on tobacco advertising are less likely to report on tobacco- and health-related matters. Such measures also will promote consumers' rights by prohibiting misleading and deceptive advertising.

Research also shows that comprehensive tobacco advertising and promotion bans can decrease consumption. Partial bans, however, have been found to be ineffective, since substitution of nonbanned media occurs. A study of 22 countries in the Organization for Economic Cooperation and Development (OECD) comparing weak, limited, and comprehensive bans on tobacco advertising showed a significant decrease in consumption in countries with comprehensive bans. In contrast, those countries with weak or limited restrictions showed no or relatively small decreases. Countries with comprehensive bans had the lowest consumption and greatest decline in consumption over time during the period 1970–1992. If it had been the case that all of the countries had comprehensive advertising bans, the study predicts that a 5.4% reduction in tobacco use and an approximately 7.4% reduction in cigarette use would have occurred.

Indirect forms of advertising, such as tobacco company sponsorship of sporting, cultural, and other events and “brand stretching” (tobacco names or logos on nontobacco products), are important forms of promotion for the tobacco industry. These indirect forms are especially important when direct advertising has been banned or substantially restricted. A magazine article on sponsorships quotes an RJ Reynolds Company official as saying, “We use sports as an avenue for advertising our products... We can go into an area where we're marketing an event, measure the sales during the event and measure sales after the event, and see an increase in sales.”

Other forms of promotion that require regulation include the distribution of free tobacco products or samples, gifts, bonuses, rebates, and lotteries or contests. Indirect advertising also can take the form of tobacco product packaging and public displays of tobacco products.



*During our economic crisis, Philip Morris International made €104 million in estimated profit in Greece in 2010*



*Point of purchase of Marlboro cigarettes (Interior)  
Marlboro is the most popular cigarette brand among Greek youth*



## WHO Framework Convention for Tobacco Control (WHO FCTC)

### Obligations

*Article 13 of WHO FCTC requires that each party, “in accordance with its constitution or constitutional principles, undertake a comprehensive ban on all forms of advertising, promotion, and sponsorship. This shall include, subject to the legal environment and technical means available to that Party, a comprehensive ban on cross-border advertising, promotion, and sponsorship originating from its territory.” The ban must occur by January 24, 2011 (five years after the convention enters into force).*

*In cases where constitutional requirements or principles prevent a party from undertaking a comprehensive ban, Article 13 requires parties to “apply restrictions on all tobacco advertising, promotion, and sponsorship. This shall include, subject to the legal environment and technical means available to that Party, restrictions or a comprehensive ban on advertising, promotion, and sponsorship originating from its territory with cross-border effects.”*

*Article 13 further provides:*

*As a minimum, consistent with constitutional requirements or principles, advertising, promotion, and sponsorship restrictions must:*

- (a) prohibit all forms of advertising, promotion, and sponsorship that promote a tobacco product by any means that are false, misleading, or deceptive or likely to create an erroneous impression about its characteristics, health effects, hazards, or emissions;*
- (b) require that health or other appropriate warnings or messages accompany all tobacco advertising and, as appropriate, promotion and sponsorship;*
- (c) restrict the use of direct or indirect incentives that encourage the purchase of tobacco products by the public;*
- (d) require, if it does not have a comprehensive ban, the disclosure to relevant government authorities of expenditures by the tobacco industry on advertising, promotion, and sponsorship not yet prohibited;*
- (e) undertake a comprehensive ban or, in the case of a Party that is not in a position to undertake a comprehensive ban due to its constitution or constitutional principles, restrict tobacco advertising, promotion, and sponsorship on radio, television, print media, and, as appropriate other media, such as the Internet, within a period of five years; and*
- (f) prohibit, or in the case of a Party that is not in a position to prohibit, due to its constitution or constitutional principles, or restrict tobacco sponsorship of international events, activities, and/ or participants therein.*

*Parties are encouraged to implement measures beyond the minimal obligations set out above.*

Scientific studies clearly show that complete bans on advertising, sponsorships, and other forms of promotion work while partial bans do not. The tobacco industry has proven time and again that it will find ways to get around any measures short of a stringent and comprehensive ban on all forms of advertising, sponsorship, and promotion. The WHO FCTC negotiating process created a strong momentum for a complete ban; therefore, the manual offers provisions only for a complete ban on all advertising, sponsorship, and other forms of promotion.

Greece ratified the FCTC in October 2005. We expect that the government will enact additional legislation within the next two years to comply fully with the provisions of FCTC and promote tobacco control.

Draft text of potential articles that could be used to advance the current legislative approaches for tobacco control in Greece is provided below in Legal Text I:

**Proposed Legal Text I:** Articles to advance the legislative approaches for tobacco control

**1. Freedom from tobacco advertising and promotion.** All persons shall have the right to be free from all forms of tobacco advertising, sponsorship, and other forms of tobacco-related promotion, whether such forms are direct, indirect, overt, covert, or incidental.

**2. Advertising prohibition.** No person shall advertise, arrange for, or participate in the advertising of any tobacco product, brand, manufacturer, or seller, directly or indirectly. This prohibition shall apply to advertising in, as well as to advertising transmitted into or out of Greece.

(a) **Allowed activities.** The following shall be allowed:

(i) Incidental exposure of a tobacco product or tobacco product package from the time of manufacture until it reaches its point of retail sale; provided, however, that tobacco products and tobacco product packages shall not be displayed in view of customers or patrons at retail locations and other locations where tobacco products are sold to consumers

(ii) A price list on paper no larger than [specify size] available at the counter at the point of sale for consultation by customers containing, in black and white text only, the brand name, price, and prescribed messages in accordance with implementing regulations, and no other text, colors, or other graphics, or other information

(iii) Communications by persons in the tobacco growing, manufacturing, importing, exporting, distributing, selling, or trading business directed solely at other persons in the tobacco growing, manufacturing, importing, exporting, distributing, selling, or trading business

(iv) An Internet website for any particular tobacco company, so long as it presents business and/or health information only and it is not intended to, and is not likely to, encourage, directly or indirectly, the purchase or use of any tobacco product or brand

(v) Trade publications prepared for and distributed only to employees, shareholders, or investors that are not intended to, and are not likely to, encourage, directly or indirectly, the purchase or use of any tobacco product or brand; provided, however, that the minister may prescribe a list of allowed trade publications based upon those currently in existence

(vi) The display of the company name on places of tobacco manufacturing, subject to conditions imposed by the ministry

(b) **Private communications.** Private communications among individuals about tobacco products, brands, manufacturers, or sellers shall not be construed to be tobacco-related advertising, so long as these communications are not made at the behest of or for the benefit of any tobacco manufacturer or seller or any person working on the behalf or for the benefit of a tobacco manufacturer or seller.

**3. Prohibition of tobacco sponsorships.** Tobacco sponsorships, and advertising and other promotion of tobacco sponsorships, are prohibited. This prohibition applies to sponsorships and advertising of sponsorships in, as well as sponsorships and advertising of sponsorships originating elsewhere but transmitted into, or otherwise appearing in, Greece.

**4. Prohibition against brand stretching.** No person shall sell, display for sale, supply, or advertise any nontobacco product or service that contains, either on the product, or in any advertisement of the product, any writing, picture, image, graphic, message, or other matter, in whole or part, that is commonly identified or associated with, or is likely or intended to be identified or associated with, a tobacco product, brand, or manufacturer. For the purposes of this section, a nontobacco product shall include a building, facility, premises, or business that is not a building, facility, or business that manufactures tobacco products exclusively.

**5. Prohibition against reverse brand stretching.** No person shall use the brand name, trademark or other sign, symbol, logo, or similar matter, in whole or in part, commonly associated with a nontobacco product or service on a tobacco product, except for tobacco products for which a trade or brand name of a nontobacco product or service was in use.

**6. Prohibition against incentive promotions and the free supply of tobacco products.** Incentive promotions and the free supply of tobacco products shall be prohibited.

(a) **Prohibition on tobacco products as bonuses, premiums, rebates, etc.** No person shall offer or provide any direct or indirect consideration for the purchase or use of a tobacco product, including a bonus, premium, cash rebate, or right to participate in a game, lottery or contest; provided, however, that nothing in this section shall prohibit the giving of any normal trade discount or normal trade rebate, or providing compensation for monitoring compliance with this act.

(b) **Prohibition on tobacco product samples and gifts.** No person shall supply or offer to supply a tobacco product to any other person free of charge as a sample, gift, or otherwise. This subsection shall not be construed as prohibiting individuals from giving tobacco products to other individuals, so long as this is not done at the behest of, or for the benefit of, a tobacco manufacturer or seller or any person working on the behalf of or in the interest of a tobacco manufacturer or seller, or for financial gain for the individual offering the tobacco product.

**7. Unintended consequences.** The minister shall have the authority, through implementing regulations, to make necessary limited exceptions to the provisions of this part for the purpose of mitigating against or preventing any unintended consequences.

**8. Ministerial discretion to address requirements of this part.** The minister shall have the authority to prescribe in implementing regulations additional and/or more stringent requirements than any of those prescribed in this part.

**9. Effect on other laws.** Nothing in this act shall affect the ability of any other level of government to enact laws or regulations addressing tobacco advertising, sponsorships, and other forms of promotion, so long as the provisions of such law or regulations are at least as stringent as, and do not conflict with, the provisions of this part.

## The Issue of Secondhand Smoke

The scientific evidence unequivocally establishes that tobacco smoke causes disease, disability, and death to those exposed, both smokers and nonsmokers. Tobacco smoke contains more than 60 known or suspected cancer-causing compounds, as well as other toxins. For many of these compounds, there is no safe level of exposure. Definitive reports by the International Agency for Research on Cancer, the UK Scientific Committee on Tobacco and Health, and the US Environmental Protection Agency, among others, have concluded that tobacco smoke is a human carcinogen. Such classification is used only when there is sufficient evidence from epidemiological and other studies to support a causal association between exposure to a particular agent and cancer.

Exposure to secondhand smoke has been found to increase the risk for lung cancer in nonsmokers by 20%–30%, and for heart disease by about the same amount. Tobacco smoke has harmful, even fatal, effects on children's health, such as asthma induction and exacerbation, bronchitis, pneumonia, middle ear infection, chronic respiratory problems, low birth weight, and Sudden Infant Death Syndrome, among others. A review of 14 studies on the effects of tobacco smoke in the workplace concluded that workplace exposure to tobacco smoke increased the risk of lung cancer by 39% among people who had never smoked.

Prohibiting smoking in public places serves the following goals:

- Protecting nonsmokers
- Reducing smoking consumption
- Changing social norms

In addition to protecting individuals from involuntary exposure to hazardous tobacco smoke, prohibitions on smoking in public places, including workplaces, have been shown to be associated with a decrease in how much individuals smoke and an increase in quit rates. According to an internal document from Philip Morris, “Total prohibition of smoking in the workplace strongly affects industry volume. Smokers facing these restrictions consume 11%–15% less than average and quit at a rate that is 84% higher than average.” Smoking bans also can challenge the social norm of smoking acceptability that still prevails in many places by reinforcing the message that smoking is unhealthy and socially unacceptable.

- **Protection Measures** — Historically, laws providing protection from tobacco smoke in many jurisdictions began as bans on smoking in some priority public places (such as government buildings, healthcare facilities, and the like) while simply restricting

smoking to designated areas in other public places. A growing number of jurisdictions have begun banning smoking altogether, or allowing smoking only in separately ventilated rooms, in most or all public places, including workplaces. Progress continues as outright bans on smoking in restaurants and bars, which often have been excluded from smoking prohibitions, are becoming more prevalent in more jurisdictions. From an equity perspective, the trend toward expanded protection is critical, especially for vulnerable workers. Studies in a number of countries have shown that people with lower socioeconomic status have greater exposure to tobacco smoke in the workplace. In Hong Kong, for example, lower-paid workers were significantly more exposed to tobacco smoke in the workplace. Approximately 22% of females and 42% of males working in administrative, managerial, or professional positions were exposed to tobacco smoke, compared with 42% of females and 60% of males working as clerks, service workers, or salespersons, and 41% of females and 61% of males working in manufacturing. According to a national survey in the United States, the majority of employees working in environments that allow smoking disproportionately tend to be those in service occupations, restaurant workers, bar workers, laborers, and the young.



*The vast majority of Greek citizens support smoke-free public places*

- **Designated Smoking Rooms and Separate Ventilation** — The mere separation of smoking areas from nonsmoking areas does not offer protection in the nonsmoking areas. A 1998 study of hospitality venues by ventilation engineering experts in the US showed that current technology using dilution, displacement, or air-cleaning ventilation systems does not reduce the health risks from exposure to tobacco smoke, even under moderate smoking conditions, to *de*

*minimis*, or “acceptable risk,” levels for either workers or patrons. An independent scientific working group commissioned by the Health and Safety Authority and the Office on Tobacco Control in Ireland agreed with these findings. One of the problems with designated smoking rooms is the difficulty of ensuring that ventilation maintenance and repairs are made as necessary. Another significant problem is that employees, especially servers and cleaners, may be required to enter the smoking rooms on a regular basis. It will take creative thinking about self-service options and other ways of protecting employees if smoking will continue to be allowed in separately ventilated rooms. At a minimum, where smoking will be allowed in separately ventilated rooms, it is important that the rooms are required to be physically isolated (that is, rooms with four walls or floor-to-ceiling partitions and a door), negatively pressurized, and vented to the outside. Additionally, workers and members of the public should not be required to enter these rooms to do their jobs or to get to other parts of the premises. While engineering principles suggest that rooms that meet these requirements will not expose nonsmokers to tobacco smoke, whether in practice rooms built to meet these requirements actually will do so, or will inadvertently produce leakage into nonsmoking areas, has not been studied.

## **WHO Framework Convention for Tobacco Control (WHO FCTC)** **Obligations**

*Article 8, Section 2, obliges parties to “adopt and implement in areas of existing national jurisdiction as determined by national law and actively promote at other jurisdictional levels, the adoption and implementation of effective legislative, executive, administrative, and/or other measures, providing for protection from exposure to tobacco smoke in indoor workplaces, public transport, indoor public places, and, as appropriate, other public places.” The convention’s first Guiding Principle, Article 4, Section 1, calls on governments to contemplate measures to protect all people from exposure to tobacco smoke.*

### **Proposed Legal Text II:** Articles to advance the legislative agenda

**1. Freedom from exposure to tobacco smoke.** All persons shall have the right to be free from involuntary exposure to tobacco smoke in all enclosed public places, including workplaces, places of collective use, and on public conveyances.



(a) **Prohibition on smoking in enclosed public places, including workplaces.** No person shall smoke in any enclosed public place, including any workplace, or in any part of an enclosed public place or workplace, including private rooms and offices. In addition, no person shall smoke anywhere on the outside premises of any public place that provides services primarily to children or youth under the age of 18 or at any outdoor public places where children congregate, such as playgrounds.

**2. The rights of nonsmokers prevail.** In interpreting the provisions of this part, the rights of nonsmoking members of the public and workers shall prevail, and any question that may arise as to whether smoking is permitted in any given situation shall be resolved in favor of protecting nonsmokers.

**3. Evaluation for disparate effects.** The minister [or other governing authority] shall determine whether the provisions of the act and any implementing regulations affording protection against exposure to tobacco smoke result in equal levels of protection across all population groups. In the event disparities in the level of afforded protection are found, the minister shall report such findings to the legislature, and remedial regulatory action shall be taken as appropriate.

**4. Ministerial discretion to address requirements of this part.** The minister shall have the authority to prescribe in implementing regulations additional and/or more stringent requirements than any of those prescribed in this part.

**5. Effect on other laws.** Nothing in this act shall affect the ability of any other level of government to enact laws or regulations to protect persons from exposure to tobacco smoke, so long as such laws or regulations are at least as stringent as, and do not conflict with, the provisions of this part.

## **Youth Access to Tobacco Products**

Most individuals begin using tobacco products during youth or adolescence when they may have limited capacity to absorb information wisely on the health and other adverse effects of tobacco. Young people have been shown to underestimate the addictive nature of tobacco products, and they may know less than adults about the health effects of tobacco use. As a result,

many jurisdictions prohibit sales of tobacco products to minors and place other restrictions on youth access to tobacco products.

These provisions vary around the world, with the main difference being who pays for noncompliance with youth access restrictions. The emphasis has been placed either on the retailer not to sell to minors, or on the young person not to buy, possess, or use tobacco products. Variations also exist on the severity of penalties imposed, ranging from confiscation of tobacco products to community service sentences in the case of violations by minors. For retailers, penalties range from fines to loss of license to sell tobacco products.

Restricting tobacco product sales to minors has been identified as an effective form of prevention of tobacco use. Countries such as Greece that have ratified the FCTC must legally prohibit the introduction of tobacco vending machines to minors, and when appropriate, conduct a total ban of tobacco vending machines.

Age verification at retail stores is very important for protecting minors from tobacco marketing as proper age verification can prevent minors from accessing tobacco products. Research performed in England following the implementation of a ban of tobacco sales to older adolescents indicated a greater fall in prevalence in 16- to 17-year-olds than in older age groups. All together, these findings indicate that raising the age of sale can, at least in some circumstances, reduce smoking prevalence in younger age groups. Similar reactions are expected among Greek adolescents if the legislation is properly enforced.

Research prior to the 2009 legislation indicated that 49.1% of current adolescent smokers reported that they usually bought their cigarettes from a store, and that 95% of them were not refused purchase because of their age. However, despite these grim numbers, we must note that during 2004 when the GYTS survey took place, no legislation existed to regulate the sale of tobacco products to minors. Indeed, until 2009, Greece was one of the few countries within the European Union that permitted the sale of tobacco products to minors and tobacco sales through vending machines. Despite the 2009 legislation, research is needed to assess if sales to minors still continue and to what extent this occurs.

## WHO Framework Convention for Tobacco Control (WHO FCTC) Obligations

*Article 16 obliges the parties to adopt and implement effective measures “to prohibit the sales of tobacco products to persons under the age set by national law or 18 years of age.” These may include:*

- (a) requiring that all sellers of tobacco products place a clear and prominent indicator inside their point of sale about the prohibition of tobacco sales to minors and, in the case of doubt, request that each tobacco purchaser provide appropriate evidence (ID) of having reached full legal age*
- (b) banning the sale of tobacco products in any manner by which they are directly accessible, such as on store shelves*
- (c) prohibiting the manufacture and sale of sweets, snacks, toys, or any other objects in the form of tobacco products that appeal to minors*
- (d) ensuring vending machines under its jurisdiction are not accessible to minors and do not promote the sale of tobacco products to minors. Each party shall prohibit or promote the prohibition of the distribution of free tobacco products to the public and especially minors. Each party should, as appropriate, adopt measures to prohibit the sales of tobacco products to persons under the age set by domestic law, national law, or 18 years of age.*

The provisions provided in Proposed Legal Text II are based on the types of youth access restrictions found in many countries’ laws. Because of a concern that calling attention to youth access restrictions might reinforce the notion that tobacco is an adult product attractive to youth, requirements for signs emphasizing the ban on sales to minors are not included.

**Proposed Legal Text III:** Articles to advance the legislative approach toward restricting youth access

**1. Prohibition on sales to minors.** No person shall sell any tobacco product to any person under the age of 18 years [or specify at least the legal age of majority]. Prior to selling a tobacco product to any person who appears not to be at least 15 years older than [specify minimum age, as above], it shall be necessary to take all reasonable steps to verify the age of that person, by requiring, at a minimum (an identity card), [specify reliable means of verification].

**2. Prohibition on sales by minors.** No person who sells tobacco products shall hire or use any person under 18 years of age [specify age, as above] to sell any tobacco product or to handle any tobacco product.

**3. Prohibition on self-service displays.** No person shall sell any tobacco product in such a way that a consumer may handle the product without the assistance of a sales clerk or other employee or agent of the seller prior to purchase.

**4. Prohibition on public displays.** No person shall display tobacco products in such a way that they are visible to the public; provided, however, that the provisions of this section prohibiting public displays of tobacco products shall not apply to individuals incidentally displaying tobacco products during carrying or use.

**5. Prohibition on vending machines, Internet, and certain other sales of tobacco products.** No person shall sell any tobacco product through any self-service means, including through automatic vending machines, through the mail, or the Internet. The minister may prohibit any other means of sale where the age of the purchaser cannot be verified reliably.

**6. Prohibition on sales of tobacco products in certain places.** No person shall sell tobacco products in any of the following places: facilities where healthcare services are provided; sports, athletic, or recreational facilities; government buildings; educational facilities; and any other place prescribed by the minister in implementing regulations.

**7. Prohibition on toy or candy cigarettes.** No person shall manufacture, sell, display for sale, or supply any sweets, snacks, toys, or other non-tobacco items or objects in the form of tobacco products, or which imitate tobacco products.

**8. Ministerial discretion to address requirements of this part.** The minister shall have the authority to prescribe in implementing regulations additional and/or more stringent requirements than any of those prescribed in this part.

**9. Effect on other laws.** Nothing in this act shall affect the ability of any other level of government to enact laws or regulations addressing the sale or supply of tobacco and related products, so long as such laws or regulations are at least as stringent as, and they do not conflict with, the provisions of this part.

Reducing illegal sales of tobacco products to minors is a strategy that nations have pursued to some degree. This objective also encompasses efforts to cut off the social sources that minors depend on to get tobacco products. Interventions designed to stress the importance of keeping tobacco products out of the hands of children should be targeted to adults and youth.

Numerous published studies have shown that the combination of enforcing laws that restrict tobacco sales to minors and educating merchants can reduce illegal sales of tobacco to minors. Access laws should be actively enforced through unannounced compliance checks in which minors attempt to purchase tobacco products. For tobacco control laws and regulations to be adequately enforced, universal licensure of tobacco outlet sources is necessary. A graduated system of civil penalties on the retailer, including temporary revocation of the tobacco license in areas where tobacco retail licenses are required, has been shown to be an effective enforcement strategy. Fees from licensing of tobacco vendors can be used to fund enforcement activities and to develop and maintain active, large-scale programs.

Examples of enforcement activities include:

- Conducting frequent retailer compliance checks (four per outlet per year, funds permitting) to identify retailers who sell tobacco to minors
- Imposing a graduated series of civil penalties on the retailer, including license revocation if possible
- Eliminating tobacco vending machines and self-service displays in stores accessible to young people

Additional measures may include:

- Conducting annual countrywide inspection surveys that accurately measure the effectiveness of enforcement efforts
- Initiating large-scale merchant education programs before the enforcement activity begins; these programs should include discussion of tobacco's health effects

Young people may turn to social sources (e.g., older friends and family members) for tobacco products as commercial sources are reduced. Therefore, it is critical that minors' access restrictions be combined with a comprehensive tobacco control program that reduces the availability of social sources and limits the appeal of tobacco products.

