Health Consumer Powerhouse

# Euro Tobacco Harm Prevention Index 2012

**Health Consumer Powerhouse**

# Tobacco Harm Prevention Index 2012

## Report

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# 1. Summary

The Tobacco Harm Prevention Index 2012 is an effort to analyse and compare how 29 European countries address the problem of tobacco harm prevention. The ranking of countries shows Sweden gaining a supreme victory with 861 points out of the maximum score of 1000, 38 points ahead of runner-up the United Kingdom at 823. Third place is taken by Finland at 810, with a large gap to countries 4 – 6: Norway (758), Portugal (743) and France at 738 points.

This piece of research is a contribution to the global effort to reduce the impact on public health from the use of tobacco, still causing est. half a million lives per annum in Europe only, not to forget the massive creation of mostly long term diseases such as handicapping cardio vascular, COPD and diabetes.

Harm and negative effects of tobacco use are entirely dominated by the side effects of cigarette smoking, as the introduction of cigarettes in the late 19th century created the previously rare habit of inhaling smoke into the lungs of the user (see Section 1.2). Although tobacco had been used by Europeans and European settlers in America for 300 years, the lung cancer incidence in the USA in 1914 was less than 1 in 100 000[1]. By the 1950's, this had risen to more than 30 in 100 000. Cigarette smoking had a powerful boost during World War I, when cigarettes were considered essential for soldiers, as the sedative effect of nicotine was deemed indispensable to endure the hardships of the trenches.

In the OECD, where gas and dust in ambient air in workplaces is more or less history, inhalation smoking accounts for approximately 90% of lung cancer cases and is also the totally dominating cause of COPD (Chronic Obstructive Pulmonary Disease). Smoking is also significantly raising the risk of cardiovascular disease (CVD), and while not as dominant a cause of the disease, the high total incidence of CVD, in combination with the approximately double risk for smokers, mean that smoking-promoted CVD accounts for a large proportion of the estimated 650 000 deaths per year attributable to smoking in the EU (see Section 2.2).

In almost all European countries, cigarettes account for more than 98 % of tobacco use, the remainder being cigars, pipe tobacco and smokeless tobacco products ("SLT"). This is in all likelihood the reason why the words "tobacco" and "smoking" are used indiscriminately as meaning the same thing – frequently seen even in the same sentence in serious publications.

## 1.1 Impose an outright ban on cigarette retail!

Most countries in the EU share one ultimate objective: to eradicate the habit of tobacco smoking. For many reasons (industrial lobbying, vested government interests because of tobacco tax revenues etc) measures against tobacco use are half-baked, such as restrictions on smoking in public places, advertising and exposure bans, sizes and content of warning labels.

The logic step would be an EU ban on cigarette sales, but it seems unlikely that the European Commission dares initiate such measures. This makes it only the more urgent to proceed along other roads to continue reducing tobacco-related harm. However, in 2012, a ban on

[1] Could be under-estimated, as tuberculosis was the dominant lung disease at the time – some lung cancer cases could have been recorded as TB.

cigarette sales (and use) could probably be only a dream in many countries, with one notable exception:

Sweden should show the way, as the political risk of a cigarette retail ban is lower in Sweden than anywhere else! Less than 10% of male voters and less than 15% of female voters are smokers. A recent poll in the major Swedish morning daily, *Dagens Nyheter*, showed 84 percent of respondents in favour of harder restrictions against "smokers" – a percentage very seldom seen in a democracy.

The European Commission would do well in supporting Sweden to pioneer the struggle against Tobacco Harm by becoming the first country to impose an outright ban on cigarette import and retail!

## 1.2 200 000 lives saved annually in Europe?

Not at all deriving any information from the statistics on tobacco habits in Sweden *vs*. the rest of Europe, but only looking at the death rates for lung cancer and respiratory disease, plus a cautious estimate of smoking-dependent heart disease deaths, the Swedish death rates can be extrapolated to see "*What would be the difference in the number of smoking-related deaths if men in other European countries had the mortality of Swedish men*?". The extrapolation assumes that 85 percent of lung cancer and COPD is caused by cigarette smoking, and that smoking doubles the risk of heart disease, all of which are conservative estimates frequently used in reports from the WHO and other bodies. (The same calculation could of course be made for women, but as that would involve calculations based on relatively small differences between big numbers, the noise level would be rather high.)