Because most people who start smoking are younger than age 18, programs that prevent the onset of smoking during the school year are a crucial part of a comprehensive tobacco prevention program. Several studies have shown that school-based tobacco prevention programs that identify the social influences that promote tobacco use among youth and that teach skills to resist such influences can significantly reduce or delay adolescent smoking. The effectiveness of school-based tobacco prevention programs is strengthened by booster sessions and community-wide programs involving parents and community organizations and including school policies, mass media, and restrictions on youth access. Because many students begin using tobacco before high school and impressions about tobacco use are formed even earlier, tobacco use prevention education must be provided in elementary school and continued through middle and high school grades. Methods for strengthening school programs include:

- Implementing the US CDC's *Guidelines for School Health Programs to Prevent Tobacco Use and Addiction*, including tobacco-free policies, evidence-based curricula, teacher training, parental involvement, and cessation services
- Linking school-based efforts with local community coalitions and national counteradvertising programs.

### **Countermarketing Activities**

Tobacco countermarketing attempts use marketing techniques to negate pro-tobacco influences and increase pro-health messages and influences throughout a jurisdiction or region. Convincing evidence from several countries indicates that sustained and well-funded education and public information campaigns in the context of a comprehensive approach to tobacco control can reduce smoking prevalence substantially.

### ***Background and Evidence Regarding Tobacco Countermarketing Campaigns***

A growing number of tobacco control programs around the world have conducted countermarketing campaigns as part of their comprehensive efforts to reduce tobacco use, with some of these campaigns in the field for many years. Evaluations of these efforts and evaluations of the overall tobacco control programs have indicated that such campaigns can indeed build knowledge and change key

beliefs and attitudes related to smoking and secondhand smoke, increase calls to quit lines, and contribute (along with other tobacco control program elements) to overall decreases in tobacco consumption, increases in cessation among smokers, and reductions in exposure to secondhand smoke among nonsmokers.

In addition to paid mass media campaigns, other marketing interventions have been used to improve the results of cessation campaigns, such as earned media/news coverage, public relations, grass-roots efforts, communication with healthcare professionals, and posters, brochures, and other collateral material.

Previous reviews relevant to this topic include the following:

- In 2001, the Guide to Community Preventive Services reviewed the published literature on tobacco countermarketing and, based on its rules of evidence, strongly recommended the use of mass media campaigns, both to reduce initiation and to increase cessation of tobacco use.
- In 2001, CDC and WHO released a review conducted to summarize lessons learned from smoking cessation media campaigns around the world. The report provided conclusions and recommendations about targeting, message content and tone, media presence, and campaign measurement. Countries included in the analysis were Australia, Canada, France, Iceland, New Zealand, Philippines, Poland, Singapore, UK, and US.
- The 2000 US Surgeon General's Report *Reducing Tobacco Use* summarized the current evidence of the effectiveness of countermarketing as part of a multifaceted tobacco control program that included educational, clinical, regulatory, economic, and social approaches.
- In 1999, CDC published *Best Practices for Comprehensive Tobacco Control Programs* to help US states plan and establish effective tobacco control programs. The document provides a brief justification for tobacco countermarketing as a key program component and recommends funding levels for a moderately intense countermarketing campaign (US\$1–\$3 per capita per year).
- Other evidence-based review documents focusing on broader issues on tobacco control and health promotion include *Tobacco Control in Developing Countries* (Jha and Chaloupka, 2000) and *The Evidence of Health Promotion Effectiveness* (IUHPE, 1999).

In addition, US national and state studies from California, Florida, and Minnesota, as well as studies from England, confirmed that mass media campaigns were responsible for a significant portion of their overall tobacco control pro-

grams' positive results (Balbach E, Glantz S, 1998; Pierce, et al., 1998; Glantz, 1993; Hu, Sung, Keeler, 1995; Sly DF, Heald G, Ray S, 2001; Sly DF, Trapido E, Ray S, 2002; Centers for Disease Control and Prevention, 2002, 2003; Ergo International, 2001; BMRB, 2004).

## Countermarket Messages

Countermarketing activities can promote smoking cessation and decrease the likelihood of youth initiation. Countermarketing messages can also have a powerful influence on public support for tobacco control interventions and smoke-free workplace policies, and set a supportive climate for school and community efforts. Countermarketing consists of a wide range of efforts, including:

- Paid television, radio, billboard, print, and Internet counter-advertising
- Earned media efforts in which tobacco control advocates work with the news media to communicate key messages to advance policy change (media advocacy), influence community norms, or publicize the efforts of the tobacco control program in the community. Tactics include press releases, press conferences, local events, editorial board briefings, letters to the editor, and health promotion activities.
- Grass-roots activities to build momentum among the local community, create a strong coalition of tobacco control advocates, and support and reinforce the national campaign
- Direct marketing or other innovative non-mass-media marketing elements
- Efforts to reduce or replace tobacco industry sponsorship and promotions

Tobacco countermarketing efforts should be developed to:

- reduce youth initiation of tobacco use;
- reduce exposure to secondhand smoke; and
- increase smoking cessation.

While each of these goals requires selection of priority target audiences, some countermarketing messages can be efficiently used for several audiences. For example, many adult-focused smoking cessation messages providing reasons to quit are also effective in motivating youth not to initiate smoking. And many messages about the negative effects of secondhand smoke also motivate smokers to want to quit, so as not to harm their loved ones.





*Countermarketing campaigns should involve local stakeholders in the community so as to influence policy change and raise public awareness of the dangers of smoking*

### ***Additional Considerations in Countermarketing Activities***

- Priority audiences should be selected for each goal, and then messages should be developed to specifically target each selected population. For example, reducing youth initiation typically requires targeting of youth, young adults, and influencers of youth. Increasing smoking cessation typically requires targeting of smokers as well as their family members and friends. And reducing exposure to secondhand smoke typically requires targeting the general population as well as policymakers.
- Campaign efforts should work to influence both individual behavior and public policies. Mass media campaigns can be extremely effective at both, changing individual attitudes and behaviors and changing community norms. These campaigns can also set the stage for policy changes, such as youth access laws, smoke-free workplace laws, etc.
- The number, variety, and novelty of messages should be maximized, rather than communicating a few messages repeatedly, to keep the campaign interesting and appeal to a diverse range of people.
- Use nonauthoritarian appeals that avoid direct exhortations not to smoke. Never tell people what to do, but instead show them in credible, relevant, emotional ways, and they'll draw the conclusions themselves.

- Place messages with enough reach, frequency, and duration to be successful. Ad agencies can provide counsel on sufficient levels of exposure to build awareness and knowledge and change attitudes and behaviors.
- Set aside enough funds to research and evaluate the countermarketing program. Formative research and evaluation, process evaluation, and outcome evaluation are necessary to qualify campaign materials and determine whether the campaign is progressing toward reaching campaign goals. Evaluation results can also provide key decision makers with the evidence needed to continue the program or increase its funding. Researchers can provide assistance in developing comprehensive research plans.

### **World Health Organization Scientific Advisory Committee on Tobacco Product Regulation**

Tobacco product regulation is an important aspect of any comprehensive tobacco control strategy aimed at reducing the mortality and morbidity associated with tobacco use.

The World Health Organization’s (WHO) Scientific Advisory Committee on Tobacco Product Regulation (SACTob), composed of national and international experts on product regulation, smoking cessation, and policymaking, guides international policy development in the area of regulating tobacco products and facilitates access to scientific information needed for tobacco regulation.

Based on the existing science, SACTob makes the following conclusions and recommendations:

- 1. Tar, nicotine, and CO numerical ratings based upon current ISO/FTC methods and presented on cigarette packages and in advertising as single numerical values are misleading and should not be displayed.*
- 2. All misleading health and exposure claims should be banned.*
- 3. The ban should apply to packaging, brand names, advertising, and other promotional activities.*
- 4. Banned terms should include “light”, “ultralight”, “mild”, and “low tar” and may be extended to other misleading terms. The ban should include not only misleading terms and claims but also names, trademarks, imagery, and other means to convey the impression that the product provides a health benefit.*

The NCI monograph (number 13, 2001) *Risks Associated with Smoking Cigarettes with Low Machine-Measured Yields of Tar and Nicotine* presented the following five main conclusions:

1. *“Epidemiological and other scientific evidence, including patterns of mortality from smoking-caused diseases, does not indicate a benefit to public health from changes in cigarette design and manufacturing over the last fifty years.”*
2. *“For spontaneous brand switchers, there appears to be complete compensation for nicotine delivery, reflecting more intensive smoking of lower-yield cigarettes.”*
3. *“Widespread adoption of lower-yield cigarettes in the United States has not prevented the sustained increase in lung cancer among older smokers.”*
4. *“Many smokers switch to lower-yield cigarettes out of concern for their health, believing these cigarettes to be less risky or to be a step toward quitting. Advertising and marketing of lower-yield cigarettes may promote initiation and impede cessation, more important determinants of smoking-related diseases.”*
5. *“Measurements of tar and nicotine yields using the FTC method do not offer smokers meaningful information on the amount of tar and nicotine they will receive from a cigarette. The measurements also do not offer meaningful information on the relative amounts of tar and nicotine exposure likely to be received from smoking different brands of cigarettes.”*

### **Reduced Ignition Propensity (RIP) Cigarettes**

Cigarettes and other lighted tobacco products are a leading cause of fire deaths and fire-related injuries in the US, most European countries, and in countries throughout the world. In 2003, 25,600 cigarette-induced fires occurred in the US, resulting in an estimated 760 deaths, 1,520 injuries, and \$481 million in direct property damage. A survey of 14 European Union member states and Norway carried out in 2005–2006 by the European Commission found that the countries that responded had approximately 11,000 cigarette-caused fires, 520 deaths, 1,600 injuries, and €13 million in material damages each year. (Vogelgesang) Extrapolating to the 25 countries of the European Union and Norway, 12,900 fires, 650 deaths, 2,400 injuries, and €48 million in material damages could be prevented. In New South Wales, 32 out of 233 fire deaths were directly attributed to cigarettes, with an additional 63 possibly attributable to cigarettes. Annually, cigarettes cause 4,574 fires across Australia and may be responsible for up to 78,894 more. Australia’s National Coroners Information system identified 67 out of 678 fire deaths directly attributable to cigarettes in the period 2000–2005. Further, an estimated 7% of all bush

fires in Australia are attributable to discarded cigarettes. Cigarette-related fires caused Australia an estimated A\$124 million in 2006. In Canada, 3,000 fires are started by smokers' articles annually, which are responsible for 70 fatalities, 300 injuries, and C\$40 million in property damage.

Two out of five victims of cigarette-induced fires are not the smokers themselves but people who live in the same building. These victims often include young children or older persons who are less able to respond to and escape the fire. Total annual economic loss due to cigarette-caused fires in the US has been estimated to be nearly \$4 billion, including healthcare costs, lost productivity, and use of fire and emergency services.

A significant proportion of the deaths, injuries, and destruction of property could be prevented through the introduction of fire safety standards for cigarettes that either would result in cigarettes that were self-extinguishing, i.e., go out when not actively puffed, or would alter the way the cigarettes smoldered, making a fire less likely. Cigarettes designed to comply with these standards are commonly referred to as fire-safe cigarettes or reduced ignition propensity (RIP) cigarettes. The tobacco industry publicly claimed for years that RIP cigarettes were not feasible, even funding fire service organizations to thwart passage of federal and state laws. Internally, the tobacco industry demonstrated the opposite with years of research that established that RIP cigarettes were feasible and that their RIP performance could be evaluated by standards.

In 2000, the state of New York passed legislation requiring all manufactured cigarettes sold in the state to meet minimal fire safety standards. The New York standard (NYS), which went into effect in 2004, called for cigarette ignition strength to be reduced as determined by a test method issued by the American Society of Testing and Materials (ASTM). The test method requires a lit cigarette to be placed on 10 layers of filter paper in a draft-free chamber. The filter paper itself is unable to ignite, but it draws heat from the smoldering cigarette, and the persistence of the cigarette smoldering reflects the amount of heat generated by the cigarette to potentially ignite materials such as those used in upholstered furniture. The NYS requires that no more than 25% of 40 individual cigarettes burn full length for each brand tested. Cigarettes meeting this standard are less likely than conventional cigarettes to ignite household furnishings or textile substrates, which are involved in cigarette-related residential fires and most fire fatalities. These cigarettes therefore have a reduced ignition propensity (RIP).

All 50 US states have now adopted the New York RIP standard, with implementation of the standard in states set for July 1, 2011. In 2005, Canada became the first country to require RIP cigarettes nationwide. Australia and Finland have

also recently implemented national RIP cigarette requirements, and South Africa has passed legislation requiring the sale of RIP cigarettes at a future date. In addition, a WHO Study Group has recommended that RIP cigarettes be mandatory in all WHO member countries. A WHO Working Group made the following five recommendations regarding cigarette ignition propensity:

1. Fires and fire deaths are caused by cigarettes.
2. Cigarettes with reduced ignition propensity should be mandatory.
3. No risk claims are permissible.
4. The effectiveness of reduced ignition propensity cigarettes must be monitored.
5. International collaboration between interested institutions and authorities is needed to coordinate education, advocacy, testing, research, and evaluation of reduced ignition propensity cigarettes and for implementation of such measures in all WHO regions.

### **Package Labeling**

The cigarette package is a critical communication device for creating and reinforcing brand imagery, and is the link between other forms of tobacco advertising and the uptake of the addictive drug nicotine from a cigarette. Using striking colors, distinctive fonts, and carefully crafted materials, cigarette packaging is defined to be highly attractive, especially among young people. On the other hand, cigarette pack warnings are able to disrupt brand imagery, an important factor for tobacco trial and use.

Package warnings are unique among tobacco control initiatives implemented to educate smokers and prevent smoking initiation as they cost little to produce and can be integrated with larger interventions such as mass media campaigns. Reminders from health providers to their patients about the hazards of smoking and the benefits of quitting have been found to reduce smoking, and cigarette pack warnings work in a similar way, even among populations in which language is a barrier.

Large comprehensive graphic warnings—that combine a picture embedded with a text message relevant to the depicted picture—are effective in increasing adult awareness of the dangers of smoking, aiding smoking cessation, and are more likely to be noticed and rated as effective by adult smokers in comparison to plain text-only messages, while their size and emotional impact also play a vital role in their effectiveness.

Research among Greek adolescents has identified a similar response. According to results published in 2009 in the *European Journal of Public Health* by Vardavas et al., nonsmoking adolescents rated the suggested EU graphic labels as more effective in preventing them from smoking in comparison with the existing EU text-only warnings. Controlling for gender, age, current smoking status, and number of cigarettes smoked per month, younger adolescents were found to opt for graphic warnings more often and also perceive graphic warning labels as a more effective means of preventing them from smoking, in comparison with their elder peers ( $p < 0.001$ ).

Currently, EU member states have the option of introducing the readily available 42 different graphic warnings that cover 14 themes (EU Directive 2003/641/EC). These warnings cover 43% of the front and 53% of the back of the cigarette packs in comparison with the 30% and 40% respectively of the current EU text-only messages.

Based on national research performed in Greece, the proposed EU graphic warning labels may play an important role in preventing smoking initiation during the crucial years of early adolescence, during which smoking experimentation among Greek children takes place.

### ***Comparison of Current Greek Warning Labels with Foreign Labels***

The pictures below compare warning labels on Greek Marlboro cigarette packs with similar brands in Australia and the UK as well as Camel brands in Canada, and illustrate the absence of pictorial warning labels on Greek brands as well as differences in warning label text size and positioning.



*Australia*



*Greece*



*UK*

*Research in Greece has shown that graphic warning labels could deter youth smoking*

## Treating Tobacco Dependence in Greece

Programs that successfully assist young and adult smokers in quitting can produce a quicker and probably larger short-term public health benefit than any other component of a comprehensive tobacco control program. Treatment to help dependent smokers stop is effective as well as cost effective. Some governments now provide treatment through their healthcare systems. Although treatment policies will have a relatively small effect on prevalence reductions (about 1%–2%), this effect may grow over time and may be important in helping those heavier smokers who have the most difficulty cutting back or quitting smoking.

Many smokers want to stop but need help to do so because they are dependent. Evidence shows that brief advice from medical professionals and behavioral support are effective in motivating smokers to quit, and telephone quit lines and medications including nicotine-replacement therapy (NRT) and bupropion increase the rate of success. Smokers who quit smoking before age 50 cut in half their risk of dying in the next 15 years. In addition, the cost savings from reduced tobacco use resulting from the implementation of moderately priced, effective smoking cessation interventions would more than pay for these interventions within three to four years.

According to the 2010 KEELPNO nationwide representative survey, 57.5% of Greek smokers have attempted to quit in the past, indicating the necessity to support smoking cessation activities within Greece. This study also indicated that 2 out of 3 smokers regard themselves to be substantially or very dependent on tobacco. When asked which of the below methods have you used in the past to try to quit, less than 20% reported the use of pharmacotherapy (NRT or other medication), while only 3% reported ever visiting a smoking cessation office, indicating the need to notify the Greek population of the existence of smoking cessation clinics that operate within the national healthcare service. When asked “What are the three main reasons you would quit,” the responses were: “the concern for their personal health” by 68.4% of the population, “the cost of smoking,” by 36.6% and “so as not to feel dependent on tobacco” by 30.6% of the population.

The nationwide household survey (Hellas Tobacco Survey) conducted from October 1 to October 21, 2010, also assessed whether smokers who visited a healthcare provider during the last 12 months recalled receiving antismoking advice and whether physicians’ advice motivated them to quit smoking. According to the respondents, 52% of smokers who visited a healthcare provider in the past year recalled receiving advice against smoking.

From a public health perspective, there are many windows of opportunity to help adults stop smoking, especially among young females of reproductive age. Pregnancy presents ideal timing. Research performed in Crete, through the FETAL Study, has indicated that while 32% of pregnant women smoke during pregnancy at any time, half of them, 17% of all expecting women, will quit once pregnant, indicating a teachable moment and a window of opportunity to aid cessation and promote the adoption of a smoke-free household for the protection of the unborn fetus and the future infant. Moreover, the same study indicated that among pregnant Greek women, those who quit smoking during the first three months of pregnancy give birth to infants similar in weight to those of women who never smoked. Recognizing the importance of this problem, the issue of aiding or promoting smoking cessation during pregnancy is critical.

Health professionals play a key role as role models, and through counseling and aiding cessation. However, to be able to formally provide patients with the needed information to quit, it is important that health professionals receive formal training on smoking cessation techniques either during their undergraduate years or during continued professional educational programs. Research performed in 2009 among undergraduate university-degree nursing students in Greece indicated that in comparison with students who had not received training on the importance of asking patients about their smoking habits, those who did were more likely to believe that nurses should have a role in smoking cessation and should act as role models for their patients. The main shortfalls in training include the reasons that make people start to smoke (less than half of the sample had ever discussed this issue during their studies), smoking cessation techniques (only 14.8% reported ever receiving such training), and the use of antidepressants in smoking cessation (19.5% of the population). Furthermore, students who were taught about the importance of providing material on smoking cessation to patients were more likely to report that nurses have an important role in smoking cessation (OR: 2.2) and act as role models toward their patients (OR: 2.1).

Educational institutes, public health organizations, and education officials in Greece should discourage tobacco use among health-profession students and work together to design and implement programs that train all health professionals on tobacco control and on effective cessation counseling techniques.



## WHO Framework Convention on Tobacco Control (WHO FCTC)

### Obligations:

#### Proposed Legal Text IV: Articles to advance the legislative approaches

1. Each party should design and implement effective programs aimed at promoting the cessation of tobacco use, in such locations as educational institutions, healthcare facilities, workplaces, and sporting environments.
2. Include diagnosis and treatment of tobacco dependence and counseling services on cessation of tobacco use in national health and education programs, plans, and strategies, with the participation of health workers, community workers, and social workers as appropriate.
3. Establish in healthcare facilities and rehabilitation centers programs for diagnosing, counseling, preventing, and treating tobacco dependence.
4. The US Agency for Healthcare Policy and Research (AHCPR) evidence-based clinical practice guidelines on cessation state that brief advice by medical providers to quit smoking is effective, and that more intensive interventions (individual, group, or telephone counseling) that provide social support and training in problem-solving skills are even more effective. FDA-approved pharmacotherapy (e.g., nicotine patch, gum, nasal spray, and inhaler, bupropion hydrochloride) can also help people quit smoking, particularly when combined with counseling and other interventions. Bupropion hydrochloride has not yet been registered. The AHCPR-sponsored guideline stresses that system changes (e.g., implementing a tobacco-use screening system, providing clinician training and feedback, designating staff to be responsible for the treatment program, and providing insurance coverage for proven treatments) are critical to the broad-based success of cessation interventions. Other action recommended for tobacco-use treatment includes establishing population-based counseling and treatment programs, such as cessation help lines.

## Tobacco-Free Schools

Schools are a significant part of the community and an essential element of a comprehensive tobacco control program. Schools can constitute areas where students' will could be reinforced and their ability to resist, avoid, or quit smoking cultivated.

The following needs to be taken into consideration:

- Children spend a significant amount of time at school.
- Students are at an age where values and attitudes are still being formed.
- Most people start smoking before age 18, while in school.
- Taking into account the fact that schools—as public institutions—have the power to convey messages to a broad range of groups related to them (parents, guardians, community, private services), it is all the more clear that schools provide the ideal opportunity to implement antismoking policies and cultivate antismoking messages.

The term “smoke-free schools” refers to the total of procedures or interventions that aim to ban smoking from all school premises (such as classrooms, yards, stadiums, parking spaces) even when school is closed and during events that take place outside of the school premises, but are related to it. The term “smoke-free schools” refers to the adoption of a systematic antismoking approach in the form of a continuous procedure, with the ultimate goal to ensure a total nonsmoking environment. This approach does not focus on changing the behavior of smokers who are probably on school premises, based on the speculation that they are responsible for the existence of smoking in the school. On the contrary, it aims to show certain levels of responsibility (family, school, community, state, etc.) that are involved in ensuring a smoke-free school environment.

Therefore, “smoke-free school” does not restrict itself to dealing with the phenomenon by using precautionary interventions with the students during teaching hours. On the contrary, it includes a holistic approach by the school unit with actions pertaining to the development, application, and monitoring of the school's antismoking policy, as well as actions concerning the prevention and quitting of smoking by parents, students, and teachers. Interventions and actions pertain to all school programs (breaks, events, student gatherings, field trips, extracurricular activities). The methodological context of smoke-free schools is based on indications provided by school health researchers.