This calculation is certainly rather coarse, which is why it is based on conservative estimates. It does agree fairly well with the estimated total of 650 000 smoking-dependent deaths in the EU given in the Roadmap for the revision of the EU Tobacco Directive (2010).

This calculation is shown in the table below. The result indicates that if all European men shared the tobacco habits of Swedish men, the number of smoking-related deaths could be **reduced** by as much as 200 000 every year. If Swedish women were to become similar role models, the total number approaches 250 000 for both sexes.

| **Mortality (SDR/100000)** | Lung cancer death rate per 100 000, males | Male population | Population, males 45+ | Lung cancer excess mortality vs Sweden | Resp. disease mortality 45+ minus influenza and pneumonia | Respiratory disease excess deaths vs Sweden (numbers) | A rough but conservative estimate of excess cardiac deaths*) | Total smoking-related excess deaths vs Sweden (rounded off) |
|---|---|---|---|---|---|---|---|---|
| Austria | 51,3 | 4168275 | 1662435 | 900 | 88 | 234 | 900 | 2000 |
| Belgium | 93,8 | 5240197 | 2040177 | 3359 | 187 | 1706 | 3500 | 8600 |
| Bulgaria | 58,3 | 3811698 | 1551138 | 1090 | 96 | 309 | 1000 | 2400 |
| Cyprus | 60,3 | 431811 | 139075 | 132 | 112 | 44 | 100 | 300 |
| Czech Republic | 77,3 | 5214846 | 2008905 | 2482 | 83 | 213 | 2500 | 5200 |
| Denmark | 57,9 | 2744511 | 1089642 | 774 | 133 | 500 | 700 | 2000 |
| Estonia | 88,2 | 670338 | 228543 | 392 | 100 | 52 | 400 | 800 |
| Finland | 43,5 | 2656700 | 1118928 | 367 | 80 | 100 | 350 | 800 |
| France | 60 | 30972796 | 11910894 | 9385 | 78 | 870 | 9000 | 19000 |
| Germany | 53,8 | 41267108 | 17468062 | 9945 | 97 | 3589 | 10000 | 24000 |
| Greece | 69 | 5618534 | 2339487 | 2208 | 153 | 1393 | 2200 | 5800 |
| Hungary | 110 | 5019094 | 1847081 | 4030 | 164 | 1244 | 4000 | 9300 |
| Ireland | 48,9 | 2211039 | 704423 | 425 | 142 | 365 | 400 | 1200 |
| Italy | 63 | 29916090 | 12453060 | 9962 | 106 | 3329 | 10000 | 23000 |
| Latvia | 78,7 | 1133047 | 387595 | 555 | 84 | 45 | 500 | 1100 |
| Lithuania | 74 | 1679057 | 559621 | 744 | 123 | 219 | 700 | 1700 |
| Luxembourg | 62,6 | 244325 | 86658 | 80 | 113 | 27 | 80 | 200 |
| Malta | 50,6 | 206001 | 83296 | 43 | 157 | 52 | 50 | 100 |
| Netherlands | 67 | 8262148 | 3451797 | 3082 | 99 | 760 | 3000 | 6800 |
| Norway | 48,4 | 2384106 | 900769 | 446 | 110 | 270 | 400 | 1100 |
| Poland | 92 | 19057954 | 6808507 | 11873 | 110 | 2009 | 9000 | 23000 |
| Portugal | 43,3 | 5311207 | 1946690 | 722 | 144 | 1047 | 700 | 2500 |
| Romania | 66,9 | 10752221 | 3831601 | 4000 | 110 | 1141 | 3000 | 8100 |
| Slovakia | 64,8 | 2703486 | 888271 | 949 | 102 | 216 | 900 | 2100 |
| Slovenia | 69 | 1019700 | 413805 | 401 | 90 | 65 | 400 | 900 |
| Spain | 67,2 | 22296386 | 8074322 | 8361 | 210 | 8069 | 7000 | 23000 |
| Sweden | 29,7 | 4609819 | 1901354 | 0 | 68 | 0 | 0 | 0 |
| Switzerland | 43,4 | 3756062 | 1525169 | 515 | 76 | 92 | 600 | 1200 |
| UK | 50,7 | 30509324 | 11719589 | 6407 | 155 | 7171 | 6000 | 20000 |
| **EU total** | | **247727712** | | | | | | 200000 |

*) based on that cardiac deaths make up 25 - 30 % of all deaths (in some European countries a lot more), and that cigarette smoking roughly doubles the risk of cardiac death.
Data From WHO Europe DMDB (Detailed Mortality Database).

## 1.3 Some interesting countries

(not necessarily in Index score order).

### 1.3.1 Sweden

Sweden (861 points) has one unique feature of tobacco use that sets it apart from all other countries – it is the only country, where cigarette smoking (for men) is *not* the most prevalent form of tobacco use. Moist oral snuff ("snus") is used by 20+ % of Swedish males. Swedish males also show the lowest smoking prevalence in Europe at <10 %.

The sale of snus is banned in the European Union. The only other country in the THPI, where there is a significant use of smokeless tobacco (SLT) is Norway, which is outside the EU, and where snus in recent years has gained popularity, and Portugal and Romania where a few per cent (presumably mainly males) use SLT.

Sweden scores fairly high on the Index sub-discipline Prevention/Policies, where cigarette taxation, restrictions on smoking, information campaigns etc are graded. The Swedish sub-discipline score is 206 (out of 250; 4$^{th}$ place in the sub-discipline). Sweden loses important points due to a relatively modest taxation of cigarettes; this sub-discipline is won by Ireland (235) and the UK (230).

The Swedish victory in the total Index is mainly the result of high scores for low smoking prevalence (Swedish women also show a modest smoking prevalence at 14 – 15%) and a low share of young people smoking. This coincides with Sweden (for males) showing the lowest incidence in Europe for lung cancer and COPD, and also low incidences of oral and pancreas cancer – cancer forms which have also been associated with tobacco use. This gives Sweden the score of 263 (out of 300) on the sub-discipline Tobacco-related Disease. As has been shown in the HCP Euro Health Consumer Indexes 2005 – 2009[2], Sweden has the best treatment results for serious diseases in Europe. Therefore, incidence rather than mortality has been used where possible for the disease indicators, to avoid introducing the quality of healthcare as a confounding factor**.**

Swedes are also among the most frequent users of Pharmaceutical Nicotine ("PN") such as chewing gum and patches (much used in the Nordic countries and Ireland). The total Swedish consumption of PN is approximately 28 million Defined Daily Doses[3] per year (women use that more than men), to be compared with the use of snus, expressed as "DDD:s", of 400 million DDD/year.

As can been seen from the WHO report quoted in Section 2.1.1, harmful effects from tobacco use are chiefly linked to smoking while inhaling.

### 1.3.2 United Kingdom and Ireland

These two countries have the highest scores on the sub-discipline Prevention and Policies, with the UK (823 points) finishing 2nd in the total score, mainly losing out to Sweden due to a 75-point handicap in the sub-discipline Tobacco-related disease. However, it deserves to be noted that the Swedish Greens on Tobacco use are a lot "greener" than the British scores, although in the coarse methodology of three-grade scores, both countries end up very close in total scores for this sub-discipline.

Just like the Nordic countries (with Sweden being an exception for cigarette smoking), the British Isles show an emancipated smoking pattern, with a low gender difference in per capita cigarette consumption – the same pattern can be seen for alcohol[4]. The UK cigarette consumption for both sexes is 1400 ±50 cigarettes per capita per year, that of Ireland 1900 ±50. (The Swedish average for both sexes is roughly 1000, and the European average male/female cigarette consumption is approximately 2500/1700.)

The high rate of cigarette taxation in the UK has led to a "non-duty paid" (duty-free, illicit) share of cigarette consumption of 27 % (industry estimate), exceeded among the THPI countries only by Norway.

Ireland lands a rather more modest 9th place (691 points) overall. This is an example of why the HCP is normally reluctant to award Index scores for policies alone.