*Schools provide the ideal opportunity to implement smokefree environments and futures for our children*

The antismoking policy of smoke-free schools:

- It is developed and applied by representatives of all school groups (students, parents, personnel).
- It arises from the needs of people who are involved in school premises and around them (students, teachers, parents).
- Gives opportunities of involvement and cooperation of other factors (i.e., parents association, community agencies, police, and local government, etc.).
- Aims at taking action through several levels of responsibility (family, school, community).
- It is based on the active participation toward decision making, implementation, and evaluation.

Achieving the final goal may seem difficult and the course to it long and inaccessible. Surely, there will be significant resistance. What we aim at, though, is not unachievable. The schools that have succeeded are many, in countries and environments with similar resistance.

## Tobacco-Free Healthcare Services



*Although smoking in hospitals and other health services is banned in Greece, a recent study indicated that up to 70% of nonsmoking medical personnel are exposed to secondhand smoke daily at work*

In the constant battle against tobacco, health services have a major role. Their most obvious contribution is medication-assisted smoking cessation. Brief advice interventions by health professionals are equally important, since it has been found that they can motivate a significant proportion of patients who smoke to try to quit. Nevertheless, according to the Global Network for Tobacco Free Healthcare Services, a healthcare service should guarantee not only the provision of organized cessation services, but also the education and training of health professionals, the education of the general public, and, of course, the implementation of a total ban on tobacco product use on its premises. Only then can it fulfill its mission, being in the forefront of the efforts to improve public health.

In Greece, legislation regarding smoking bans inside hospitals and other health services is in place since 2002, in accordance with European Union directives; similar bans were included in all subsequent tobacco control laws. According to the most recent tobacco control legislation (3868/2010), consumption, sale, and advertising of tobacco products is prohibited in all healthcare services.

Despite that, smoking has not been eliminated in Greek hospitals. Vardavas et al. reported that 70% of a major Greek hospital's medical and nursing staff who don't smoke are exposed on a daily or almost daily basis to secondhand smoke while they work. Even after the implementation of more strict legislation in 2009 and 2010, the hot line for information and support on smoking has received dozens of complaints regarding violations in hospitals and other healthcare services.

In addition to the already known problems of inadequate inspection and weak enforcement of the recent law, there is one more important obstacle in implementing smoking bans in healthcare services: the high prevalence of smoking among healthcare workers. All relevant surveys in Greek hospitals indicate that the proportion of doctors, nurses, and other health professionals who smoke is usually higher than 40% and in some cases higher than 50%. That is as high as in the general population—if not higher—whereas health professionals who smoke regularly are only a small minority in most European and North American countries. This situation causes strong opposition within hospitals; additionally, it reflects negatively on society. Health professionals are role models for the general public when it comes to health-related behaviors. Therefore, their high rate of smoking hinders the effort to denormalize smoking in Greece.

In spite of this unfavorable environment, there have been several remarkable initiatives to improve antitobacco policies in Greek health services. The number of smoking cessation clinics is rising, despite fiscal limitations and staff shortages; organizations such as the Greek Network of Health Promoting Hospitals and Health Services and the Hellenic Thoracic Society implement education and training programs for healthcare workers on cessation techniques that can be integrated in everyday practice. Moreover, the formation of the Greek branch of the Global Network for Tobacco Free Healthcare Services is under way. The network's goals will be to coordinate existing services and to strengthen tobacco control policies in Greek hospitals.

Hospitals and healthcare services should be integral parts of tobacco control efforts. The more efficient they are, the greater social impact these efforts will have, not only on a practical, but also on a symbolic level.

## HIGHLIGHTS

- ◆ Misleading terms such as “light,” “ultra-light,” “mild,” and “low tar,” as well as names, trademarks, imagery, and other means to convey the impression that tobacco products provide a health benefit should be banned, according to SACTob recommendations.
- ◆ Smoking prevalence among health professionals in Greece is as high as 40%–50%. This impedes implementation of smoke-free medical facilities.
- ◆ Package labels, particularly large comprehensive graphic warnings—that combine a picture embedded with a text message relevant to the depicted picture—are effective in increasing adult awareness of the dangers of smoking and aiding smoking cessation, and are more likely to be noticed and rated as effective by adult smokers in comparison with plain text-only messages.



PART IV:  
RESEARCH, EVALUATION,  
AND KNOWLEDGE  
TRANSLATION





## Secondhand Smoke Exposure

To compare the levels of exposure to SHS within the hospitality industry in Greece after the implementation of the smoke-free legislation in cafes, bars, and restaurants and to compare the measurements with previous data collected during May 2010 (when a partial ban was in place) and in 2006 (when no ban was in place), the Hellenic Air Monitoring Study was conducted by a consortium of clinical and research centers in Greece and the Harvard School of Public Health. It was a national longitudinal cohort of hospitality venues within five regions of Greece, within which indoor air pollution attributable to SHS was assessed at six-month intervals (waves). Five urban areas were sampled: Thessaloniki and Serres in northern Greece, Larissa in central Greece, and Athens and Heraklion in southern Greece, with a convenience sample of 150 venues (30 from each area) based on ease of access and popularity selected, as a comprehensive list of hospitality venues in each city could not be obtained. Wave 1 was completed in April and May 2010 (during the partial ban) and Wave 2 from October to December 2010 (one month after the enactment of the complete smoking ban). A map indicating the location of the study sites is provided below.



*Location of the study sites in the Hellenic Air Monitoring Study*

During waves 1 and 2, air measurements were performed using the TSI Side-pack AM510 according to standardized methodology for monitoring indoor air pollution attributable to secondhand smoke (calibration factor 0.32, flow rate 1.7 L/min) that has been used previously to assess indoor PM<sub>2.5</sub> attributable to SHS in numerous studies. Field researchers were trained together, during which a number of pilot venues were simultaneously assessed for descriptive characteristics and PM<sub>2.5</sub> concentrations. During the fieldwork, sampling was discreet to avoid altering occupants' normal behavior. Data was collected on number of cigarettes smoked, number of people, air volume, and other factors that might affect the data (e.g., candles or cooking in area). The researchers also noted open windows and doors or sliding walls, which are common in the Greek hospitality industry due to the mild Mediterranean climate.

In addition to the above two waves assessed in the study, comparison was made with data collected in 2006 (Wave 0), when no ban was in place. Thus the PM<sub>2.5</sub> concentrations corresponding to three unique stages in policy implementation (no ban in 2006 vs. a partial ban in 2010 vs. a complete ban in 2010) were compared to determine the effect of legislation in reducing SHS concentrations.

Results from the study indicated a 34% reduction in indoor SHS exposure within the hospitality industry in Greece after the transition from a partial to a complete ban, with the largest reduction noted in cafes and bars. In comparison with research performed five years ago, when no legislation existed, SHS concentrations fell by approximately 67%, suggesting a change in the social acceptability of SHS exposure within certain areas of the hospitality industry, especially the restaurant business. This reduction could possibly be attributable to population support. Research among the Greek population has indicated that nonsmokers before the ban started to be more likely to support adoption of complete smoke-free legislation either by voicing discontent to the identified smoker or employee or by notifying officials.

Figure 7, Fitted values with 95% confidence intervals showing temporal decline in  $PM_{2.5}$  levels ( $\mu\text{g}/\text{m}^3$ ) with increased tightening of smoking laws in Greece

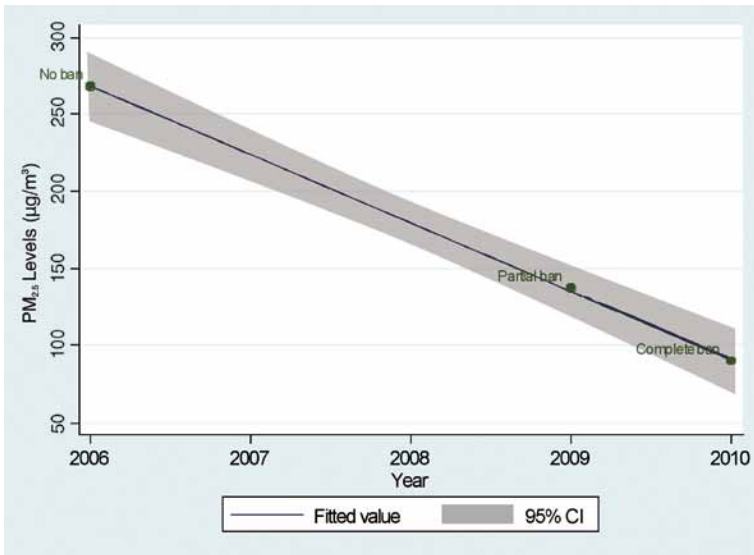
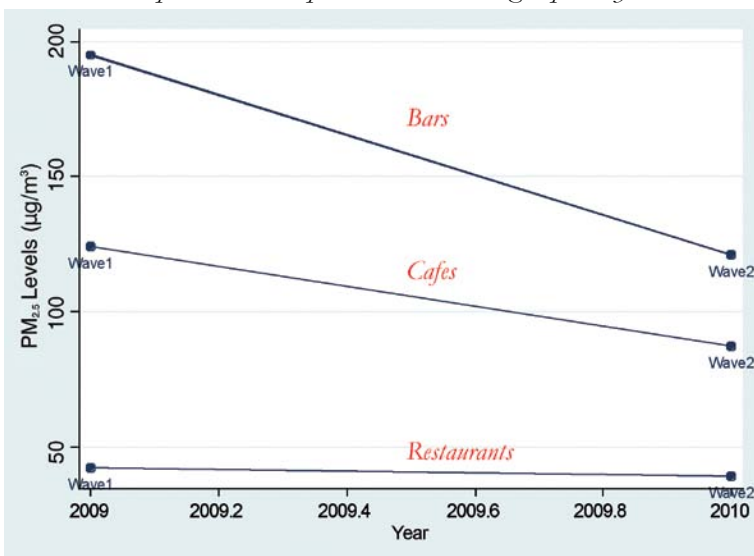


Figure 8, Trends in change of  $PM_{2.5}$  levels ( $\mu\text{g}/\text{m}^3$ ) from Wave 1 to Wave 2 corresponding to partial and complete bans on smoking respectively



Above figure shows changes in  $PM_{2.5}$  levels ( $\mu\text{g}/\text{m}^3$ ) from 2009 to 2010 in three venue types: bars, cafes, and restaurants (top to bottom fitted lines respectively). The figure shows that the change in  $PM_{2.5}$  levels was most significant in bars and least in restaurants.

Figure 9, Comparison of  $PM_{2.5}$  levels ( $\mu\text{g}/\text{m}^3$ ) found in open- vs. closed-air venues at waves 1 and 2

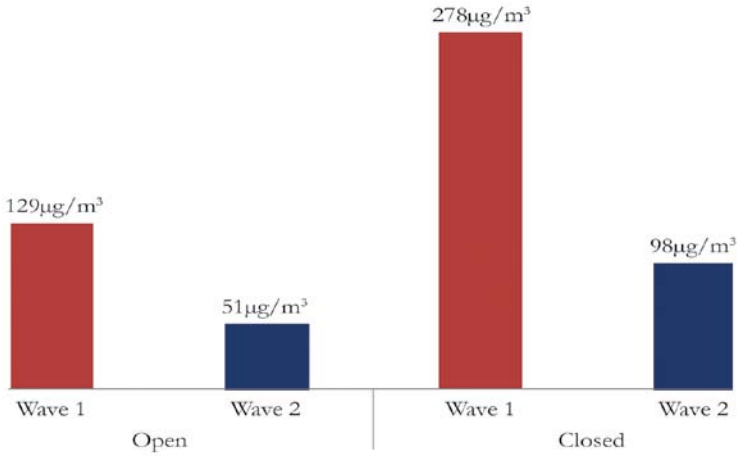


Figure above shows that after implementation of complete bans (Wave 2), overall there was an approximate 35% decrease in  $PM_{2.5}$  levels ( $\mu\text{g}/\text{m}^3$ ) compared with Wave 1 (partial bans)

Figure 10, Comparison of  $PM_{2.5}$  levels ( $\mu\text{g}/\text{m}^3$ ) with no bans and after complete ban in Greece

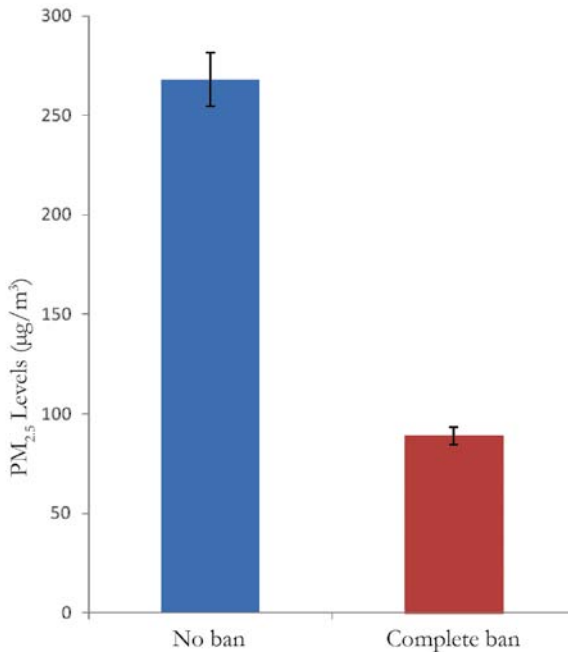


Figure above shows that after implementation of complete bans (Wave 2), there was an approximate 65% decrease in  $PM_{2.5}$  levels ( $\mu\text{g}/\text{m}^3$ ) compared with Wave 0 (no bans)

## ***Determinants of SHS Concentration***

The Hellenic Air Monitoring Study found that the strongest determinant of the concentrations of indoor air pollution attributable to SHS was the existence of open doors and windows, which would increase indoor air ventilation, and which was inversely associated with SHS concentrations when open. While the existence of open doors and/or windows did reduce, it did not eliminate SHS exposure. Venue type was related to indoor air pollution, with cafes being more heavily polluted than other venue types. Similarly, the average number of people in the venue (a proxy of the number of smokers) was also a significant determinant of indoor air pollution attributable to SHS—2.0  $\mu\text{g}/\text{m}^3$  per person pre-ban and 0.7  $\mu\text{g}/\text{m}^3$  per person post-ban.

Despite the complete indoor ban, a number of smoke-free venues in Greece had slightly elevated indoor  $\text{PM}_{2.5}$  levels attributable to SHS from adjacent outdoor areas. Researchers have noted this phenomenon before and classified it as secondhand smoke drift. Doors and windows facing these outdoor smoking areas can be a source of SHS. Legislative action is needed to regulate smoking in such areas so as to eliminate patron and employee exposure to SHS. Furthermore, it is of interest to note that the reductions were noted to be higher in Athens and in Heraklion, two cities in central and southern Greece, in comparison to the participating cities in northern and north-central Greece. Such differences could be attributable to either climate changes (doors and windows may be more likely to be open) or enforcement. Further research is needed to investigate the variation.

## ***Pre-ban Occupational Exposure to SHS among Bar Workers in Greece***

A study conducted in Greece before the adoption of the smoke-free legislation among 50 semi-open-air venues indicated that nonsmoking employees had elevated post-shift cotinine concentrations, an indicator of their exposure to SHS. Indeed within these 50 open-air venues in the greater area of Athens, indoor  $\text{PM}_{2.5}$  concentrations were elevated and increased proportionately to the density of smoking. Moreover, indoor  $\text{PM}_{2.5}$  levels were strongly correlated with urinary cotinine concentrations (spearman's  $r=0.914$ ). Linear regression analyses indicated that when taking into account the time of the measurement, the day of the week, for each 1 cigarette/100 $\text{m}^3$ , the indoor  $\text{PM}_{2.5}$  concentrations increased by 26.6  $\mu\text{g}/\text{m}^3$  [95% confidence interval (CI): 7.6–45.7  $\mu\text{g}/\text{m}^3$ ,  $p=0.007$  and urinary cotinine levels of nonsmoking workers increased by 5.0 ng/mL (95% CI: 0.4 to 9.6,  $p=0.034$ ). Conclusively, open windows and doors and the existence of sliding walls do not protect workers from exposure to secondhand smoke and should not be used as an excuse to allow smoking in such premises.

## ***Public Health Implications***

The benefits of smoke-free legislation are not limited to the workforce. Reducing SHS exposure reduces the impact of cardiovascular disease, angina, stroke, and asthma, and further denormalizes smoking—a key point in sustaining a reduction in tobacco use. Taking into account the dire financial situation and current austerity measures implemented in Greece, the improvement in public health and the subsequent reduction of healthcare utilization would ease pressures on the ailing Greek economy. Coupled with the fact that numerous studies have shown that smoke-free legislation does not impact bar revenue and hospitality venues despite spurious arguments to the contrary, the economic benefits of eradicating SHS exposure and denormalizing smoking in Greece are revealed to be substantial.

## ***The Role of the Nonsmoker in Enforcing Smoke-Free Laws***

Greek policymakers must evaluate how nonsmokers could actively support smoke-free laws through reporting of violations using media campaigns that inform them of their rights, and other measures. Research has indicated that people become less tolerant of exposure to SHS as they get used to smoke-free environments.

On the other hand, stronger secondhand smoke policies are associated with strongest support. While compliance with laws making certain environments smoke-free has focused mainly on smokers' behavior, a cross-sectional study conducted in Greece and involving 4,043 adults (2,037 smokers and 2,006 nonsmokers) in the general population during April 2009 showed that nonsmokers reported that they would actively support compliance with the law. The nonsmokers were older, more educated (OR 1.4), and were more likely to be annoyed by the smell of SHS (OR 2.4) or report that it irritated their eyes (OR 1.8). This finding may indicate that the odor or eye irritation from SHS may act as a sensory cue that possibly reminds the nonsmoker of the dangers of SHS exposure, and this might be taken into account when designing tobacco control policies. As more educated nonsmokers are likely to actively support smoke-free laws, such a perspective should be further cultivated as a way of increasing population compliance to smoke-free laws. Thus, it becomes imperative that media- and school-based educational campaigns stress the health effects of SHS exposure. This will increase the percentage of nonsmokers who are educated about the detrimental effects of SHS exposure, encouraging them to actively protect smoke-free legislation, and thus also their personal health.

## Exposure to SHS

Exposure to secondhand smoke (SHS) is a significant public health issue. It is a potent mixture of thousands of chemicals, 200 of which are classified as toxic substances, and more than 50 are classified carcinogens. Exposure to SHS can lead to cardiovascular disease, cancer, chronic obstructive pulmonary disease, and respiratory problems and has been associated with lung function. An additional constituent of SHS is particulate matter (PM<sub>2.5</sub>), which is commonly used as a proxy for SHS exposure in air monitoring studies and routinely used as an index of impact of a smoke-free legislation.

Given the deleterious effects of acute and chronic exposure to SHS and public support for smoke-free legislation, many countries have moved to ban smoking in public places. These bans result in substantial gains in occupational and public health such as reductions in respiratory symptoms among bar workers and incidence of asthma and coronary heart disease among children and adults respectively.

### ***SHS Exposure among Vulnerable Populations: Children and Pregnant Women***

A national survey of 5,179 adolescents ages 11–17 from 100 high schools in Greece using the Global Youth Tobacco Survey (GYTS) between 2004 and 2005 showed that about 3 in 4 responders (76.8%) were exposed to SHS at home, and 38.5% were exposed to SHS outside of the home. Female gender, age group  $\leq 14$ , and having parents or peers who are current smokers were all shown to be significant predictors of exposure to SHS among Greek adolescents. A parallel study (The Healthy Lifestyle in Europe by Nutrition in Adolescence [HELENA] Study), conducted in 2006 to quantify Greek adolescents' exposure to SHS using serum cotinine levels, indicated that 97.7% of nonsmoker adolescents were found to have measureable levels of serum cotinine, indicating exposure to SHS. As in the GYTS, parental smoking status was one of the main modifiers of SHS exposure during adolescence. However, almost all of the measured Greek adolescents were exposed to SHS, even when their parents were nonsmokers. These findings indicate the need for both community- and school-based educational programs along with the effective enforcement of bans on smoking in public places. Educational interventions targeting parents—especially those who are smokers—could substantially reduce the exposure of adolescents to secondhand smoke at home.

Findings from the FETAL study, for which information was obtained from 1,291 pregnant women (Greeks and immigrants) from Crete, showed that almost all nonsmoker pregnant women (94%,  $n = 780$ ) are exposed to SHS at



some point during pregnancy, with the majority exposed at home (72%) or in public places (64%). Less-educated women and younger women were significantly exposed more often than their better-educated and older peers. The main mediators of exposure to SHS during pregnancy were parental level of education, age, and ethnicity. Considering that exposure to SHS is a significant threat to prenatal health, the necessity of developing educational awareness programs is undeniable, taking into account the elevated percentage of mothers exposed to SHS in Greece. Such educational campaigns, provided either during obstetrical visits or via a mass media intervention campaign, should focus particularly on younger, less-educated mothers and their spouses, who were identified in the study as more likely to be smokers before conception.



*Findings from the FETAL study from Crete showed that almost all nonsmoker pregnant women (94%) are exposed to SHS at some point during pregnancy, potentially harming the mother and child*

## ***Legislative Measures***

On May 31, 2010, Greece announced the adoption of a comprehensive ban on smoking in public places (two-phased), the first phase of which came into force on September 1, 2010. Within this first phase, smoking indoors in all hospitality venues under 300 square meters (cafes, bars, restaurants—including outdoor areas) was prohibited. During the second phase of implementation, the law banned indoor smoking as of June 1, 2011, in casinos and large music halls in excess of 300 square meters. The law was met with skepticism by the media, in part because the previous partial laws adopted in 2009 (based on the “Spanish model”) were not enforced and completely ignored by the public.



*An example of a tobacco advertisement on a billboard before the implementation of the 2009 advertising restrictions*

We are making progress, but more must be done.

## HEART-Funded Clinical Research Projects

### Clinical Research

Over the past two years through the HEART (Hellenic Action through Research against Tobacco) Project, a number of basic and clinical research projects have been developed to provide clinical evidence of the detrimental effects of smoking and passive smoking on human health, and how smoking cessation can alleviate these prominent issues.