What the Irish position in the THPI indicates is that restrictive policies do not have 100% effectiveness. It seems that the Irish reputation for being a care-free nation does reflect in high smoking levels, in spite of the high cost, as well as being European champions at binge drinking: "At the top of the country scale is, by a considerable margin, Ireland. Here 36% claimed to drink 3 – 4 drinks on a typical drinking occasion, and a further 34% 5 or more".[5]

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[2] www.healthpowerhouse.com

[3] "DDD"; the standard way of measuring drug volumes.

[3,5] Special Eurobarometer 272, *Attitudes towards Alcohol,* March 2007.

It is noteworthy that despite scoring top of the league table in terms of the Prevention/Policies sub-discipline, the UK and Ireland still rank extremely low for the Prevalence / Mortality of tobacco related disease at 18th and 22nd respectively, presumably partially due to "old sins".

### 1.3.3 Finland (3rd) and France (6th)

Finland is the bronze medallist in the THPI with 810 points. After supreme sub-discipline winners Sweden, France (total score 738) and Finland score best on Tobacco-related disease. The cigarette consumption of both shows slightly larger gender variation; the male/female numbers for cigarettes per capita per year is 1500/1100 (Finland) and 1700/1300 (France).

Worth observing is that the fairly modest smoking rates of Finland have been achieved with a modest cigarette tax, and independent of a significant use of smokeless tobacco, which in Finland is subject to a stricter ban than that of the EU. (There is probably a small "overflow" from Sweden.)

Just as for alcohol, of which French consumption 25 years ago was among the highest in Europe, French smoking rates have come down considerably. The Gauloise-puffing Frenchman, happily sucking on a high-tar cigarette, seems to have become a breed extinct. With the exception of male lung cancer, the French somehow seem able to escape the diseases most commonly associated with pleasant living – the French heart disease rate has been the lowest in Europe as long as anybody can remember[6].

### 1.3.4 Norway

4th, 758 points.

Norway has a long-standing tradition of roll-your-own cigarette smoking due to a significant difference in taxation of cigarettes and fine-cut tobacco. Also, due to the high cigarette tax and the long land border with Sweden, 40% of Norwegian tobacco consumption has been estimated to be sourced outside the country (see Section 7.12.2). The total Norwegian per capita cigarette consumption is essentially the same as that of the UK, and is essentially the same for both sexes. This coincides with a significant use of smokeless tobacco SLT among Norwegian men, which has developed over the last decades, during which Norwegian male smoking has decreased to the same level as for females.

Norway has the third highest score on Prevention/Policies with 211 sub-discipline points.

### 1.3.5 Portugal

5th, 743 points. Reached this position thanks to low smoking rates for women, and also relatively few young people smoking. Restrictions have become more strict in recent years.

### 1.3.6 Spain, Bulgaria, Greece and Hungary

In 16th, 24th, 28th and 29th place respectively.

These four countries are those scoring Red on the smoking prevalence for both men and women.

[6] Blake, S.: *Clinical and Pathological Reports* (monograph), Newry, N. Ireland, 1818.

Spain, due to dietary and other beneficial lifestyle effects(?), seems to be able to avoid the most severe tobacco harm.

Hungarians, Bulgarians and Greeks are the three heaviest smokers among European nations.

Considering the smoking rate of Bulgarians, it is difficult to avoid the suspicion that there can be an under-reporting of disease rates of smoking-related diseases, and that therefore the proper rank of Bulgaria should be 26th – 28th. Considering the tight correlation between long-term cigarette smoking and COPD, it is very difficult to believe the fairly low COPD rates reported from Bulgaria (the indicator is calculated on the total death rate in respiratory disease excluding pneumonia – if the official statistics on COPD alone were used, Bulgaria would get shining Green scores for respiratory disease, which seems implausible).

Just as in the Euro Consumer Health Indexes, Hungary unfortunately scores very low on disease outcomes. For the HCP it remains a mystery how a country, which has had a healthcare system covering all citizens as long as the U.K. (since 1948) can keep showing such poor results on the treatment of major diseases.

Greeks are the biggest smokers in Europe. Greece enjoys the doubtful distinction of being the only country without an effective age limit for cigarette purchase. Also, attempts at introducing smoking restrictions in public places have been temporarily relieved from enforcement "due to upcoming elections" as late as 2009. The introduction of an age limit is supposed to have been done on 2010-07-01, but Greek officials tell the HCP that it will presumably be some time before that age restriction becomes adhered to in real life.[7]

## 1.4 One full measure is better than 10 half measures – ban cigarette sales!

It seems that advertising bans, smoking bans in public places, age limits for purchase of tobacco etc. are all well and good. However, it also seems that all these measures run into difficulties when it comes to reducing the smoking prevalence in a population to below 20 percent, which means that smoking is still a major health problem.