Below is a list of groundbreaking clinical research performed under the HEART Project to date:

1. The impact smoking one cigarette has on pulmonary mechanics, including respiratory flow assessment and exhaled nitric oxide production.
2. Assessment of the clinical impact of exposure to secondhand smoke (SHS) at levels commonly found in Greek bars and cafes on the respiratory system of patrons and employees in an experimental setting. Specifically, the levels that are being used are  $100\mu\text{g}/\text{m}^3$ ,  $250\mu\text{g}/\text{m}^3$  and  $500\mu\text{g}/\text{m}^3$ , while it is of interest to note that different time frames are taken into account, indicating the time it takes a patron to drink a quick coffee (5–10 minutes), or have a longer drink (30 minutes).
3. Assessment of the clinical impact of exposure to SHS at levels commonly found in cars when a smoker lights up. During this study protocol, exposures of  $5000\mu\text{g}/\text{m}^3$ , with respiratory flow assessment and exhaled nitric oxide production, were assessed for a subject sitting in a passenger seat.
4. Assessment of whether having open doors and windows does eliminate exposure to SHS within Greek bars and cafes, a position brought forward during debates due to Greece's mild Mediterranean climate. Our findings indicated that indoor  $\text{PM}_{2.5}$  concentrations are elevated among bar workers and increase proportionately to the density of smoking. Cotinine levels of nonsmoking employees were also found to increase with indoor  $\text{PM}_{2.5}$  concentrations, and also with the density of smoking. Our research indicated that open windows and doors do not protect workers from exposure to secondhand smoke.
5. The clinical impact of smoking a cigar or a water pipe on respiratory mechanics and oxidative stress.

6. Debate exists as to the scientific evidence for claims that e-cigarettes have no health-related ramifications. Our aim was to assess whether using an e-cigarette for five minutes has an impact on pulmonary function tests and exhaled nitric oxide (FeNO) among healthy adult smokers. In our laboratory-based experimental vs. control group study, using an e-cigarette for five minutes was found to lead to an immediate decrease in exhaled FeNO, while regression analyses controlling for base line measurements also indicated statistically significant decrease in FeNO and an increase in impedance and overall peripheral airway resistance after using an e-cigarette.
7. Investigation of the effect of bans on smoking in restaurants and bars on the exposure, and the cardio-respiratory health of nonsmoking hospitality workers after implementation of smoking bans.
8. Assessment of the role of the nasal cavity in modifying the perception of exposure to SHS and also the effect of body position on respiratory mechanics.
9. The physiology of quiet breathing through a spectrum analysis.
10. The role of smoking among patients with chronic obstructive pulmonary disease, and how smoking cessation for six months improves quality of life.
11. The impact of a low- vs. a high-intensity intervention for smoking cessation during pregnancy on smoking at birth, birth outcomes, and continued abstinence in the postpartum period. Tobacco-specific carcinogens are also assessed before and after smoking cessation in this randomized control trial so as to assess the role of smoking cessation during pregnancy on circulating tobacco carcinogens.
12. The role of different sources of exposure to secondhand smoke in a community-based setting on overall exposure and cotinine levels.

The majority of clinical research of the HEART Project is performed within the Smoking and Lung Cancer Research Center of the Hellenic Anti-Cancer Society. Based in Athens, Greece, the lab is 120m<sup>2</sup> in size (courtesy of the Hellenic Anti-Cancer Society), has four testing rooms, a smoking room/chamber, a subject waiting area, two bathrooms, and lab storage/handling room with a -20°C deep freeze. Storage of samples that need -80°C is performed in the adjacent Kyanous Stavros Hospital. The lab is a certified patient respiratory lab, and we have the capacity to perform blood aspiration. During testing hours, at least two on-site physicians are available to perform the tests and biological sampling. A nurse and lab technician are usually present, and during office hours, a secretary is also available.

The capacity of the lab at its current state is as follows:

- Smoking room with the capacity to maintain  $PM_{2.5}$  attributable to SHS at a steady concentration by regulating ventilation and the smoking machine.
- Exhaled nitric oxide (FeNo) using an Eco Medics® CLD 88 Series chemiluminescence analyzer equipped with a Spiroware 3.0 software program.
- Dynamic lung volumes: using a Jaeger MasterScreen spirometry system.
- Assessing control of breathing with the use of a Viasys  $V_{max}$  22 system.
- Total respiratory resistances with the use of an Impulse Oscillometry System (IOS) Viasys Jaeger MasterScreen IOS system.
- Anterior rhinomanometry (aR).
- Impulse-oscillometric (IOS) rhinomanometry.
- A Smokerlyzer (Bedfont) to measure exhaled carbon monoxide.
- Exhaled-breath condensate sampler. Viasys EcoScreen Turbo.
- Blood centrifuges and analyzers.
- Holter ECG available for use from the adjacent hospital clinic.

We have included below a list of publications conducted through the HEART Project:

### Peer - Reviewed Scientific Publications

1. Vardavas CI, Behrakis P. Greece: Action at last. *Tobacco Control*. 2009; 18(2): 79-80.
2. Loukopoulou A, Evangelopoulou V, Behrakis P. Smoking and Pregnancy. *Pneumwn*. 2010; 23(2): 153-159.
3. Vardavas CI, Mancariama G, Behrakis P. “Environmentally friendly” brand promotion activities: Cigarette butt clean up campaigns. *Tobacco Control* 2010; 19(3): 259.
4. Vardavas CI, Dimitrakaki C, Schoretsani S, Patelarou E, Fillipides F, Connolly G, Tountas Y. The role of the non-smoker in enforcing smoke free laws. *Journal of Public Health Policy* 2011; 32(1): 46-59.
5. Karabela M, Vardavas CI, Tzatzarakis M, Tsatasakis A, Connolly G, Behrakis P. Relationship between indoor air quality and urinary cotinine levels among non smoking bar workers. *Journal of Aerosol Medicine and Pulmonary Drug Delivery*. 2011; 24(1): 35-41.

6. Papadopoulos G, Vardavas CI, Limperi M, Linardis A, Georgoudis G and Behrakis P. Smoking cessation can improve quality of life among COPD patients: Translation and validation of the clinical COPD questionnaire into Greek. *BMC Pulmonary Medicine* 2011; 3:7.
7. Patelarou E, Vardavas C, Ntzilepi P, Warren C, Barbouni A, Kremastinou J, Connolly G, Behrakis P. Nursing education and beliefs towards tobacco cessation and control: a cross-sectional national survey (GHPSS) among nursing students in Greece. *Tobacco Induced Diseases* 2011; 9:4.
8. Vardavas C, Behrakis P, Connolly G. Beware tobacco companies' spurious financial arguments. *BMJ* 2011; 342:d1145.
9. Avlonitou E, Kapsimalis F, Varouchakis G, Vardavas C, Behrakis P. The Role of Compliant CPAP Therapy on Quality of Life and Symptoms among Patients with Obstructive Sleep Apnea Syndrome. *Sleep and Breathing* 2011.
10. Loukopoulou A, Vardavas CI, Farmakides G, Rossolymos C, Chrelias C, Tzatzarakis M, Tsatsakis A, Lymberi M, Connolly GN, Behrakis P. Design and study protocol of the Maternal Smoking Cessation during Pregnancy study (M-SCOPE). *BMC Public Health* 2011 (in press).
11. Vardavas C, Fthenou E, Patelarou E, Bagkeris E, Murphy S, Hecht S, Connolly G, Chatzi L, Kogevinas M. Exposure to different sources of second-hand smoke (SHS) during pregnancy and its effect on urinary cotinine and tobacco specific nitrosamine (NNAL) concentrations. *Tobacco Control* 2011 (in press).
12. Vardavas C, Anagnostopoulos N, Kougias M, Evangelopoulou V, Connolly G, Behrakis P. Acute pulmonary effects of using an e-cigarette: impact on respiratory flow resistance, impedance and exhaled nitric oxide. *Chest* 2011 (in press).
13. Vardavas C, Behrakis P. Greece: consumption down at last. *Tobacco Control* 2011 (in press).
14. Vardavas C, Anagnostopoulos N, Minas M, Nakou C, Dramba V, Patelarou E, Giourgouli G, Bagkeris E, Gourgoulisianis K, Pattaka P, Antoniadis A, Lionis C, Bertic M, Dockery D, Connolly G and Behrakis P. Five year trends of second-hand smoke exposure in Greece: A comparison between complete, partial and pre legislation levels. *Journal of Aerosol Medicine and Pulmonary Drug Delivery* 2011 (in press).

## Abstracts in International Conferences

1. Kougias M, Avlonitou I, Evangelopoulou V, Vassiliou M, Behrakis P. Acute effect of environmental tobacco smoke on exhaled nitric oxide, in healthy passive smokers. *ERS Journal Supplement* 2009, European Respiratory Society, Barcelona 2009
2. Kougias M, Anagnostopoulos N, Vardavas C, Loukopoulou A, Evangelopoulou V, Vassiliou M, Behrakis P. Immediate Effects of Smoking of a Single Cigarette on Exhaled Nitric Oxide and Lung Mechanics in Young Adults. *Chest* 138:577A; doi:10.1378/chest.10783 American College of Chest Physicians, Vancouver 2010.
3. Anagnostopoulos N, Kougias M, Vardavas C, Avlonitou I, Evangelopoulou V, Vassiliou M, Behrakis P. Immediate Effects of Environmental Tobacco Smoke on Exhaled Nitric Oxide and Lung Mechanics in Passive Smokers. *Chest* 138:919A; doi:10.1378/chest.10769 American College of Chest Physicians, Vancouver 2010.
4. Loukopoulou A, Vardavas C, Kougias M, Anagnostopoulos N, Farmakides G, Tzatzarakis M, Tsatsakis A, Evangelopoulou V, Behrakis P. High and low intensity interventions for smoking cessation during pregnancy, an RCT. European Respiratory Society, Amsterdam 2011.
5. Kougias M, Anagnostopoulos N, Vardavas C, Evangelopoulou V, Vassiliou M, Behrakis P. Extended Exhaled Nitric Oxide Analysis After Smoking Of a Single Cigarette In Young Adults. American College of Chest Physicians, Honolulu 2011.
6. Vardavas CI, Anagnostopoulos N, Nakou C, Dramba V, Minas M, Patelarou E, Chochlidaki M, Giourgouli G, Kougias M, Gourgoulisian KI, Pattaka P, Antoniadis A, Lionis C, Dockery D, Connolly G and Behrakis P. Factors that influenced SHS exposure in hospitality venues in Greece before the September 2010 smoking ban. European Conference on Tobacco or Health. Amsterdam ECTOH 2011.
7. Vardavas C, Anagnostopoulos N, Kougias M, Evangelopoulou V, Connolly G, Behrakis P. Immediate respiratory effects of smoking an e-cigarette. European Conference on Tobacco or Health. Amsterdam ECTOH 2011.

8. Filippidis F, Vardavas C, Bertic M, Behrakis P, Connolly G, Tountas Y. Support of Tobacco Control Policies in Greece: Results from the Hellas Health III Survey. 9<sup>th</sup> ISPTID conference, Vienna 2011.
9. Vardavas C, Anagnostopoulos N, Minas M, Nakou C, Dramba V, Patelarou E, Giourgouli G, Bagkeris E, Gourgoulisanis K, Pattaka P, Antoniadis A, Lionis C, Bertic M, Dockery D, Connolly GN and Behrakis P. Exposure to second-hand smoke within hospitality venues in Greece before and after the clean indoor air law of 2010. 9<sup>th</sup> ISPTID conference, Vienna 2011.
10. Vardavas C, Girvalaki C, Mytaras V, Behrakis P. High car speeds and open windows do not eliminate exposure to secondhand smoke in a car when a passenger smokes inside. 9<sup>th</sup> ISPTID conference, Vienna 2011.
11. Filippidis F, Vardavas C, Karageorgopoulou K, Schoretsaniti S, Dimitrakaki C, Behrakis P, Connolly G, Tountas Y. Anti-Smoking Advice From Health-Care Providers And Factors Influencing Smokers' Decision To Quit Smoking. Results from the Hellas Health III Survey in Greece. 19<sup>th</sup> International Conference on Health Promoting Hospitals & Health Services. Finland 2011.
12. Filippidis F, Vardavas C, Loukopoulou A, Schoretsaniti S, Behrakis P, Connolly G, Tountas Y. Knowledge Of The Health Effects Of Smoking And Exposure To Tobacco Related Media Messages In A Representative Sample Of The Greek Population: The Hellas Health III Survey. WCTOH, Singapore 2012.
13. Filippidis F, Vardavas C, Behrakis P, Schoretsaniti S, Bertic M, Giannopoulou E, Connolly G, Tountas Y. Exposure To Secondhand Tobacco Smoke In Greece, 2010: Results From The Hellas Health III Survey. WCTOH, Singapore 2012.
14. Vardavas C, Anagnostopoulos N, Minas M, Nakou C, Dramba V, Patelarou E, Giourgouli G, Bagkeris E, Gourgoulisanis K, Pattaka P, Antoniadis A, Lionis C, Bertic M, Dockery D, Connolly G and Behrakis P. How to Effectively Implement FCTC Guidelines On Clean Indoor Air In Nations With A High Smoking Prevalence: The Greek Experience. WCTOH, Singapore 2012.
15. Vardavas C, Behrakis P, Bertic M, Alpert H, Connolly G. Tobacco Control In Greece: Accomplishments To Date Of The HEART Project. WCTOH, Singapore 2012.

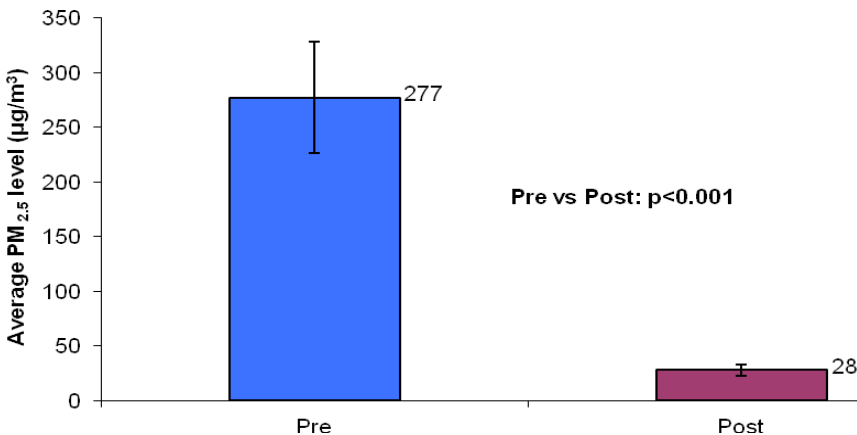


## The Cyprus Success Story in Tobacco Control: Lessons Learned for Greece

The government of the Republic of Cyprus introduced a complete smoking ban in all public places on January 1, 2010. To assess the effectiveness of the smoking ban on reduction in secondhand smoke exposure, the Cyprus International Institute for Environmental and Public Health in association with the Harvard School of Public Health conducted a study to measure the levels of particulate matter less than 2.5  $\mu\text{m}$  in diameter ( $\text{PM}_{2.5}$ ) in hospitality venues in Cyprus and to assess their indoor air quality before and after the introduction of the smoking ban. Twenty-one venues from the hospitality industry in Cyprus (including cafes, hotels, restaurants, nightclubs) were sampled between April 2007 and January 2008, and resampled between March and May 2010 after the smoking ban went into effect. The levels of  $\text{PM}_{2.5}$  in the selected locations were measured by the use of a TSI SidePak Personal Aerosol Monitor and a standard protocol was applied to monitor the indoor air quality.

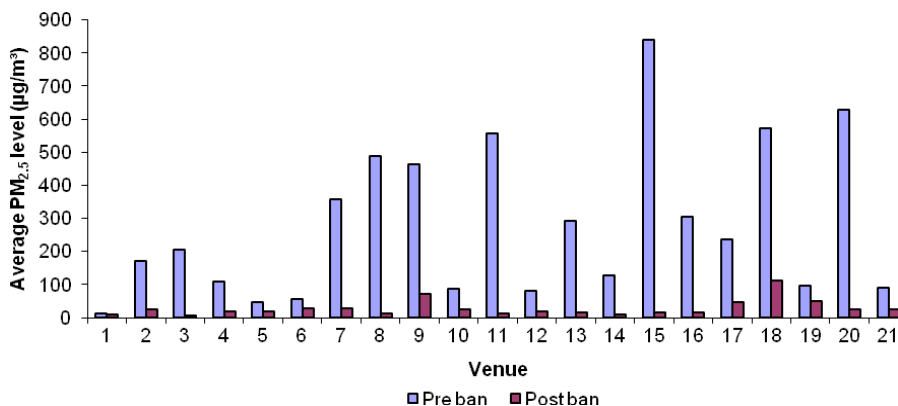
Results from the study indicated that the pre-ban levels of  $\text{PM}_{2.5}$  exceeded the US EPA's average daily standard (35  $\mu\text{g}/\text{m}^3$ ) in all venues. The mean level of  $\text{PM}_{2.5}$  in these 21 venues was 277  $\mu\text{g}/\text{m}^3$  pre-ban (a level dangerous to health); in some venues, there were extremely high levels of  $\text{PM}_{2.5}$ —one had average levels of 841  $\mu\text{g}/\text{m}^3$ . In post ban-measurements,  $\text{PM}_{2.5}$  levels in all venues dropped significantly, with a decline in mean  $\text{PM}_{2.5}$  levels to 28  $\mu\text{g}/\text{m}^3$  post-ban (below the EPA's standard of 35  $\mu\text{g}/\text{m}^3$ ), indicating much cleaner and healthier air (**Figure 11**). This corresponds to a 90% drop in the levels of  $\text{PM}_{2.5}$ , a statistically highly significant change, with a p-value of  $<0.001$ . The highest reduction in  $\text{PM}_{2.5}$  levels after the introduction of the ban was observed in cafes, followed by restaurants and bars, and then restaurants/cafes.

Figure 11, Comparison of  $\text{PM}_{2.5}$  levels ( $\mu\text{g}/\text{m}^3$ ) with no bans and after complete ban in Cyprus



**Figure 12** presents graphically the values of  $PM_{2.5}$  observed before and after the smoking ban at the corresponding places.

Figure 12,  $PM_{2.5}$  levels pre- and post- smoking ban at respective sites



The difference in the two time points is overwhelming (except for venue #1 in the figure that is the one venue that was nonsmoking before the ban). In all other venues, the pre-ban levels of  $PM_{2.5}$  exceeded the EPA’s average daily standard. In some venues, there were extremely high levels of  $PM_{2.5}$  pre-law, as for example the 15<sup>th</sup> one, which had an average level of 841  $\mu\text{g}/\text{m}^3$ . In post-ban measurements,  $PM_{2.5}$  levels dropped significantly in all venues, except again for Venue 1 in Figure 12, for the reason mentioned above. Venue 18 had the highest levels of  $PM_{2.5}$  during the follow-up measurements, because the law was not enforced and several people were actually smoking.

### **Public Health Implications**

Overall, the results indicate that the implementation of the comprehensive smoking ban policy in Cyprus resulted in dramatic improvement on the indoor air quality of hospitality venues. These findings thus underscore the importance of enforcing these smoke-free laws, and demonstrate that banning smoking completely in public places is highly effective in reducing the levels of indoor  $PM_{2.5}$ , thus improving the health of people working in these previously smoking environments.

## Monitoring and Surveillance Activities

### *Point of Purchase Advertisement Monitoring*

Advertisement and marketing activities of the tobacco industry have been shown to influence youths to start smoking, encourage current smokers to continue smoking, and influence former smokers to relapse. Studies have shown that teenage smokers prefer the cigarette brand most heavily advertised in the convenience store closest to their school. Even in the face of increasing regulations banning advertising on television, radio, and in print, tobacco companies adapt, develop innovative marketing strategies, and continue to market their products successfully. A strategy that has become more prevalent in tobacco marketing in Greece is to make tobacco products very appealing to youths to replenish and maintain the pool of current smokers. Advertising through points of purchase (POPs) plays a crucial role in adolescent seduction by the tobacco industry, whereas subsequent tobacco experimentation is the next perilous step toward nicotine addiction, on which the tobacco industry's future prosperity depends. After the partial tobacco advertising ban of EU Directive 2003/33/EC, the tobacco industry shifted toward heavy advertising at POP, exploiting in Greece the exempted (by the previous directive) kiosks, as seen ubiquitously at the local level and clearly documented through tobacco industry internal reports. Already a transition toward the creation of “power walls” on both the interior and exterior of points of purchase has been noted, while industry-owned kiosks are appearing one after the other.

This shift of the majority of the tobacco industry's marketing dollars to facilitating the sale of cigarettes by point of purchase advertisement or influencing product placement in retail stores has not been without some political will and support. Internal tobacco industry documents have illustrated that EU Directive 98/43/EC, which proposed bans on all forms of direct and indirect tobacco advertising, was severely undermined at the EU and local levels.

Tobacco companies with huge clout and strong presence are thus using more direct-to-consumer marketing, sometimes employing subtle forms of advertisements such as placement of brand logos next to a cash register, illuminated internal adverts, illuminated external adverts, advertisements on the door, and sales counter with brand logo selectively targeting youths. All of this can normalize tobacco use and reinforce brand identity.

A 2009 study conducted by the Harvard Center for Global Tobacco Control in collaboration with the University of Crete used the geographical information systems (GIS) approach to evaluate and interpret the spatial density and intensity of POP and tobacco industry advertisements within 300 meters of

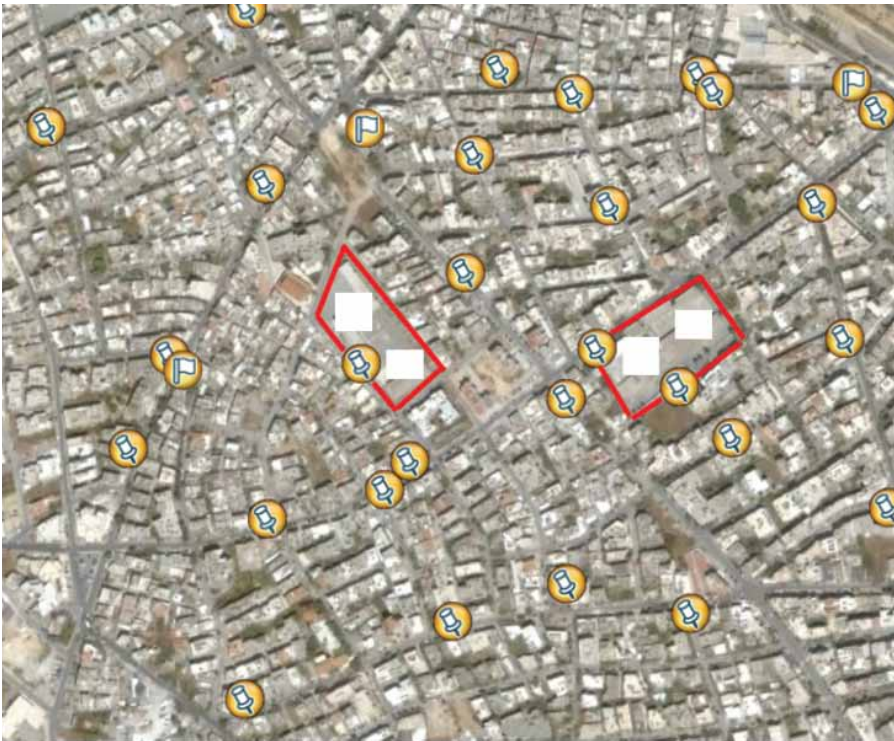
high schools in Greece. This research identified 133 POP and 44 billboards within 300 meters of the gates of Heraklion schools (**Figure 13**). On average, 13 POPs (range 4–21) and 4.4 billboards (range 1–9) were located per school, and all had at least 1 POP within 20 meters of the school gate. On average (SD), 9 (6) tobacco advertisements per POP (range 0–25) were noted, and 80% of them were below child height. The GIS protocol identified that kiosks, which were excepted from the Greek ban on tobacco advertising, in comparison with other POPs, were found not only to be closer and visible from the school gates (44.1% vs. 10.8%), but were found also to have more external advertisements [8 (5) vs. 5 (3)]. When taking into account the fact that every school was found to have a POP for tobacco products within 20 meters of its gates and that 44% of all kiosk POPs within the 300-meter radius of the school could be seen from the school playground, one can comprehend the level of tobacco industry advertisements Greek adolescents are exposed to.

Preschool and primary-school children living in the area are also exposed to this high level of tobacco marketing, and research has shown that they too are affected and are able to recall tobacco advertisements and familiarize themselves with tobacco products. According to the 2004 Greek Global Youth Tobacco Survey (GYTS) results, more than 70% of adolescents reported seeing a pro-cigarette advertisement on a billboard over the past 30 days, but firstly we find this number to be quite modest, and secondly it does not include extensive POP advertising.

Cigarette pack displays were found in the study to play a central role in interior POP advertising and are recognized as crucial communication devices for creating and reinforcing brand imagery, as also seen by the recent introduction of power walls in Greece. It is of interest to state that although only approximately 8% of Greek adult smokers consume Marlboros, 47.8% of smoking adolescents smoke Marlboros, a fact that might be attributed to aggressive advertising campaigns and marketing strategies, a significant amount of which is centered on POPs and Marlboro stores around Greek schools, as depicted by the study. Almost 90% of POPs in the study were found to have shelving with brand logos next to the cash register. Indisputable research has shown that youth are especially susceptible to such POP marketing displays. POP advertisements have been rated by smokers as a reason for impulse purchase and noted as a hindrance to their quitting attempts. Younger smokers are more likely to notice these cigarette displays and tend to be more likely to purchase on impulse at the same time as shopping for other goods. Current legislation in Greece permits POP advertising, however, billboard advertising and the free promotional distribution of tobacco products in cafes, bars, and nightclubs officially ceased from July 1, 2009.

The effect of the community's, and particularly youths', exposure to tobacco industry activities, such as POP advertising and promotional activities, can be likened to exposure from environmental pollutants or infectious agents: The more an individual is exposed to a pollutant or source of disease, the more likely (s)he will suffer from the consequence of that exposure. Similarly, the higher the exposure to tobacco advertising, the higher the chance that the adolescent will experiment with smoking. Consequently, public health policies in Greece must take this into account in a bid toward primary prevention of smoking initiation among adolescents.

Figure 13, *Points of purchase (POP) and tobacco advertising billboards within 300 meters of the second and fourth high school complex of Heraklion*



*Flag: billboard or bus stop; pin: POP; red box: school grounds*

## Education in Schools



*Educational activities in schools must involve children in achieving a smoke-free environment*

The implementation of a complete smoke-banning policy in schools is the most essential precautionary action toward eliminating smoking on school premises. Educational courses regarding health education or specialized topics related to smoking are supplementary actions that cannot bring satisfactory results by themselves. Students cannot be educated in the classroom for a smoke-free society if they do not experience their own school as a public place free of smoke. It is important to understand that knowledge apprehended in the classroom can be either reinforced or cancelled by occurrences that take place in the school environment.

The school's educational activities should support the nonsmoking policy of the school. The students must have the opportunity through their educational activities not only to analyze the need to establish a nonsmoking policy, but also to actively participate to the decisions concerning its development and implementation. In other words, the educational activities in the classroom should not be confined to the physical consequences of smoking, or the development of social skills that relate to smoking (i.e., learning to say no under peer pressure). Educational activities must actively support the development and application of environmental interventions at school regarding smoking. This way, the student is not considered just as an individual responsible for his

behavior, but as an individual able to collaborate with others (people or factors) and act collectively to claim a smoke-free environment. The individual's role is not overlooked, but placed in a broader social context. This way, we contribute in creating a new norm, that of an active citizen who claims and contributes in the making of a smoke-free community. This is the theoretical framework according to which the Ministry of Education and Culture of Cyprus prepared its analytical program of health education.

### **Involvement of Youth in Change**



*A tobacco-free future for Greek youth*

Youth play a unique and important policy advocacy role that contributes to an effective, comprehensive tobacco control program. Initiation and addiction to tobacco use often occurs before young people are legally able to buy tobacco products—an age when they are also highly targeted by the tobacco industry. Because they are targets, young people must be engaged in tobacco control efforts. Youth are powerful allies in the fight against pro-tobacco influences, key partners in denormalizing tobacco use, and important levers in determining the future of tobacco control policy.

## ***The Power of Youth***

- **Advocate for policy change.** Young people can be effective at garnering support for policy development and change. They capture the attention of political leaders and the media, making them important partners in policy advocacy.
- **Project a powerful voice.** The young have credibility with peers and community members. This allows them to help educate the community to reduce pro-tobacco influences and increase healthier norms and behaviors.
- **Expose tobacco industry tactics.** Young people can be effective partners in the fight against the tobacco industry by exposing its manipulative tactics and undermining its efforts.
- **Offer energy and vitality.** The young bring energy to activities and events. Tobacco control programs should work to channel this energy into action, resulting in increased awareness and policy change.
- **Reflect genuine concern.** Young people generally volunteer their time to be involved in tobacco control efforts. They do this because of the stake they have in their own future.
- **Bring diverse representation and provide generational insight.** The young can provide important insight about their generation. Involving them in tobacco control efforts ensures the design of effective, population-specific policies.
- **Invoke creativity and innovation.** Young people naturally challenge the traditional attitudes that may restrict and limit how adults think and act. They add innovation and creativity to any program, making it more attractive to other youth and policymakers. Their novel ideas for policy advocacy strategies help push efforts forward.
- **Mobilize their peers.** The young can mobilize their peers for activities and facilitate access to many arenas. These actions add strength to tobacco control policy efforts while also broadening the type and number of venues involved in message delivery.



## HIGHLIGHTS

- ◆ On May 31, 2010, Greece announced the adoption of a comprehensive ban on smoking in public places (two-phased), the first phase of which came into force on September 1, 2010. Within this first phase, smoking indoors in all hospitality venues (cafes, bars, restaurants—including covered outdoor areas) under 300 square meters was prohibited. During the second phase of implementation, the law banned indoor smoking as of June 1, 2011, in casinos and large music halls in excess of 300 square meters.
- ◆ Following the implementation of a complete smoking ban in public places, studies demonstrated a marked reduction in SHS exposure as measured by  $PM_{2.5}$  levels in public places; a decrease of over 67% and 34% compared with measurements taken during periods of no bans and partial bans respectively.
- ◆ However, much stronger enforcement of the law is needed if we are to halt the smoking epidemic.

## REFERENCES

Alberg, AJ., Ford, JG., Samet, JM. 2007. Epidemiology of lung cancer, *CHEST* Sep 132:3, suppl 29S–55S.

ASPECT Consortium. 2004. *Tobacco or health in the European Union*, Office for Official Publications of the European Communities, Luxembourg ([http://ec.europa.eu/health/ph\\_determinants/life\\_style/Tobacco/Documents/tobacco\\_fr\\_en.pdf](http://ec.europa.eu/health/ph_determinants/life_style/Tobacco/Documents/tobacco_fr_en.pdf)).

Ashley MJ, Cohen J, Ferrence R. 2001. “Light” and “Mild” cigarettes: Who smokes them? Are they being misled? *Canadian Journal of Public Health* 92 (6): 407–411.

ASTM E2187-04. Standard Test Method for Measuring the Ignition Strength.

Athanasakis K, Souliotis K, Kyriopoulos J. The economic consequences of smoking for health systems internationally: an estimation for the Greek healthcare setting. [In Greek] *Latriki* (accepted, in publication).

Australian Marlboro warning label available at <http://www.tobaccolabels.ca/gallery/australiapacks/marlborofreshchillaustraliajuly2010rightsideanglej>.

Behan DF, Eriksen MP, Lin Y. “Economic Effects of Environmental Tobacco Smoke.” 2005. 142 Nash R and Featherstone H. Cough Up: Balancing tobacco income and costs in society. March 2010. Available at: [http://www.policyexchange.org.uk/images/publications/pdfs/Cough\\_Up\\_-\\_March\\_10.pdf](http://www.policyexchange.org.uk/images/publications/pdfs/Cough_Up_-_March_10.pdf). Accessed December 2010.

Behan DF, Eriksen MP, Lin Y. “Economic Effects of Environmental Tobacco Smoke.” 2005. 145 WHO. *Tobacco Atlas*. 2006. Chapter 11: “Economic costs.”

Beletsioti-Stika P, Scriven A. 2006. Smoking among Greek nurses and their readiness to quit. *Int Nurs Rev* 53: 150–156.

Benowitz N. Compensatory smoking of low-yield cigarettes. 2001. In: National Cancer Institute. *Risks associated with smoking cigarettes with low machine yields of tar and nicotine*. Smoking and Tobacco Control Monograph No. 13. Bethesda, MD: US Department of Health and Human Services. 39–63.

Benowitz NL, Hall SM, Hering RI, Jacob P 3rd, Osman AL. 1983. Smokers of low-yield cigarettes do not consume less nicotine. *New England Journal of Medicine* 309(3): 139–142.

Canadian Expert Panel. 2001. Putting an end to deception: Proceedings of the International Expert Panel on Cigarette Descriptors. A report to the Canadian Minister of Health from the Ministerial Advisory Council on Tobacco Control.

Centers for Disease Control and Prevention (CDC). 2009. State-specific smoking-attributable mortality and years of potential life lost—United States, 2000–2004. *Morb Mortal Wkly Rep*. Jan 23; 58(2): 2–33.

CDC. 2007. Best practices for comprehensive tobacco control programs—2007. Atlanta: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. October 2007.

CDC. Smoking Attributable Morbidity, Mortality and Economic Costs (SAMMEC): Adult SAMMEC software <http://apps.nccd.cdc.gov/sammeec/>.

Chaloupka FJ, Hu T, Warner KE, Jacobs R, Yurekli A. 2000. The taxation of tobacco products. In: Jha P, Chaloupka FJ. *Tobacco Control in Developing Countries*. Edited volume. Chapter 10. Oxford: Oxford University Press, 2000.

Choinière D. 2006. Monitoring Compliance With the Cigarette Ignition Propensity Regulations In Canada. Tobacco Control Programme, Health Canada. Second International Conference on Fire “Safer” Cigarettes; Harvard School of Public Health, December 11, 2006, Boston.

Collins DJ, Lapsley HM. 1991. *Estimating the Economic Costs of Drug Abuse in Australia*. Monograph Series no. 15. Sydney: Commonwealth Department of Human Services and Health.

Collins DJ, Lapsley HM. 1996. *The Social Costs of Drug Abuse in Australia in 1988 and 1992*. Monograph Series no. 30. Sydney: Commonwealth Department of Human Services and Health.

Commission of the European Communities 2007. Overview of the implementation of direct payments under the CAP in Member States.

DHHS. 1996. Public Health Service, National Cancer Institute, Office of Smoking and Cancer Control. NIH Publication No. 96-4028:39-57.

Djordjevic MV, Fan J, Ferguson S, Hoffman D. 1995. Self-regulation of smoking intensity. Smoke yields of the low-nicotine, low-‘tar’ cigarettes. *Carcinogenesis* 16(9): 2015-2021.

Djordjevic MV, Stellman SD, Zang E. 2000. Doses of nicotine and lung carcinogens delivered to cigarette smokers. *Journal of the National Cancer Institute* 92(2): 106.

Doll R, Peto R. 1978. Cigarette smoking and bronchial carcinoma: dose and time relationships among regular smokers and lifelong non-smokers. *Journal of Epidemiology and Community Health* 32:303-313.

Economic impact of smoking and tobacco control in Hungary. Report prepared by GKI Economic Research Institute, Budapest. <http://www.policy.hu/tszilagyi/content.html>.

Environics Research Group Limited. 2002. Knowledge, attitudes and behavior of light and mild brand smokers. Prepared by Environics Research Group Ltd. (March) POR-01-26.

EQUIPP: Europe Quitting: Progress and Pathways. 2011. London, 2011.

EU Directive 2003/641/EC.

Euromonitor International. Tobacco statistics. Retrieved from Euromonitor Passport GMID database. Accessed August 2, 2011.

Euromonitor International. 2010. Tobacco-Greece. Euromonitor International: Country Market Insight August 2010. World Health Organization. *World Health Statistics 2010*. Available at: <http://www.refworks.com/refworks2/default.aspx?r=references|MainLayout:init>. Accessed October 10 and 11, 2011.

European Commission. 2011. Excise duty tables (Part III — Manufactured Tobacco) [online] [http://ec.europa.eu/taxation\\_customs/resources/documents/taxation/excise\\_duties/tobacco\\_products/rates/excise\\_duties-part\\_iii\\_tobacco\\_en.pdf](http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/tobacco_products/rates/excise_duties-part_iii_tobacco_en.pdf). Accessed July 29, 2011.

European Commission. 2011. Excise duty tables (Tax receipts — Manufactured Tobacco) [online] [http://ec.europa.eu/taxation\\_customs/resources/documents/taxation/excise\\_duties/tobacco\\_products/rates/excise\\_duties\\_tobacco\\_en.pdf](http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/tobacco_products/rates/excise_duties_tobacco_en.pdf). Accessed July 29, 2011.

European Commission. 2011. Releases for consumption of cigarettes 2002–2010 (in 1,000 pieces) [online] [http://ec.europa.eu/taxation\\_customs/resources/documents/taxation/excise\\_duties/tobacco\\_products/rates/tobacco\\_releases\\_consumption.pdf](http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/tobacco_products/rates/tobacco_releases_consumption.pdf). Accessed July 29, 2011.

Fiddler JA and West R. 2010. Changes in smoking prevalence in 16–17-year-old versus older adults following a rise in legal age of sale: findings from an English population study. *Addiction* doi:10.1111/j.1360-0443.2010.03039.x

Filippides F, Vardavas C, Loukopoulou A, Behrakis P, Connolly GN, Tountas Y. 2012. Prevalence and determinants of tobacco use among adults in Greece: 4-year trends. *J Public Health Policy*. Under review.

Giovino GA, et al. Attitudes, Knowledge, and Beliefs about Low-Yield Cigarettes among Adolescents and Adults. In: *The FTC Cigarette Test Method for Determining Tar, Nicotine, and Carbon Monoxide Yields of U.S. Cigarettes*. Smoking and Tobacco Control Monograph No 7.

Global Network for Tobacco Free Healthcare Services. [www.ensh.eu](http://www.ensh.eu).

Haddock CK, Talcott GW, Klesges RC, Lando H. 1999. An examination of cigarette brand switching to reduce health risks. *Annals of Behavioral Medicine* 21(2): 128–134.

Hadjichristodoulou C. 2008. Factors associated with adolescent cigarette smoking in Greece: results from a cross-sectional study (GYTS Study). *BMC Public Health*. Sep 15;8:313. PubMed PMID: 18793389; PubMed Central PMCID: PMC2561036.

Hall J. 2006. The smoking-material fire problem. Fire Analysis and Research Division. Quincy, Massachusetts: National Fire Protection Association.

Halpern MT, Khan ZM, Young TL, Battista C. 2000. Economic model of sustained-release bupropion hydrochloride in health plan and work site smoking-cessation programs. *Am J Health Syst Pharm* 57(15): 1421–9.

Hammond D, Fong G, Borland R, et al. 2007. Text and graphic warnings on cigarette packages. Findings from the International Tobacco Control Four Countries Study. *Am J Prev Med* 32:202–209.

Hammond D, Fong GT, McDonald PW, et al. 2003. Impact of the graphic Canadian warning labels on adult smoking behaviour. *Tobacco Control* 12:391–395.

Hammond, EC. 1980. The long-term benefits of reducing tar and nicotine in cigarettes. In: Gori GB, Bock FG, eds. *A Safe Cigarette?* Banbury Report 3, Proceedings of a meeting held at the Banbury Center, Cold Spring Harbor Laboratory, NY, Oct. 14–16, 1979. Cold Spring Harbor Laboratory, 1980: 13–18.

Hellenic Ministry of Health and Social Solidarity: Center for Disease Control (KEELPNO). 2011. Tobacco Report. (April) Available at: [http://www.keelpno.gr/images/stories/keelpno/kapnisma/ereuna\\_kapnisma.pdf](http://www.keelpno.gr/images/stories/keelpno/kapnisma/ereuna_kapnisma.pdf).

Henningfield J, Rose C, Giovino G. 2002. Brave new world of tobacco disease prevention. Promoting dual tobacco-product use? *American Journal of Preventive Medicine* 23(3): 226.

Hibell B, Guttormsson U, Ahlstrom S, Balakireva O, Bjarnason T, Kokkevi A, Kraus L, Miller P, Plant M. 2009. The 2007 ESPAD report: substance use among students in 35 European countries. Project report. The Swedish Council for Information on Alcohol and Other Drugs (CAN), Stockholm.

International Agency for Research on Cancer (IARC). *Effectiveness of Tax and Price Policies in Tobacco Control*. Lyon (in press; IARC Handbooks of Cancer Prevention, Vol. 14).

IARC. GLOBACAN 2008, <http://globocan.iarc.fr/>. Accessed November 14, 2011.

Jarvis MJ, Boreham R, Primatesta P, Feyerebend C, Byrant A. 2001. Nicotine yield from machine-smoked cigarettes and nicotine intakes in smokers: evidence from a representative population study. *Journal of the National Cancer Institute* 93:134–138.

Kaiserman MJ. 1997. The cost of smoking in Canada, 1991. *Chronic Diseases in Canada* 18:13–19.

Karabela M, Vardavas CI, Tzatzarakis M, Tsatsakis A, Dockery D, Connolly GN, Behrakis P. 2011. The relationship between venue indoor air quality and urinary cotinine levels among semiopen-air café employees: what factors determine the level of exposure? *J Aerosol Med Pulm Drug Deliv* Feb 24(1): 35–41. Epub October 20, 2010. PubMed PMID: 20961168.

Kozlowski LT, O'Connor RJ. 2002. Cigarette filter ventilation is a defective design because of misleading taste, bigger puffs and blocked vents. *Tobacco Control* 11 Suppl 1:i40–i50.

Kozlowski LT, Pillitteri JL, Sweeney CT. 1994. Misuse of “light” cigarettes by means of vent blocking. *Journal of Substance Abuse* 6(3): 333–336.

Kozlowski LT, Pope MA, Lux JE. 1998. Prevalence of the misuse of ultra-low-tar cigarettes by blocking filter vents. *American Journal of Public Health* 78(6): 694–695.

Kyrlesi A, Soteriades ES, Warren CW, Kremastinou J, Papastergiou P, Jones NR, Hadjichristodoulou C. 2007. Tobacco use among students aged 13–15 years in Greece: the GYTS project. *BMC Public Health* Jan 8;7:3. PubMed PMID: 17207291; PubMed Central PMCID: PMC1784081.

Les Études de Marché Créatec. Effect of “light” and “mild” labels on perceived strength and brand image of cigarettes. 2002. Prepared for Health Canada Tobacco Control Program. February.

Levin ML. 1953. The occurrence of lung cancer in man. *Acta Unio Int Contr Cancrum* 9:531-41.

Lightwood J, Collins D, Lapsley H, Novotny TE. 2000. Estimating the costs of tobacco use. In: P Jha and F Chaloupka, eds., *Tobacco Control in Developing Countries*, Oxford: Oxford University Press, 2000.

Luxembourg Office for Official Publications of the European Communities. 2005. *Health in Europe, Data 1998–2003*. Eurostat; 2005. Edition: October 12, 2011.

Merriman D, Yurekli A, Chaloupka FJ. 2000. How big is the worldwide cigarette smuggling problem? In: Jha P, Chaloupka FJ. *Tobacco Control in Developing Countries*. Edited volume. Chapter 15. Oxford: Oxford University Press, 2000.

Naidoo B, Stevens W, McPherson K. 2000. Modeling the short-term consequences of smoking cessation in England on the hospitalisation rates for acute myocardial infarction and stroke. *Tobacco Control* 9:397–400.

Nash R and Featherstone H. Cough Up: Balancing tobacco income and costs in society. March 2010. Available at: [http://www.policyexchange.org.uk/images/publications/pdfs/Cough\\_Up\\_-\\_March\\_10.pdf](http://www.policyexchange.org.uk/images/publications/pdfs/Cough_Up_-_March_10.pdf), December 2010.

National Cancer Institute. 1998. *Cigar Smoking in the United States: Health Effects and Trends*. Smoking and Tobacco Control Monograph No. 9. USDHHS NIH NCI, 1998.

National Cancer Institute. 2001. *Risks associated with smoking cigarettes with low machine yields of tar and nicotine*. Bethesda, MD: US Department of Health and Human Services. Smoking and Tobacco Control Monograph No 13.

National Cancer Institute. 2001. *Risks associated with smoking cigarettes with low machine yields of tar and nicotine*. Smoking and Tobacco Control Monograph No 13. Bethesda, MD: US Department of Health and Human Services. NCI October 2001.

National network of hospitals and health promotion services. Available at: [www.ednypy.gr](http://www.ednypy.gr).

NICE. 2008. Public health guidance 10. Smoking cessation services in primary care, pharmacies, local authorities and workplaces, particularly for manual working groups, pregnant women and hard-to-reach communities.