The fundamental question remains unanswered: what to do when all traditional measures are in place and yet a significant part of the European population continues to smoke cigarettes?

In a perfect Europe, the measure that really should be taken is an outright ban on the retail of cigarettes!

The cigarette, as opposed to alcohol, junk food and other less than healthy products, is a totally unique product: there is no other product, which is allowed for sale to the public, and which is as harmful *when used as intended*, *i.e.* not only when consumed excessively or otherwise abused.

(Yes; alcohol in modest quantities daily, *e.g.*in the form of a glass of wine – for women – or two – for men – has a net beneficial effect on health as it lowers the risk of cardiovascular disease. This was shown beyond reasonable doubt in the best-participated session of the European Society of Cardiology Congress in Vienna 2007; "Is Wine Really Beneficial Against Heart Disease?")

From a health standpoint it is doubtful whether there really is a *tobacco* problem – the totally dominant health problem is cigarette smoking. This is not only because cigarettes account for

[7] Prof. Meni Malliori, *Personal communication.*

approximately 98 percent of tobacco consumption anywhere in Europe (with Sweden and Norway as the most notable exceptions). The health problem of cigarettes stems from the fact that the cigarette is a cheap crappy product, which has created the habit of inhalation of tobacco smoke![8] Inhalation also seems to be very important for the creation of addiction to nicotine[9].

The tobacco smoking habit was imported to Europe from the Americas in the late 15th century. As far as anybody knows, the American native population did not inhale the smoke from their cigars or pipes. There is an important difference between on the one hand cigar and pipe tobacco, and on the other hand cigarette tobacco: cigar tobacco has been subject to a more extensive (= more expensive) curing process, which includes a fermentation stage not included for cigarette tobacco. During this fermentation, the sugars in the tobacco react into other substances.

The low sugar content of cigar or pipe tobacco means that when lit, they give a weakly alkaline smoke (pH > 7). Cigarette tobacco, after its cheaper pre-treatment, gives a smoke which is weakly acidic (pH < 7). The water solubility of nicotine is strongly pH-dependent. This means that the nicotine from cigar or pipe smoke is water soluble, and consequently accessible for uptake already in the mouth. On the other hand, to get a nicotine ”kick” out of a cigarette, the smoker needs to use his lungs as a ”scrubber”[10], *i.e.* inhale.

This means that *not inhaling* cigar smoke is not a snobbish issue of etiquette. It is simply unnecessary. In addition, it is advisable not to inhale cigar or pipe smoke: alkaline smoke causes much more mucus irritation than acidic smoke, and as pipes or cigars do not have porous paper leaking in air from the sides, the smoke has higher content of tar and other irritants than cigarette smoke. Any non-nicotinist, who doubts that cigar or pipe smoke gives a nicotine yield without inhalation, can make a simple test: Smoke a cigar without inhaling! There is a high probability that this will trigger a visit to the toilet within 30 minutes, as nicotine is strongly bowel-stimulating if the body is not accustomed to taking it.

Unfortunately it is not possible to obtain a positive health effect by switching old, hardened cigarette smokers to cigar or pipe – cigarette smokers tend to keep inhaling, and as there is more tar and carbon monoxide in cigar or pipe smoke, the health effects would be negative.

The pronounced negative health effects from tobacco are mainly associated with smoking whilst inhaling[11]. Non-inhalation smoking, or for that matter the use of smokeless tobacco products (SLT), can certainly not be considered healthy habits. However, the negative health effects of these habits are of roughly the same order as those of junk food or lack of exercise.

Swedish men show the lowest smoking prevalence in the EU and OECD, which most probably is associated with the uniquely high prevalence of SLT use (”snus”). This coincides with the fact that Swedish men are in a league of their own in Europe for low incidence of lung cancer, while Swedish women have a lung cancer incidence closer to the EU average.

The cigarette is a cheap junk product, which causes or promotes cancer, cardiovascular and lung disease. There is **no other product**, which causes such effects *when used as intended*,

[8] http://cancercontrol.cancer.gov/tcrb/monographs/9/m9_complete.PDF

[9] Le Houezec, J., Int J Tuberculosis and Lung Disease 7(9): p. 811-819 (2003)

[10] ”scrubber”; industrial plant used to wash out dust and/or chemicals from gas flows

[11] EMCDDA (European Monitoring Centre for Drugs and Drug Addiction) monograph: *Harm reduction: evidence, impacts and challenges (2010)*, p. 261.

which is allowed for sale to the public! Then why doodle around with these loads of half-measures such as advertising bans, age limits, smoking bans in public places etc.?

### 1.4.1 Impose an outright ban on cigarette retail!

The logic step would be an EU ban on cigarette sales, but it seems unlikely that the European Commission dares initiate such measures. This makes it only the more urgent to proceed along other roads to continue reducing tobacco-related harm.

However, in 2012, a ban on cigarette sales (and use) could probably be only a dream in many countries, with one notable exception:

Sweden should show the way, as the political risk of a cigarette retail ban is lower in Sweden than anywhere else! Less than 10 percent of male voters and less than 15 percent of female voters are smokers. One more reason why a cigarette ban could be feasible in Sweden, is that Sweden already has a consumption tradition of other tobacco products, which could prevent furious smokers from openly rioting.

Hardened old smokers would probably carry on to a large extent, getting their cigarettes in various ways. But as smoking has a rather high threshold to become "enjoyable", a retail ban would drastically reduce the recruitment of new, young smokers.

It is often argued that a ban would result in extensive smuggling and other criminal activities. Large-scale smuggling is greatly impeded if there are no legal outlets, particularly for a product which is hard to use without bystanders noticing.

So, a challenge to the Swedish Minister of Health: Be a Man! Make history as the first minister, who dared do what is right, not just what is easy! Pioneer the banning of cigarette retail and import to Sweden!

# 2. Introduction

## 2.1 Tobacco Harm Prevention

### 2.1.1 Tobacco Harm

There has been a tendency for even the most respected international health authorities to interchange the words 'tobacco' and 'smoking'. Although the WHO have since amended their terminology when referring to tobacco, the following extract quoted below from the WHO Global Epidemic Report shows that there has frequently been a tendency to treat (inhalation) smoking and tobacco use as synonymous.

"*Although tobacco deaths rarely make headlines, tobacco kills one person every six seconds. Tobacco kills a third to half of all people who use it, on average 15 years prematurely. Today, tobacco use causes 1 in 10 deaths among adults worldwide – more than five million people a year. By 2030, unless urgent action is taken, tobacco's annual death toll will rise to more than eight million.*

*If current trends continue unchecked, it is estimated that around 500 million people alive today will be killed by tobacco. During this twenty-first century, tobacco could kill up to one billion people. Most tobacco users will want to quit but will be unable to because of their dependence on a highly addictive substance.*

*Cigarettes and other smoked tobacco products rapidly deliver the addictive drug nicotine to the brain immediately after smokers inhale – about as efficiently as an intravenous injection with a syringe. The tobacco industry itself has referred to cigarettes as a "nicotine delivery device". But because the effects of smoked tobacco last only a few minutes, smokers experience withdrawal symptoms unless they continue to smoke.*

*Although standard cigarettes are the most commonly used type of smoked tobacco, other smoked tobacco products, such as bidis, kreteks and shisha, are gaining popularity – often in the mistaken belief that they are less hazardous to health. However, all forms of tobacco are lethal.*

*Smoked tobacco in any form causes up to 90% of all lung cancers and is a significant risk factor for strokes and fatal heart attacks. Bidis, small hand-rolled cigarettes typically smoked in India and other South-East Asian countries, produce three times more carbon monoxide and nicotine and five times more tar than regular cigarettes. Bidi smokers have a three-fold higher risk of oral cancer compared with non-smokers and are also at increased risk of lung, stomach and oesophageal cancer. Kreteks, clove and tobacco cigarettes most commonly smoked in Indonesia, place smokers at increased risk of acute lung injury. Shisha, tobacco cured with flavourings and smoked from hookahs primarily in the Eastern Mediterranean region, is linked to lung disease, cardiovascular disease and cancer.*