Parrott S, Godfrey C. 2004. Economics of smoking cessation. *BMJ* 328(7445): 947–9.

Patelarou E, Vardavas CI, Ntzilepi P, Warren CW, Barbouni A, Kremastinou J, Connolly GN, Behrakis P. 2011. Nursing education and beliefs towards tobacco cessation and control: a cross-sectional national survey (GHPSS) among nursing students in Greece. *Tob Induc Dis* 9:4.

Pekurinen M. 1999. *The Economic Consequences of Smoking in Finland 1987–1995*. Helsinki: Health Services Research Ltd.

PESCE. 2008. General Practitioners and the Economics of Smoking Cessation in Europe. Project Executive Summary. Quoted in WHO. May 2008. *Report on the Global Tobacco Epidemic*. The MPOWER package.

Pitsavos C, Panagiotakos D, Chrysohoou C, Stefanadis C. 2003. Epidemiology of cardiovascular risk factors in Greece: aims, design and base line characteristics of the ATTICA study. *BMC Public Health* 3:32.

Pollay RW, Dewhirst T. 2002. The dark side of marketing seemingly “Light” cigarettes: successful images and failed fact. *Tobacco Control* 11 Suppl 1:ii18-31.

Rachiotis G, Siziya S, Muula AS, Rudatsikira E, Papastergiou P, Hadjichristodoulou C. 2010. Determinants of exposure to Environmental



Tobacco Smoke (ETS) among nonsmoking adolescents (aged 11-17 years old) in Greece: results from the 2004-2005 GYTS Study. *Int J Environ Res Public Health* Jan 7(1): 284-90. Epub 2010 Jan 21. PubMed PMID: 20195445; PubMed Central PMCID: PMC2819788.

Rasmussen SR, Prescott E, Sørensen TI, Sogaard J. 2005. The total lifetime health cost savings of smoking cessation to society. *Eur J Public Health* 15(6): 601–606.

Reported in Novotny TE, Lum K, Smith E, et al. 2009. Cigarettes butts and the case for an environmental policy on hazardous cigarette waste. *Int J Environ Res Public Health*. 6(5): 1691–705.

Scientific Advisory Committee on Tobacco Product Regulation (SACTob). 2002. Recommendation on health claims derived from ISO/FTC method to measure cigarette smoke. Geneva: WHO.

Sichletidis L, Tsiotsios I, Chloros D, et al. 2005. The prevalence of smoking in high school students in Northern Greece. *Pneumon* 18: 93–98. [In Greek]

Slade J, Connolly GN, Lymperis D. 2002. Eclipse: does it live up to its health claims? *Tobacco Control* 11 Suppl 2: ii 64–70.

Special Eurobarometer 332, Tobacco. European Commission, 2009.

Stead LF, Lancaster T. 2005. Intervention for preventing tobacco sales to minors. *Cochrane Database Syst Rev* 3rd Quarter (3): CD001118.

Stratton K, Shetty P, Wallace R, Bondurant S. 2001. *Clearing the Smoke. Assessing the Science Base for Tobacco Harm Reduction*. Washington, DC: National Academy Press, 2001.

Szilagyi T. 2004 *Tobacco Control in Hungary: Past, Present, Future*. Health 21 Hungarian Foundation, April 2004, Budapest. <http://www.policy.hu/tszilagyi/content.html>.

Tauras JA, O'Malley PM, Johnston LD. 2001. *Effects of Price and Access Laws on Teenage Smoking Initiation: A National Longitudinal Analysis*. National Bureau of Economic Research Working Paper 8331. Cambridge, MA: National Bureau of Economic Research. June 2001. <http://www.nber.org/papers/w8331>.

Tauras JA. 1999. *The transition to smoking cessation: evidence from multiple failure duration analysis*. NBER Working Paper 7412. Cambridge, MA: National Bureau of Economic Research.

*The Internal Market*. 1992. Cigarette Marketing Opportunities. <http://legacy.library.ucsf.edu/tid/qie41a00/pdf?search=%22cigarette%20market%20in%20greece%22>. Accessed November 9, 2011.

Tobacco control in the EU. [http://ec.europa.eu/health/archive/ph\\_information/documents/tobacco\\_control\\_en.pdf](http://ec.europa.eu/health/archive/ph_information/documents/tobacco_control_en.pdf). Accessed November 9, 2011.

*Tobacco Reporter*. Market Reports. [http://www.tobaccoreporter.com/home.php?id=119&cid=208&article\\_id=11061](http://www.tobaccoreporter.com/home.php?id=119&cid=208&article_id=11061). Accessed November 9, 2011.

Tomar S. 2002. Snuff use and smoking in U.S. men. Implications for harm reduction. *American Journal of Preventive Medicine* 23(3): 143.

Vagropoulos I, Tsilchorozidou T, Tsinopoulos G, Salonikidou Z, Mouratova M, Giavropoulou M, Grigoriadis N. 2006. Smoking habits among the hospital staff of a general hospital in Northern Greece: a long way for smoke-free hospitals. *Monaldi Arch Chest Dis* 65(3): 160–164.

Vardavas C, Behrakis P. 2009. Greece: action at last! *Tobacco Control* 18:78–81, downloaded from [tobaccocontrol.bmj.com](http://tobaccocontrol.bmj.com) on March 25, 2009.

Vardavas C, Connolly G, Karamanolis K, Kafatos A. 2009. Adolescents perceived effectiveness of the proposed European graphic tobacco warning labels. *Eur J Public Health*.

Vardavas C, Kafatos A. 2006. Smoking policy and prevalence in Greece. An overview. *Eur J Public Health* 17(2): 211–213.

Vardavas CI, Bouloukaki I, Linardakis M, Tzilepi P, Tzanakis N and Kafatos A. 2009. Smoke-free hospitals in Greece: Personnel perceptions, compliance and smoking habit. *Tobacco Induced Diseases* 5:8.

Vardavas CI, Chatzi L, Patelarou E, Plana E, Sarri K, Kafatos A, Koutis AD, Kogevinas M. 2010. Smoking and smoking cessation during early pregnancy and its effect on adverse pregnancy outcomes and fetal growth. *Eur J Pediatr* 169(6): 741–8.

Vardavas CI, Dimitrakaki C, Schoretsaniti S, Patelarou E, Filippidis FT, Connolly GN, Tountas Y. 2011. The role of the non-smoker in enforcing smoke-free laws. *J Public Health Policy* Feb 32(1): 46–59. Epub 2010 Dec 9.

Vardavas CI, Kafatos A. 2007. Bans on smoking in public places. Policy enforcement needed? *Lancet* 370:133-3.

Vardavas CI, Patelarou E, Chatzi L, Roumeliotaki T, Sarri K, Murphy S, Koutis A, Kafatos AG, Kogevinas M. Factors associated with active smoking, quitting, and secondhand smoke exposure among pregnant women in Greece. *J Epidemiol* 2010; 20(5): 355–62. Epub 2010 Jun 26. PubMed PMID: 20595782.

Vardavas CI, Tzatzarakis MN, Plada M, Tsatsakis AM, Papadaki A, Saris WH, Moreno LA, Kafatos AG; HELENA Heraklion Study Group. 2010. Biomarker evaluation of Greek adolescents' exposure to secondhand smoke. *Hum Exp Toxicol* Jun 29(6): 459–66. Epub 2009 Nov 25. PubMed PMID: 19939905.

Vogelgesang J. 2006. State of discussion in the EU. EU Commission on Health and Consumer Protection, Directorate-General. Second International Conference on Fire “Safer” Cigarettes; Harvard School of Public Health, December 11, 2006, Boston.

Wakefield M, Morley C, Horan JK, et al. 2002. The cigarette pack as image: new evidence from tobacco industry documents. *Tobacco Control* 11:73–80.

WHO Europe. *Tobacco: Facts about tobacco use*. Available at: <http://www.euro.who.int/en/whatwe-do/health-topics/disease-prevention/tobacco/facts-and-figures/facts-about-tobacco-use>. January 2011.

WHO study group on tobacco product regulation. 2008. *The Scientific Basis Of Tobacco Product Regulation*: second report of a WHO study group. WHO technical report series no. 951. Geneva: WHO. Available from [http://www.who.int/tobacco/global\\_interaction/tobreg/publications/9789241209519.pdf](http://www.who.int/tobacco/global_interaction/tobreg/publications/9789241209519.pdf). Accessed October 26, 2011.

WHO, Regional Office for Europe. 2002. The European Strategy for Tobacco Control (ESTC). Copenhagen.

WHO. 2010. Technical manual on tobacco tax administration. Geneva, Switzerland.

WHO. 2007. *The European Tobacco Control Report*.

World Bank. Website. Chapter 3. Do smokers know their risks and bear their costs? Available at: <http://www1.worldbank.org/tobacco/book/html/chapter3.htm>. Accessed December 2010.

WHO. 2011. Economics of tobacco toolkit: assessment of the economic costs of smoking. Geneva, Switzerland.

WHO. 2011. *WHO Report on the Global Tobacco Epidemic*. Geneva, Switzerland: World Health Organization, 2011.

Youth Intervention- State and Community Interventions Category, [http://www.cdc.gov/tobacco/stateandcommunity/bp\\_userguide\\_youth/pdfs/youth\\_engagement.pdf](http://www.cdc.gov/tobacco/stateandcommunity/bp_userguide_youth/pdfs/youth_engagement.pdf). Accessed on November 10, 2011.



## APPENDIX

### *Adult and youth smoking prevalence in Greece*

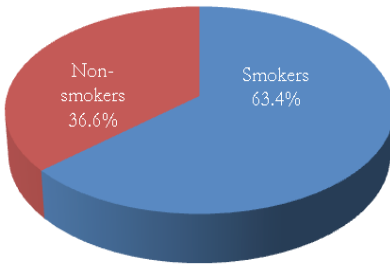
Greece has one of the highest adult smoking rates in the world. The *World Health Statistics 2010* report estimates the smoking prevalence of males and females  $\geq 15$  years as 63.4% and 39% respectively.



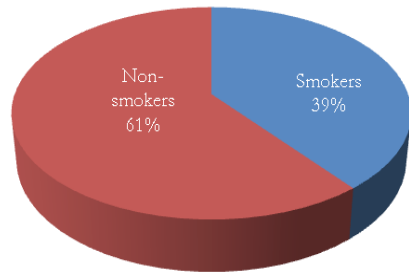
*Dr. Costas Stefanis, Greek Minister of Health and Welfare, signing WHO Framework Convention on Tobacco Control*

Figure A

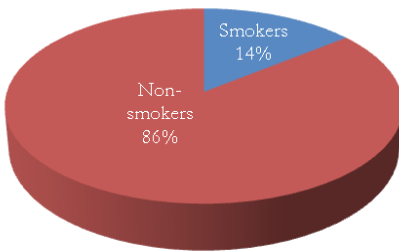
**Prevalence of smoking any tobacco product among male adults aged  $\geq 15$  years**



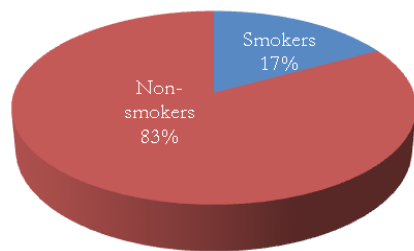
**Prevalence of smoking any tobacco product among female adults aged  $\geq 15$  years**



**Prevalence of current tobacco use among female adolescents aged 13-15 years**



**Prevalence of current tobacco use among male adolescents aged 13-15 years**



Source: World Health Statistics 2010, *World Health Organization*

A comparison of Greece with other European countries in relation to youth smoking in 2007 shows that current cigarette use (use within the last 30 days) is relatively low (22%), but still higher than just a handful of other European countries. Furthermore, the proportion of Greek adolescents experimenting with cigarette smoking at age 13 or younger is lowest among European countries, second only to Armenia.

**Table A**

Cigarette use during the last 30 days by gender. 1995–2007. Percentages.

Country	Boys				Girls				All Students			
	1995	1999	2003	2007	1995	1999	2003	2007	1995	1999	2003	2007
Austria	-	-	48	42	-	-	56	48	-	-	49	45
Belgium (Flanders)	-	-	33	24	-	-	30	23	-	-	32	23
Bulgaria	-	48	42	36	-	51	50	44	-	50	46	40
Croatia	34	40	36	38	28	36	37	38	32	38	36	38
Cyprus	32	25	33	29	15	9	18	17	23	16	25	23
Czech Republic	37	46	43	36	31	43	43	45	34	44	43	41
Denmark	24	34	27	-	32	41	32	-	28	38	30	-
Estonia	37	41	40	32	22	24	33	27	28	32	37	29
Faroe Islands	40	42	42	31	43	41	41	34	42	41	41	33
Finland	36	44	35	29	39	43	41	31	37	43	38	30
France	-	41	31	29	-	47	36	31	-	44	33	30
Germany (6 Bundesl.)	-	-	43	31	-	-	46	35	-	-	45	33
Greece	-	34	27	23	-	36	30	21	-	35	29	22
Greenland	-	62	56	-	-	71	65	-	-	67	60	-
Hungary	36	37	39	31	32	35	40	34	34	36	39	33
Iceland	30	26	20	15	33	30	20	18	32	28	20	16
Ireland	37	32	28	19	45	42	37	27	41	37	33	23
Isle of Man	-	-	23	19	-	-	36	28	-	-	30	24
Italy	36	37	35	34	37	43	40	39	36	40	38	37
Latvia	-	48	46	44	-	34	36	39	-	40	40	41
Lithuania	34	49	49	39	18	30	33	29	25	40	41	34
Malta	33	29	28	26	30	34	26	26	31	32	27	26
Netherlands	-	-	32	27	-	-	31	33	-	-	31	30
Norway	33	36	24	17	39	44	32	22	36	40	28	19
Poland	34	39	35	22	23	28	27	20	28	33	31	21
Portugal	22	32	28	20	25	30	27	18	24	31	28	19
Romania	-	31	32	26	-	20	26	23	-	24	28	25
Russia (Moscow)	-	48	44	38	-	42	44	36	-	45	44	37
Slovak Republic	34	40	39	35	20	34	36	38	27	37	37	37
Slovenia	26	36	35	28	27	38	38	31	26	36	36	29
Sweden	28	29	20	19	33	32	26	24	30	30	23	21
Switzerland	-	-	33	30	-	-	34	29	-	-	34	29
Ukraine	51	50	49	38	28	29	28	24	38	40	39	31
United kingdom	32	31	25	17	40	37	34	25	36	34	29	22
<b>Average (unw.) all</b>	<b>34</b>	<b>39</b>	<b>35</b>	<b>29</b>	<b>30</b>	<b>37</b>	<b>36</b>	<b>30</b>	<b>32</b>	<b>38</b>	<b>35</b>	<b>29</b>
<b>Average (unw.) 20 countries</b>	<b>34</b>	<b>37</b>	<b>34</b>	<b>28</b>	<b>30</b>	<b>34</b>	<b>33</b>	<b>28</b>	<b>32</b>	<b>35</b>	<b>33</b>	<b>28</b>



**Table B**

Frequency of lifetime cigarette use by gender. 2007. Percentages.

Country	Number of occasions												No response			
	0		1-2		3-5		6-9		10-19		20-39		40+		Boys	Girls
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls		
Armenia	53	92	19	6	7	1	4	0	2	0	10	0	1	0		
Austria	26	24	17	12	8	7	5	5	6	7	5	7	33	38	0	0
Belgium (Flanders)	52	54	14	12	5	6	3	4	5	5	3	4	17	16	1	1
Bulgaria	37	33	17	14	7	8	5	4	5	5	3	5	26	32	0	1
Croatia	36	31	14	16	7	8	4	5	5	7	5	6	30	27	0	0
Cyprus	47	62	16	13	6	4	3	3	4	3	4	3	21	12	1	0
Czech Republic	24	20	19	17	9	9	5	6	6	5	5	6	32	37	0	1
Estonia	20	30	20	18	9	11	7	6	7	8	5	6	32	22	1	0
Faroe Islands	25	28	16	18	8	7	7	4	7	5	4	5	33	33	0	1
Finland	40	40	14	12	6	6	4	5	4	7	4	5	27	25	0	0
France	42	38	17	17	7	7	4	5	6	6	4	6	20	20	0	0
Germany (7 Bundesl.)	31	31	17	14	8	7	5	5	7	8	6	8	27	28	0	0
Greece	54	55	15	15	6	6	2	3	3	4	3	4	16	13	0	0
Hungary	37	34	20	20	6	6	5	5	5	5	4	6	24	24	1	1
Iceland	65	62	10	7	4	5	3	4	3	3	2	4	13	15	1	0
Ireland	50	47	18	14	6	6	5	5	6	5	3	4	13	18	0	0
Isle of Man	55	40	12	14	6	7	4	5	4	9	4	5	16	21	0	0
Italy	41	36	15	13	7	8	5	6	5	7	4	6	24	24	1	1
Latvia	15	24	19	18	11	10	7	8	7	6	4	5	37	28	1	0
Lithuania	24	34	17	19	10	10	7	6	6	6	5	5	31	20	1	1
Malta	55	53	11	11	5	6	3	5	4	5	5	4	16	15	0	0
Monaco	55	39	16	12	8	11	3	5	4	3	2	4	11	26	0	0
Netherlands	48	44	14	12	5	5	3	5	4	5	3	4	22	26	0	0
Norway	57	51	14	14	5	6	4	5	4	4	3	3	12	16	1	1
Poland	42	46	20	17	8	9	5	5	4	5	2	3	18	15	1	0
Portugal	47	48	18	18	6	9	5	6	6	5	4	4	15	10	0	0
Romania	42	50	19	18	7	8	5	5	6	3	3	3	18	14	1	0
Russia	27	43	15	16	9	7	4	4	5	4	4	4	37	22	1	1
Slovak Republic	26	27	16	16	10	9	5	7	8	7	4	6	30	28	1	0
Slovenia	39	39	19	17	7	7	5	5	5	5	4	4	21	23	0	0
Sweden	52	47	15	12	5	7	4	5	4	6	3	5	17	18	0	0
Switzerland	40	41	15	16	10	10	5	6	5	6	4	5	20	15	1	1
United Kingdom	54	43	17	15	5	9	5	5	4	6	3	6	13	18	0	0
<b>Average (unw.)</b>	<b>41</b>	<b>42</b>	<b>16</b>	<b>15</b>	<b>7</b>	<b>7</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>5</b>	<b>22</b>	<b>21</b>	<b>0</b>	<b>0</b>
Denmark	38	42	16	8	7	8	5	4	7	6	3	4	24	27	0	0
Spain	59	49	8	12	6	7	3	3	3	4	3	3	17	23	-	-
USA	65	66	18	17	-	-	-	-	17a)	17a)	-	-	-	-	-	-

**Table C**

Age of onset for cigarette use. Proportion (%) of boys and girls having tried cigarettes and having smoked cigarettes on a daily basis at the age of 13 or younger.

Country	First cigarette			Daily smoking			First cigarette, no response	Daily smoking, no response
	Boys	Girls	All	Boys	Girls	All	(All)	(All)
Armenia	24	5	13	4	0	2	0	4
Austria	52	49	50	10	9	10	1	1
Belgium (Flanders)	26	25	25	4	6	5	1	2
Bulgaria	34	32	33	7	8	7	1	2
Croatia	39	31	35	11	6	9	0	1
Cyprus	28	16	22	8	5	6	1	2
Czech Republic	58	56	57	14	12	13	0	2
Estonia	66	50	58	17	8	12	1	3
Faroe Islands	46	47	47	11	12	11	1	7
Finland	42	37	39	9	7	8	0	1
France	34	33	34	7	7	7	0	1
Germany (7 Bundesl.)	50	45	47	9	11	10	0	1
Greece	21	12	16	3	1	2	0	2
Hungary	40	40	40	7	6	7	1	2
Iceland	21	18	20	4	5	5	0	1
Ireland	31	33	32	6	10	8	0	3
Isle of Man	33	41	37	8	11	10	0	1
Italy	30	27	28	6	5	5	1	2
Latvia	67	52	59	16	8	12	1	4
Lithuania	59	43	51	10	4	7	1	4
Malta	22	26	24	6	6	6	0	1
Monaco	18	36	27	1	7	4	0	1
Netherlands	31	31	31	5	8	6	0	1
Norway	28	29	28	5	6	5	1	4
Poland	36	26	31	7	4	6	1	4
Portugal	36	32	34	5	5	5	0	1
Romania	36	22	29	6	2	4	1	3
Russia	54	31	43	14	7	10	1	4
Slovak Republic	55	45	50	16	12	14	0	2
Slovenia	39	33	36	6	5	5	0	2
Sweden	30	29	29	6	7	6	1	6
Switzerland	38	32	35	6	5	5	1	2
Ukraine	47	27	37	11	5	8	1	3
United Kingdom	29	36	32	7	11	9	0	2
<b>Average (unw.)</b>	<b>38</b>	<b>33</b>	<b>36</b>	<b>8</b>	<b>7</b>	<b>1</b>	<b>2</b>	
Denmark	34	28	31	6	8	7	1	6
Spain	26	28	27	6	7	6	-	-
USA	-	-	16	-	-	2	-	-

## Tobacco Agriculture

The EU has been supporting tobacco cultivation since 1970 through a Common Market Organization (CMO) with an annual budget of some €1 billion. The market has been substantially reformed, initially in 1992, then again in 1998 and most recently in 2004. The total value of the tobacco crop in 2000, which is the total amount paid to the farmers by the processors, was €269 million. The total amount paid to the farmers in premiums was €953 million. Put simply, a crop worth €269 million cost European taxpayers €953 million to grow.

The Commission's response at the time was to strengthen its commitment to finding a sustainable policy approach for the tobacco regime, based on an assessment of the economic, social, and environmental aspects of the sector. Thus, in May 2002, in its Legislative and Work Programme for 2003, the Commission decided to subject its policy reflections on the tobacco sector to an Extended Impact Assessment (EIA), in accordance with its "sustainable and inclusive economy priority." The Commission's principal conclusion, from the EIA for the tobacco sector, was that a stepwise decoupling of the existing tobacco premium, accompanied by a phasing out of the Tobacco Fund and the setting up, within the second pillar of the CAP, of a financial envelope for restructuring tobacco-producing areas, would provide the most sustainable policy for the tobacco sector in the future. This option was found to balance adequately the need to break the link between supporting individual producer incomes and the growing of tobacco, while providing funding to reorient the sector toward other sources of income. The 2005 CAP reform for tobacco aimed to phase out the subsidy. From 2006 to 2009, a decoupled payment was provided under the Single Farm Payment Scheme. This has had a great impact on tobacco growers' income and employment.

**Table D**

<b>Decoupling of Tobacco Production According to the CAP Reform of Tobacco</b>		
<b>Country</b>	<b>Decoupling</b>	<b>Article 69 Application</b>
Austria	100%	None
Belgium	100%	None
Germany	40%	None
Greece	100%	= 2% of the ceiling for the tobacco sector
France	40%	None
Italy	40% (for the region of Puglia=100%)	None
Portugal	50%	None
Spain	40%	= 5% of the ceiling for the tobacco sector

*Source: DG AGR*

**Table E**

<b>Tobacco Cultivation Data 1997–2009</b>				
<b>Year</b>	<b>Tobacco producers</b>	<b>Cultivated area (in 1,000 stremmas)</b>	<b>Production (in 1,000 tons)</b>	<b>Subsidies (in € millions)</b>
<b>1970</b>	-	983	95	-
<b>1980</b>	-	893	117	-
<b>1990</b>	-	788	136	-
<b>1995</b>	-	652	148	-
<b>1997</b>	64,393	627.5	123	311.42
<b>1998</b>	63,647	620.71	123	331.81
<b>1999</b>	63,161	599.96	124	358.03
<b>2000</b>	60,828	569.20	122	366.61
<b>2001</b>	58,704	547.69	118	361.46
<b>2002</b>	54,963	527.33	116	360.27
<b>2003</b>	51,312	507.91	111	344.01
<b>2004</b>	49,769	560	112	349.45
<b>2005</b>	47,796	545	108	334.17
<b>2006</b>	n/a	234	37	340
<b>2007</b>	14,701	185	31	340
<b>2008</b>	14,000	160	21	340
<b>2009</b>	n/a	161	n/a	340

*Source: Ministry of Agriculture, Hellenic Statistical Authority & own calculations*

## Multinational Tobacco Industries

Philip Morris International-PMI dominates domestic cigarette manufacturing with  $\approx 58\%$  of the industry sales. Karelia Tobacco Co. and SEKAP S.A. share the remainder (**Table F**).

**Table F**

Tobacco Manufacturing Industry Sales	
Company	Cigarette industry sales share (2008)
PMI Papastratos SA	$\approx 58\%$
Karelia Tobacco Co.	$\approx 31\%$
SEKAP SA	$\approx 9\%$

*Source: ICAP SA*

The cigarette import market is dominated by J T International Hellas SA, Imperial Tobacco Hellas SA, and British American Tobacco (BAT) Hellas SA, which control 80% of the market. Karelia Tobacco Co. and SEKAP SA share the rest of the industry sales (**Table G**).

**Table G**

Cigarette Import Companies' Sales	
Company	Cigarette Industry Sales Share (2008)
J T International Hellas SA	$\approx 32\%$
Imperial Tobacco Hellas SA	$\approx 26\%$
British American Tobacco (BAT) Hellas SA	$\approx 22\%$
Athanassiou SA	$\approx 12\%$

*Source: ICAP SA*

## Cigarette Prices and Taxation

Tax increases serve as a deterrent for smoking since youths and people from low socioeconomic status are price-sensitive. Continuous increases in cigarette taxes since 2000 have increased retail prices of cigarettes by more than €1.20. However, the inflation-adjusted retail MPPC price has declined through the review period (**Figure B**).

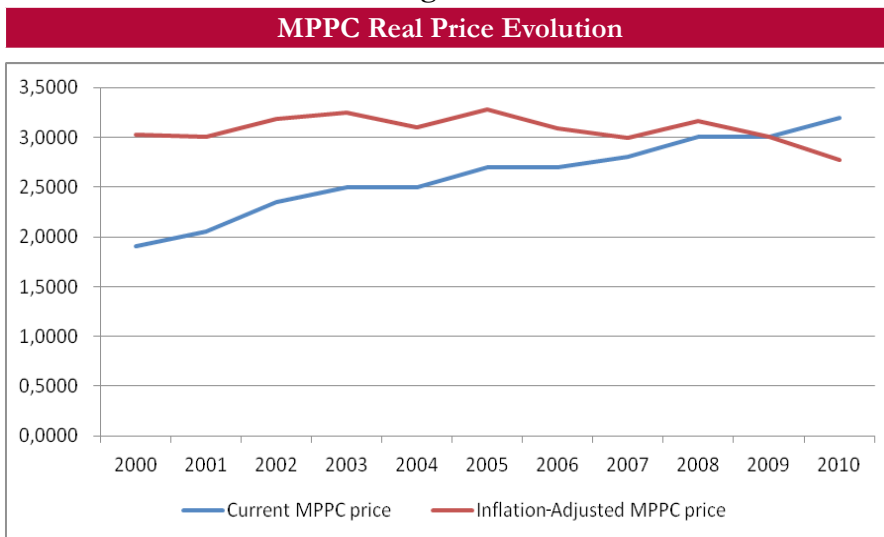
The structure of the excise tax in various tobacco products (cigars and cigarillos, fine-cut smoking tobacco, and other tobacco) in EU27 is presented (in **Tables I–K**).

**Table H**

<b>MPPC Real Price Evolution</b>		
<b>Year</b>	<b>Retail MPPC price (in €)</b>	<b>Inflation-adjusted MPPC price (in €) (base year=2009)</b>
<b>2000</b>	1.9076	3.0241
<b>2001</b>	2.0543	3.0047
<b>2002</b>	2.3478	3.1852
<b>2003</b>	2.5000	3.2514
<b>2004</b>	2.5000	3.0956
<b>2005</b>	2.7000	3.2827
<b>2006</b>	2.7000	3.0871
<b>2007</b>	2.8000	2.9911
<b>2008</b>	3.0000	3.1632
<b>2009</b>	3.0000	3.0000
<b>2010</b>	3.2000	2.7766

*Source: Ministry of Finance, Hellenic Statistical Authority*

**Figure B**



**Table I**

<b>MPPC Real Price Evolution Excise Duty Table for Cigars and Cigarillos (As of July 2011)</b>						
	Specific Excise		Ad Valorem Excise (as % of TIRSP)	VAT% (as % of TIRSP)	Ad Valorem Excise + VAT (as % of TIRSP)	Minimum duty (Article 3.1 Dir. 92/80) EUR/kg or 1000 pieces
	NatCurr	EUR				
<b>MS</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
AT		n/a	13.00%	16.67%	29.67%	40.00
BE		n/a	10.00%	17.36%	27.36%	64.40
BG	270.00	138.05	n/a	16.67%	n/a	
CY		90.00	n/a	15.00%	n/a	
CZ	1150.00	47.09	n/a	16.67%	n/a	
DE		14.00	1.47%	15.97%	17.44%	*
DK	198.00	26.54	10.00%	20.00%	30.00%	
EE		191.73	n/a	16.67%	n/a	
EL		n/a	34.00%	18.70%	52.70%	
ES		n/a	15.80%	15.25%	31.05%	
FI		n/a	25.00%	18.70%	43.70%	
FR		n/a	27.57%	16.39%	43.96%	89.00
HU	n/a	n/a	28.50%	20.00%	48.50%	
IE		261.066	n/a	17.36%	n/a	
IT		n/a	23.00%	16.67%	39.67%	19.55(*)
LT	80.00	23.17	n/a	17.36%	n/a	
LU		n/a	10.00%	13.04%	23.04%	15.00
LV	26.00	36.63	n/a	18.03%	n/a	
MT		16.90	n/a	15.25%	n/a	
NL		n/a	5.00%	15.97%	20.97%	
PL	244.40	62.08	n/a	18.70%	n/a	
PT		n/a	13%	18.70%	31.70%	
RO	273.00	64.00	n/a	19.35%	n/a	
SE	1120.00	121.50	n/a	20.00%	n/a	
SI		n/a	5.00%	16.67%	21.67%	
SK		72.86	n/a	16.97%	n/a	
UK	193.29	222.79	n/a	16.67%	16.67%	

Source: European Commission (Directorate General, Taxation and Customs Union)  
This table has been modified to take account of the new provisions contained in Council Directive 2010/12/EU, which went into effect January 1, 2011.

**TIRSP** = Tax-included retail selling price (retail selling price, **all** taxes included)

(\*) for cigarillos

**Table J**

MPPC Real Price Evolution Excise Duty Table for Fine-Cut Smoking Tobacco (As of July 2011)								
	Specific Excise		Ad Valorem Excise	VAT%	Ad Valorem Excise + VAT	Current WAP per kg		Minimum duty (Article 3.1 Dir. 92/80)
	NatCurr	EUR	(as % of TIRSP)	(as % of TIRSP)	(as % of TIRSP)	NatCurr	EUR	EUR/kg
MS	1	2	3	4	5	6	7	8
AT		n/a	50.00%	16.67%	66.67%		96.40	47.50
BE		7.9610	31.50%	17.36%	48.86%		81.7937	43.13
BG	130.00	66.47	n/a	16.67%	n/a			
CY		60.00	n/a	15.00%	n/a			
CZ	1134.00	54.87	n/a	16.67%	n/a			
DE		41.65	14.30%	15.97%	30.27%		101.33	*
DK	652.50	87.56	n/a	20.00%	n/a			
EE		55.79	n/a	16.67%	n/a			
EL		n/a	67.00%	18.70%	85.70%		144.77	108.5775
ES		8.00	41.50%	15.25%	56.75%		90.11	75.00
FI		10.00	52.00%	18.70%	70.70%		123.17	68.50
FR		n/a	58.57%	16.39%	74.96%		170.28	105
HU	n/a	n/a	52.00%	20.00%	72.00%	13463.00	49.16	28.70
IE		220.301	n/a	17.36%	n/a			
IT		n/a	56.00%	16.67%	72.67%			79.35
LT	139.00	40.26	n/a	17.36%	n/a			
LU		5.60	31.50%	13.04%	44.54%		60.26	24.82
LV	34.00	47.90	n/a	18.03%	n/a			
MT		75.40	n/a	15.25%	n/a			
NL		50.45	13.00%	15.97%	28.97%		116.12	65.54
PL	102.32	25.99	31.41%	18.70%	50.11%	291.06	73.93	
PT		n/a	60%	18.70%	78.70%		85.74	
RO	345.50	81.00	n/a	19.35%	n/a			
SE	1560.00	169.23	n/a	20.00%	n/a			
SI		40.00	n/a	16.67%	n/a			
SK		66.96	n/a	16.97%	n/a			
UK	151.90	175.08	n/a	16.67%	16.67%			

Source: European Commission (Directorate General, Taxation and Customs Union)

This table has been modified to take account of the new provisions contained in Council Directive 2010/12/EU, which went into effect January 1, 2011.

**TIRSP** = Tax-included retail selling price (retail selling price, **all** taxes included)

**WAP** = Weighted average price



**Table K**

Excise Duty Table for Other Smoking Tobaccos						
MS	Specific Excise		Ad Valorem Excise	VAT%	Ad Valorem Excise + VAT	Minimum duty (Article 3.1 of Dir. 92/80)
	NatCurr	EUR	(as % of TIRSP)	(as % of TIRSP)	(as % of TIRSP)	EUR/kg
	1	2	3	4	5	6
AT		n/a	34.00%	16.67%	50.67%	64.40
BE		7.9610	31.50%	17.36%	48.86%	43.13
BG	130.00	66.47	n/a	16.67%	n/a	
CY		60.00	n/a	15.00%	n/a	
CZ	1340.00	54.87	n/a	16.67%	n/a	*
DE		15.66	13.13%	15.97%	29.10%	22.00
DK	602.50	80.85	n/a	20.00%	n/a	
EE		55.79	n/a	16.67%	n/a	
EL		n/a	67.00%	18.70%	85.70%	122.8875
ES		n/a	28.40%	15.25%	43.65%	
FI		8.50	48.00%	18.70%	66.70%	89.00
FR		n/a	52.42%	16.39%	68.81%	60.00
HU	n/a	n/a	32.50%	20.00%	52.50%	28.70
IE		181.117	n/a	17.36%	n/a	19.55(*)
IT		n/a	24.78%	16.67%	41.45%	
LT	139.00	40.26	n/a	17.36%	n/a	15.00
LU		5.60	31.50%	13.04%	44.54%	24.82
LV	34.00	47.90	n/a	18.03%	n/a	
MT		75.40	n/a	15.25%	n/a	
NL		50.45	13.00%	15.97%	28.97%	65.54
PL	102.32	25.99	31.41%	18.70%	50.11%	
PT		n/a	45%	18.70%	63.70%	
RO	345.50	81.00	n/a	19.35%	n/a	
SE	1560.00	169.23	n/a	20.00%	n/a	
SI		25.00	n/a	16.67%	n/a	
SK		66.96	n/a	16.97%	n/a	
UK	84.98	97.95	n/a	16.67%	16.67%	

Source: European Commission (Directorate General, Taxation and Customs Union)

This table has been modified to take account of the new provisions contained in Council Directive 2010/12/EU, which went into effect January 1, 2011.

**TIRSP** = Tax-included retail selling price (retail selling price, **all** taxes included)

## Tobacco Products Releases and Tax Revenues

Although tobacco-specific taxes and cigarette prices keep rising, Greek smokers were not greatly deterred, at least till 2007. Shifting from cigarettes to RYO tobacco looks like an easy and economical way to continue smoking (Table L).

**Table L**

Releases for Consumption of Cigarettes 2002–2010 (In 1,000 pieces)										
EU-27	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Austria	15,358,733	15,062,233	14,463,704	13,280,238	13,883,290	13,583,454	13,187,828	13,383,631	13,759,444	
Belgium	14,314,440	14,287,269	13,634,471	13,384,628	13,385,056	12,492,580	11,916,326	11,616,849	12,557,608	
Cyprus	2,017,325	1,985,432	1,655,603	1,921,873	1,888,343	1,951,568	2,093,581	1,874,070	1,983,177	
Czech Republic	19,096,775	25,613,577	22,459,838	26,231,340	28,262,528	30,595,808	16,600,608	20,931,982	21,669,790	
Denmark	7,156,722	7,872,682	8,177,705	7,762,472	8,215,985	7,937,867	7,902,799	7,867,506	7,701,904	
Estonia	2,294,900	2,239,173	2,189,850	2,421,679	2,277,728	3,726,327	1,146,673	2,653,456	1,237,072	
Finland	4,923,954	4,798,725	4,929,521	5,078,000	4,928,000	4,928,000	6,983,000	3,522,179	4,413,445	
France	80,529,400	69,647,800	54,924,400	54,810,412	55,772,177	54,944,928	53,589,478	54,980,028	54,797,418	
Germany	145,152,720	132,603,170	111,716,210	95,826,690	93,465,500	91,497,320	87,978,850	86,606,770	83,564,540	
Greece	31,987,518	32,369,492	35,185,190	34,408,444	33,383,128	35,246,482	30,278,385	34,050,131	24,004,753	
Hungary	18,319,609	19,435,456	13,853,849	14,184,287	15,810,596	16,685,080	17,407,571	17,429,547	11,857,780	
Ireland	7,015,555	6,294,855	5,330,593	5,419,638	5,857,276	5,401,702	4,940,567	4,607,146	4,127,989	
Italy	105,215,836	101,581,626	98,846,737	92,822,302	93,807,356	92,821,293	91,994,337	89,148,720	87,031,399	
Latvia	3,787,340	3,994,500	5,062,364	4,197,236	4,753,247	3,335,879	3,869,761	2,294,402	1,770,518	
Lithuania	4,979,270	3,666,203	2,957,084	3,721,841	5,216,700	4,724,283	5,682,676	4,187,810	2,497,415	
Luxembourg	5,780,790	5,610,803	6,374,169	5,309,000	4,745,000	5,045,601	4,499,211	4,260,325	4,159,369	
Malta	596,247	576,900	565,376	589,151	578,686	521,582	575,450	565,379	570,860	
Netherlands	17,024,215	17,080,472	14,999,591	13,654,000	13,963,000	15,190,013	14,905,215	13,384,650	13,450,776	
Poland	82,047,368	80,244,262	75,283,084	87,553,826	79,769,525	83,815,366	100,302,085	41,016,183	64,895,232	
Portugal	17,924,867	19,623,143	18,069,016	17,134,790	18,963,003	12,777,367	12,906,200	11,922,976	14,199,498	
Slovak Republic	4,989,533	2,997,609	4,564,499	9,410,743	4,786,986	12,841,417	4,367,174	11,233,334	7,377,590	
Slovenia	4,794,979	4,611,836	4,487,482	4,556,764	4,947,442	4,663,247	5,009,949	5,138,870	4,924,472	
Spain	88,600,500	93,711,449	95,305,513	92,699,536	90,097,578	89,102,765	90,288,827	81,356,510	72,430,751	
Sweden	7,656,792	7,282,187	7,281,953	6,859,511	6,436,000	6,436,000	6,071,000	6,311,000	6,311,000	
UK	56,088,000	53,952,000	52,620,000	50,244,000	48,962,000	45,749,000	45,733,000	47,575,000	45,234,000	
Bulgaria	22,612,855	26,245,083	23,043,814	20,596,677	14,836,821	19,806,400	21,884,261	17,407,050	11,735,104	
Romania	na.	na.	na.	36,490,906	41,025,373	37,935,340	34,607,959	31,258,652	20,784,251	
Total EU 15	604,730,042	581,977,905	541,858,772	508,693,661	507,160,365	493,154,372	483,175,023	470,593,421	447,743,894	
Total EU 10	142,923,346	145,364,948	133,079,029	154,788,740	148,291,781	162,859,997	157,055,528	107,325,033	118,783,906	
Total EU ex RO	770,266,243	753,587,937	697,981,616	684,079,078	670,288,967	675,820,769	662,114,812	595,325,504	578,262,904	

Source: 2002/2003/2004: KPMG study 2005–2010: Questionnaire to Member States

**Table M**

**Releases for Consumption of Fine-Cut Tobacco 2002-2010 (In kgs)**

EU-27	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	259,000	272,000	298,000	396,000	422,900	467,332	510,165	521,032	573,619
Belgium	8,417,005	8,326,703	8,429,022	8,197,808	9,168,346	7,477,684	6,447,491	7,548,223	8,579,221
Cyprus	62,000	97,000	152,000	170,518	192,799	231,349	230,154	247,461	289,466
Czech Republic*	629,400	850,400	190,300	423,300	481,957	1,264,129	172,651	644,127	767,107
Denmark	902,200	855,200	675,300	577,000	552,000	482,900	458,700	438,683	414,887
Estonia	8,000	8,000	10,000	12,680	10,680	20,260	21,230	82,134	114,495
Finland*	949,000	931,000	880,000	883,000	796,000	764,930	757,640	937,842	537,077
France	5,720,900	5,980,000	6,969,500	7,008,800	7,107,073	7,705,591	7,277,100	7,772,266	8,076,630
Germany	14,441,300	14,834,100	15,400,000	14,700,900	18,747,400	22,381,170	21,849,270	24,403,690	25,486,420
Greece	800,700	819,000	964,000	1,038,884	1,247,809	1,377,769	1,478,900	1,761,044	2,215,555
Hungary	757,701	1,159,668	1,027,501	895,180	739,374	1,261,150	2,268,255	2,429,481	4,140,290
Ireland	135,568	111,904	112,320	95,972	107,264	122,848	127,057	219,985	215,773
Italy	285,520	324,510	463,255	593,460	677,589	806,667	1,081,994	1,397,534	1,841,553
Latvia	6,739	7,475	8,166	13,998	18,597	19,583	23,577	24,792	34,124
Lithuania	na	57,151	14,306	11,500	12,718	14,678	16,457	19,923	30,136
Luxembourg	3,194,000	2,983,000	3,006,000	2,970,423	2,845,418	3,606,998	3,412,713	3,483,497	3,896,870
Malta	19,060	19,850	27,170	30,850	27,290	27,800	25,434	21,712	38,372
Netherlands	13,130,839	12,943,061	12,087,666	10,970,000	10,811,000	10,682,228	10,261,644	9,568,772	9,016,855
Poland***	1,060,000	1,727,000	2,583,000	828,000	496,000	464,350	330,160	5,272,299	4,079,626
Portugal	302,830	287,370	326,450	391,470	358,480	477,496	386,755	504,289	854,174
Slovak Republic	33,527	19,837	24,000	13,000	26,000	63,415	10,771	31,884	36,131
Slovenia	30,445	28,392	26,642	16,040	19,120	21,861	24,333	31,760	42,284
Spain	1,346,559	1,865,041	2,356,203	2,977,489	2,554,397	3,148,536	4,131,748	5,476,524	5,309,853
Sweden	886,000	825,000	909,000	966,000	800,000	672,000	250,000	300,000	315,000
UK	2,864,000	2,893,000	3,052,000	3,189,000	3,454,000	3,644,000	4,154,000	5,076,000	5,653,000
Bulgaria	500	700	1,300	2,000	8,300	12,922	25,860	51,208	283,426
Romania	na	na	na	na	na	26,479	na	na	na
Total EU 15	53,635,421	54,250,888	55,928,717	54,956,206	59,649,676	63,818,149	62,585,177	69,409,381	73,076,487
Total EU 10	2,606,872	3,774,773	4,063,085	2,415,066	2,024,535	3,388,575	3,132,002	8,805,573	9,572,031
Total EU 27 (ex. RO)	56,242,793	58,026,361	59,993,102	57,373,272	61,682,511	67,219,646	65,743,039	78,266,162	82,931,944

Source: 2002/2003/2005: KPMG study 2004-2010: Questionnaire to Member States

**Table N**

<b>Tax from Cigarette Releases 1998–2010 (In millions €)</b>			
<b>Year</b>	<b>Value (in millions €)</b>	<b>Excise tax (in millions €)</b>	<b>VAT (in millions €)</b>
1998	2,483	1,426	353
1999	2,827	1,636	397
2000	3,010	1,727	406
2001	3,399	1,952	553
2002	3,569	2,037	486
2003	3,759	2,156	515
2004	3,810	2,185	535
2005	3,804	2,223	563
2006	3,920	2,314	593
2007	4,317	2,538	619
2008	3,857	2,260	574
2009	4,551	2,666	691
2010	3,758	2,465	636

*Source: Ministry of Finance, Hellenic Statistical Authority*

**Table O**

<b>Tax from 1998–2010 (In millions €)</b>			
<b>Year</b>	<b>Value (in millions €)</b>	<b>Excise tax (in millions €)</b>	<b>VAT (in millions €)</b>
1998	n/a	5	2
1999	25	7	4
2000	37	10	6
2001	38	10	6
2002	42	10	6
2003	39	10	6
2004	45	11	7
2005	49	12	7
2006	50	13	8
2007	53	14	9
2008	56	14	9
2009	56	14	9
2010	54	17	10

*Source: Ministry of Finance, Hellenic Statistical Authority*

**Table P**

<b>Tax from Fine-Cut Smoking Tobacco 1998–2010 (In millions €)</b>			
<b>Year</b>	<b>Value (in millions €)</b>	<b>Excise tax (in millions €)</b>	<b>VAT (in millions €)</b>
1998	15	9	2
1999	43	26	7
2000	50	29	8
2001	97	41	11
2002	86	51	13
2003	n/a	n/a	n/a
2004	n/a	n/a	n/a
2005	n/a	n/a	n/a
2006	148	86	23
2007	163	95	26
2008	170	100	27
2009	202	118	32
2010	317	213	57

*Source: Ministry of Finance, Hellenic Statistical Authority*

**Table Q**

<b>Tax Revenue from Other Smoking Tobaccos 1998–2010 (in millions €)</b>			
<b>Year</b>	<b>Value (in millions €)</b>	<b>Excise tax (in millions €)</b>	<b>VAT (in millions €)</b>
1998	19	11	3
1999	48	29	8
2000	55	32	9
2001	102	60	12
2002	92	55	14
2003	101	61	15
2004	117	67	17
2005	127	75	20
2006	153	89	24
2007	167	97	27
2008	176	103	28
2009	207	122	33
2010	323	217	58

*Source: Ministry of Finance, Hellenic Statistical Authority*

Increases in taxes on and prices of tobacco products are by far the best buys in tobacco control because they can significantly reduce tobacco use through lower initiation and increased cessation, especially among young people and the poor. Increases in tobacco excise taxes increase prices and reduce the prevalence of adult tobacco use. The effectiveness of tax and price policies in tobacco control has been recently documented in detail.

## Cigarette Pack (MPPC) Breakdown: Retail Value RSP - € - Current Prices

**Table R**

Cigarette Pack (MPPC) Breakdown: Retail Value RSP 1992–2011 (in €)									
Year	MPPC	Total tax (inc. VAT)	% Share of total tax (inc. VAT)	Tobacco industry revenue	% Share of tobacco industry	Wholesaler revenue	% Share of wholesaler	Retailer revenue	% Share of retailer
1992	0.5869	0.424	72.25%	0.098	16.76%	0.015	2.58%	0.049	8.41%
1993	0.7337	0.530	72.25%	0.123	16.76%	0.019	2.58%	0.062	8.41%
1994	1.1739	0854	72.75%	0.193	16.46%	0.030	2.59%	0.096	8.20%
1995	1.4087	1.025	72.75%	0.232	16.46%	0.036	2.59%	0.116	8.20%
1996	1.4674	1.067	72.75%	0.242	16.46%	0.038	2.59%	0.120	8.20%
1997	1.6141	1.174	72.75%	0.266	16.46%	0.042	2.59%	0.132	8.20%
1998	1.7608	1.281	72.75%	0.290	16.46%	0.046	2.59%	0.144	8.20%
1999	1.9076	1.388	72.75%	0.314	16.46%	0.049	2.59%	0.157	8.20%
2000	1.9076	1.388	72.75%	0.314	16.46%	0.049	2.59%	0.157	8.20%
2001	2.0543	1.494	72.75%	0.338	16.46%	0.053	2.59%	0.169	8.20%
2002	2.3477	1.708	72.75%	0.39	16.46%	0.06	2.59%	0.19	8.20%
2003	2.50	1.826	73.04%	0.41	16.28%	0.06	2.59%	0.20	8.09%
2004	2.50	1.826	73.04%	0.41	16.28%	0.06	2.59%	0.20	8.09%
2005-Jan	2.70	1.964	72.75%	0.44	16.46%	0.07	2.59%	0.22	8.20%
2005-Apr	2.70	1.984	73.47%	0.43	16.02%	0.07	2.60%	0.21	7.91%
2006	2.70	1.984	73.47%	0.43	16.02%	0.07	2.60%	0.21	7.91%
2007	2.80	2.053	73.34%	0.45	16.10%	0.07	2.59%	0.22	7.96%
2008	3.00	2.204	73.47%	0.48	16.02%	0.08	2.60%	0.24	7.91%
2009	3.00	2.211	73.71%	0.48	15.88%	0.08	2.60%	0.23	7.81%
2010-Jan	3.20	2.527	78.97%	0.41	12.70%	0.09	2.66%	0.18	5.67%
2010-Mar	3.20	2.635	82.35%	0.34	10.66%	0.09	2.70%	0.14	4.29%
2010-May	3.20	2.742	85.70%	0.28	8.64%	0.09	2.74%	0.09	2.93%
2011	3.20	2.670	83.43%	0.32	10.01%	0.09	2.71%	0.12	3.85%

*Source: Ministry of Finance, Hellenic Statistical Authority & own calculations (figures may not sum up to 100% due to rounding)*

In an attempt to react to the increased taxation of tobacco products, many manufacturers also include a cheaper brand in their portfolio to meet the needs of Greek consumers or absorb a proportion of the tax.

## Tobacco Taxes' Contribution to the Greek Economy

**Table S**

<b>Tobacco Tax Revenues Contribution to Total &amp; Indirect Tax Revenues 2001–2010 (in millions €)</b>			
<b>Year</b>	<b>Tobacco tax revenues (inc. VAT) (in millions €)</b>	<b>% Contribution to indirect tax revenues</b>	<b>% Contribution to total tax revenues</b>
<b>2001</b>	2.505	12.83%	7.55%
<b>2002</b>	2.523	12.45%	7.30%
<b>2003</b>	2.672	12.85%	7.61%
<b>2004</b>	2.722	12.61%	7.30%
<b>2005</b>	2.788	12.25%	6.92%
<b>2006</b>	2.908	11.35%	6.65%
<b>2007</b>	3.191	11.36%	6.72%
<b>2008</b>	2.835	9.97%	5.82%
<b>2009</b>	3.358	13.09%	7.21%
<b>2010</b>	3.102	9.99%*	5.50%*

*Source: Ministry of Finance, Hellenic Statistical Authority, Eurostats & own calculations*

*\* estimations*

The RSP of the MPPC should be almost €4.40 euros and the per MPPC total tax €3.694, so as the total tax revenues in 2010 reach the percentage revenue level of 2003.

## Cigarette Pack (MPPC) Breakdown - Retail Value RSP - € - Current Prices

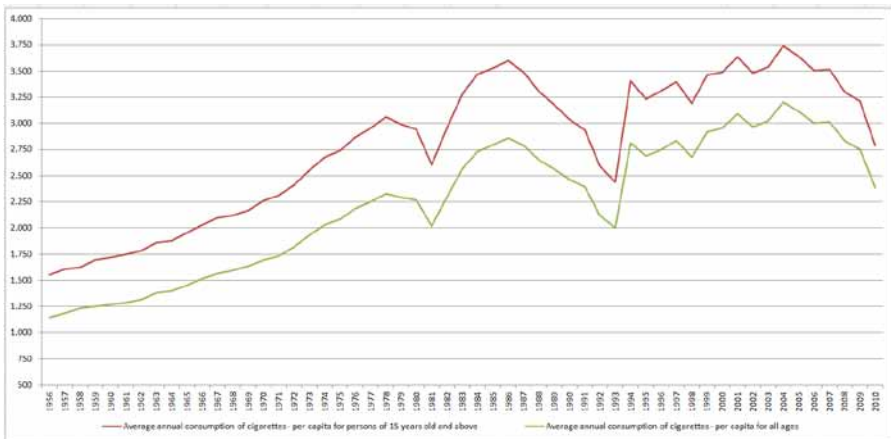
**Table T**

Cigarette Pack (MPPC) Breakdown: Retail Value RSP 1992–2011 (in €)									
Year	MPPC	Total tax (inc. VAT)	% Share of total tax (inc. VAT)	Tobacco industry revenue	% Share of tobacco industry	Wholesaler revenue	% Share of wholesaler	Retailer revenue	% Share of retailer
1992	0.5869	0.424	72.25%	0.098	16.76%	0.015	2.58%	0.049	8.41%
1993	0.7337	0.530	72.25%	0.123	16.76%	0.019	2.58%	0.062	8.41%
1994	1.1739	0.854	72.75%	0.193	16.46%	0.030	2.59%	0.096	8.20%
1995	1.4087	1.025	72.75%	0.232	16.46%	0.036	2.59%	0.116	8.20%
1996	1.4674	1.067	72.75%	0.242	16.46%	0.038	2.59%	0.120	8.20%
1997	1.6141	1.174	72.75%	0.266	16.46%	0.042	2.59%	0.132	8.20%
1998	1.7608	1.281	72.75%	0.290	16.46%	0.046	2.59%	0.144	8.20%
1999	1.9076	1.388	72.75%	0.314	16.46%	0.049	2.59%	0.157	8.20%
2000	1.9076	1.388	72.75%	0.314	16.46%	0.049	2.59%	0.157	8.20%
2001	2.0543	1.494	72.75%	0.338	16.46%	0.053	2.59%	0.169	8.20%
2002	2.3477	1.708	72.75%	0.39	16.46%	0.06	2.59%	0.19	8.20%
2003	2.50	1.826	73.04%	0.41	16.28%	0.06	2.59%	0.20	8.09%
2004	2.50	1.826	73.04%	0.41	16.28%	0.06	2.59%	0.20	8.09%
2005-Jan	2.70	1.964	72.75%	0.44	16.46%	0.07	2.59%	0.22	8.20%
2005-Apr	2.70	1.984	73.47%	0.43	16.02%	0.07	2.60%	0.21	7.91%
2006	2.70	1.984	73.47%	0.43	16.02%	0.07	2.60%	0.21	7.91%
2007	2.80	2.053	73.34%	0.45	16.10%	0.07	2.59%	0.22	7.96%
2008	3.00	2.204	73.47%	0.48	16.02%	0.08	2.60%	0.24	7.91%
2009	3.00	2.211	73.71%	0.48	15.88%	0.08	2.60%	0.23	7.81%
2010-Jan	3.20	2.527	78.97%	0.41	12.70%	0.09	2.66%	0.18	5.67%
2010-Mar	3.20	2.635	82.35%	0.34	10.66%	0.09	2.70%	0.14	4.29%
2010-May	3.20	2.742	85.70%	0.28	8.64%	0.09	2.74%	0.09	2.93%
2011	3.20	2.670	83.43%	0.32	10.01%	0.09	2.71%	0.12	3.85%

*Source: Ministry of Finance, Hellenic Statistical Authority & own calculations  
(Figures may not sum up to 100% due to rounding)*



Figure C



Source: Ministry of Finance, Hellenic Statistical Authority & own calculations

We can notice a sharp decline in the consumption of cigarettes in the years 1981, 1992–1993, and from 2007 onward. These can be explained by the following measures:

- The ministerial decree on the prohibition of smoking in public hospitals and private clinics (effective May 28, 1979)
- 1980: Adoption of the Common European Policy for tobacco (Directive 1075/78)
- The ministerial decree on the prohibition of smoking in closed public areas (effective May 25, 1980)
- 1989: Obligatory health warnings on cigarette packs and labels with the amount of tar, nicotine, and carbon monoxide
- The decree on rules and requirements for tobacco products advertising (effective May 29, 1989) restricts tobacco advertising during films targeting children
- January 1, 1989–January 1, 1993: Significant RSP increase (MPPC = +150%)
- 1992: Revision of the Common European Policy for tobacco (Directive 2075/92)
- The ministerial decision banning smoking in healthcare facilities (effective October 22, 1993)
- Recent declines could be attributed to repeating tax increase, clean air policy, and the HEART Project

In an attempt to react to the increased taxation of tobacco products, many manufacturers also include a cheaper brand in their portfolio to meet the needs of Greek consumers or absorb a proportion of the tax.

## Household Cigarette Consumption per Income Class at Current Prices

**Table U**

Av. Monthly Household Tobacco Products Purchases per Income Class 2004 & 2008 (In € & as % of Total Purchases)									
Year	All Households	Household Monthly Income							
		<750 €	751–1100 €	1101–1450 €	1451–1800 €	1801–2200 €	2201–2800 €	2801–3500 €	Over 3501 €
2004	59.13	19.33	30.98	47.81	57.94	68.75	79.15	82.16	90.09
	3.30%	2.91%	3.39%	3.89%	3.83%	3.82%	3.65%	3.20%	2.51%
2008	54.65	21.98	25.65	39.38	42.28	63.56	58.89	69.50	72.96
	2.58%	3.16%	2.82%	3.13%	2.91%	3.59%	2.85%	2.67%	1.96%
2008/2004 percentage change	-7.58%	13.71%	-17.20%	-17.63%	-27.03%	-7.55%	-25.60%	-15.41%	-19.01%

Source: National Household Surveys, Hellenic Statistical Authority & own calculations

## Per Capita Cigarette Consumption per Income Class at Current Prices

**Table V**

Av. Monthly per Capita Tobacco Products Purchases – Per Income Class 2004 & 2008 (In € & as% of Total Purchases)									
Year	Per Capita in all households	Household Monthly Income							
		<750 €	751–1100 €	1101–1450 €	1451–1800 €	1801–2200 €	2201–2800 €	2801–3500 €	Over 3501 €
2004	21.659	12.887	16.220	19.356	21.301	22.765	24.058	23.209	25.521
	1.21%	1.94%	1.77%	1.58%	1.41%	1.26%	1.11%	0.90%	0.71%
2008	20.468	17.444	16.234	18.842	17.117	23.197	19.895	21.994	21.714
	0.97%	2.51%	1.79%	1.50%	1.18%	1.31%	0.96%	0.85%	0.58%
2008/2004 percentage change	-5.82%	26.13%	0.09%	-2.73%	-24.44%	1.86%	-20.92%	-5.53%	-17.53%

Source: National Household Surveys, Hellenic Statistical Authority & own calculations

The economic burden from smoking is not equally distributed. The most sensitive and vulnerable to price increases are low-income households, which tend to spend a higher percentage of their income for purchasing cigarettes, as we can see from the **Tables U** and **V** above.

## Annual Household Cigarette Consumption – in € – Current Prices

**Table W**

Annual Household Expenses for Cigarettes 1997–2010 (In €)	
Year	Annual household expenses (in €)
1997	998
1998	1.001
1999	1.016
2000	994
2001	1.055
2002	1.082
2003	1.096
2004	1.104
2005	1.138
2006	1.180
2007	1.154
2008	1.176
2009	1.159
2010	998

*Source: Euromonitor International*

**Table X**

Tobacco Cultivation Data 1997–2009			
Year	Seized cigarettes (in 1,000 pieces)	Evaded taxes (in 1,000 €)	Estimation of illicit trade penetration <sup>0</sup> %
2004	310,962	31,736	5.2
2005	258,444	23,895	5.2
2006	222,805	27,064	5.0
2007	148,637	18,831	4.8
2008	216,445	29,447	4.8
2009	242,962	36,885	5.0
2010	543,951	88,413	6.0

*Source: Ministry of Finance-Financial and Economic Crime Unit (S,D,O,E) & own estimates*

**Table Y**

<b>Advertisement Expenses for Tobacco Products 2005–2009 (in €)</b>					
<b>Media</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>TV</b>	0	0	0	0	0
<b>Magazines</b>	15,395,671	57,154	5,325	19,899	16,273
<b>Press</b>	4,023,248	10,433	71,329	15,876	0
<b>Radio</b>	0	0	0	0	0
<b>Total</b>	<b>19,418,919</b>	<b>67,587</b>	<b>76,654</b>	<b>35,775</b>	<b>16,273</b>

*Source: Media Services S.A*

## **Proven Health Effects of Tobacco**

### **Evidence that secondhand smoke causes**

#### **Adults**

Lung cancer

Coronary heart disease

Onset of symptoms of heart disease

Asthma attacks in those already affected

Worsening of symptoms of bronchitis

Stroke

Reduced fetal growth (low-birth-weight baby)

Premature birth

#### **Children**

Cot death (Sudden Infant Death Syndrome)

Middle-ear disease (ear infections)

Respiratory infections

Development of asthma in those previously unaffected

Asthma attacks in those already affected

### **Other proven health effects of secondhand smoke**

Shortness of breath

Nausea

Airway irritation

Headache

Coughing

Eye irritation

## Hellas Tobacco Survey

The study was conducted in October 2010 among 694 participants ranging in age from 18 to 89 with a median age of 45. Of the participants, 323 were female and 371 male. More than two-thirds (505) were urban dwellers and 189 were rural residents.

More than half of the participants (57.49%) supported fines for violation of smoke-free laws and 321 (46.25%) supported an increase in taxation on tobacco products. Support of both policies was comparable in both rural and urban areas; 60.57% of rural and 60.29% of urban dwellers supported fines for violation of secondhand smoke policies. About 64% of the participants said they were exposed to high levels of secondhand smoke at bars and more than a third (35.85%) reported smoking a cigarette indoors at a bar during their last visit. More than a third (39%) of the participants were current smokers. Close to one-fifth (17.81%) of the participants were dissatisfied with the current policies about smoking at their workplaces and 12.96% indicated preference for a stronger workplace smoking policy, whereas 74.08% preferred either a weaker policy or no change in policy. Regarding enforcement of smoking policies at workplaces, 59.51% indicated that existing policies were completely enforced while 9.31% said they were partially enforced and 31.17% thought they were not enforced at all or there were no policies.

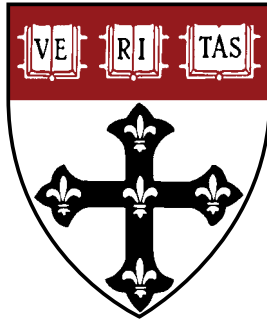
The main outcomes of interest were two self-reported measures of support for tobacco control legislation: support of fines for violations of smoke-free laws and support of increased tax on tobacco products. Potential predicting variables explored included gender, residence (rural vs. urban), socioeconomic status, educational status, smoking status, age, nicotine dependence (in smokers) assessed by the Fagerström Nicotine Dependence Scale (FNDS), intention to quit, individual perception of the harm from secondhand smoke exposure, attitude toward smoke-free policy, perception of the efficacy of the enforcement of current smoking regulation, presence of smoking regulation at home, and family members'/co-workers' smoking status (proxies for the social acceptability of smoking).

Predictors of support for tax increase on tobacco products included FNDS scores, perception of the efficacy of the enforcement of current smoking regulation, perception of harm arising from secondhand smoke exposure, and age. Support for tax increase on tobacco products was strongly associated with FNDS scores ( $P=0.025$ ). In the same vein, FNDS scores ( $p=0.049$ ) and attitude toward smoke-free policies ( $P=0.0001$ ) were significant predictors of support of fines for violation of smoke-free laws.

## Characteristics of Study Participants

	Support of increased tax on tobacco products %(n)	P-value	Support of violations of smoke-free policies %(n)	P-value
<b>Socio-demographic</b>				0.320
<b>Gender</b>		0.373		
Male	46.39% (167)		58.89% (208)	
Female	49.84% (154)		62.42% (191)	
<b>Residence</b>		0.741		0.950
Rural	46.93% (84)		60.57% (106)	
Urban	48.37% (237)		60.29% (293)	
<b>Age</b>		0.005		0.148
≤30 years	37.50% (54)		55.17% (80)	
>30 years	50.86% (267)		61.82% (319)	
<b>Education</b>		0.077		0.077
≤12 years of formal education	42.47% (79)		62.37% (116)	
>12 years of formal education	50.10% (241)		59.41% (281)	
<b>SES</b>		0.309		0.770
A/B	59.18% (29)		71.43% (35)	
C1/C2	44.91% (172)		58.45% (218)	
D/E	50.63% (120)		61.09% (146)	
<b>Marital Status</b>		0.047		0.213
Married	51.22% (210)		62.53% (252)	
Single	42.56% (83)		57.22% (111)	
Divorced/widowed	42.86% (27)		55.56% (35)	
<b>Parity</b>		<0.001		0.190
Nulliparous	41.60% (99)		57.02% (134)	
At least one child	51.51% (222)		62.21% (265)	
<b>Smoking Exposure</b>				
<b>Smoking status</b>				
Ever smokers <sup>a</sup>	31.92% (128)	<0.001	60.36% (175)	<0.001
Current smokers	20.44% (56)	<0.001	33.71% (89)	<0.001
Current Nonsmokers	67.09% (265)	<0.001	78.09% (310)	<0.001
Never smokers <sup>b</sup>	72.01% (193)	<0.001	82.96% (224)	<0.001
<b>Intention to quit</b>		0.027		0.002
Yes	26.72% (31)		44.55% (49)	
No	15.85% (25)		25.97% (40)	
<b>Nicotine Dependence (Fagerstrom Dependence Scale)</b>		0.006		0.006
Moderate (<5)	27.87% (34)		44.54% (53)	
Significant (≥5)	14.38% (22)		24.66% (36)	
<b>Smoking status of family members</b>		<0.001		<0.001
At least one family member smokes	34.0% (68)		47.24% (94)	
None smokes	53.94% (253)		66.02% (305)	
<b>Smoking status of workmates</b>		0.003		0.003
At least one workmates smokes	27.14% (19)		44.12% (30)	
None smokes	48.24% (82)		65.27% (109)	
<b>Presence of smoking regulation at home</b>		<0.001		<0.001
Presence of some regulation at home for smoking	54.24% (211)		67.44% (261)	
None	39.07% (109)		50.18% (137)	
<b>Perception of harm from SHS</b>		<0.001		<0.001
Harmful	53.92% (296)		66.79% (364)	
Not harmful	15.84% (16)		25.51% (25)	
<b>Smoking Policy Perception</b>				
<b>Attitude toward smoke-free policy</b>		0.010		<0.001
Favorable	41.44% (75)		55.06% (98)	
Unfavorable	66.57% (20)		83.87% (26)	
<b>Perception of the efficacy of current smoking laws</b>		<0.001		0.089
Poorly enforced	41.81% (176)		57.89% (242)	
Well-enforced	58.47% (145)		64.61% (157)	





*For more information or to contact us, please consult:*

[www.smokefreegreece.org](http://www.smokefreegreece.org)

[info@smokefreegreece.org](mailto:info@smokefreegreece.org)





CENTER FOR  
GLOBAL TOBACCO  
CONTROL

**Center for Global Tobacco Control**  
Department of Society, Human Development and Health  
Harvard School of Public Health  
401 Park Drive, East Atrium, 3rd Floor, Boston, Ma, 02215, USA  
tel 1.617.496.1026, fax 1.617.495.8543  
[www.smokefreegreece.org](http://www.smokefreegreece.org)