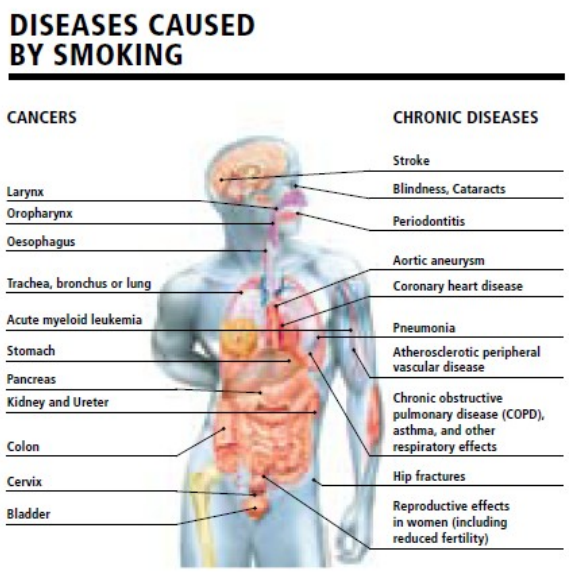
*Smokers are not the only ones sickened and killed by tobacco. Second-hand smoke also has serious and often fatal health consequences. In the United States, second-hand smoke causes about 3 400 lung cancer deaths and 46 000 heart disease deaths a year. Second-hand smoke is responsible in the United States for an estimated 430 cases of sudden infant death syndrome, 24 500 low-birth-weight babies, 71 900 pre-term deliveries and 200 000 episodes of childhood asthma annually.*

*Smokeless tobacco is also highly addictive and causes cancer of the head and neck, oesophagus and pancreas, as well as many oral diseases. There is evidence that some forms of smokeless tobacco may also increase the risk of heart disease and low-birth-weight babies*.

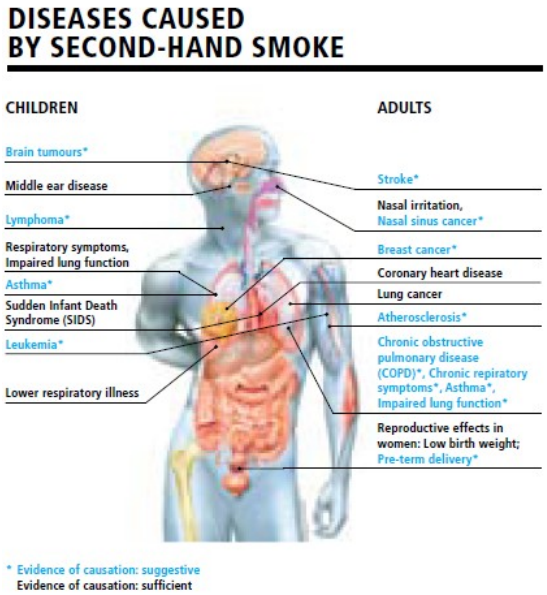
Of the more than 1 billion smokers alive today, around 500 million will be killed by tobacco.[12]"

[12] The WHO Report on the Global Tobacco Epidemic, 2008.

(Illustrations below from same chapter of the WHO report.)




Source: U.S. Department of Health and Human Services. *The health consequences of smoking: a report of the Surgeon General*. Atlanta, U.S. 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, 2004 (http://www.cdc.gov/tobacco/data_statistics/sgr/sgr_2004/chapters.htm, accessed 5 December 2007).




Source: U.S. Department of Health and Human Services. *The health consequences of involuntary exposure to tobacco smoke: a report of the Surgeon General*. Atlanta, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006 (http://www.surgeongeneral.gov/library/secondhandsmoke/report/fullreport.pdf, accessed 5 December 2007).

Not least the last sentence quoted above from the WHO Global Epidemic Report shows that there is frequently a tendency to treat (inhalation) smoking and tobacco use as synonymous. A risk continuum for tobacco products exists. *"Cigarette smoke is the most hazardous form of nicotine intake, and medicinal nicotine is the least hazardous. Among the smokeless tobacco products on the market, products with low levels of nitrosamines, such as Swedish snus, are considerably less hazardous than cigarettes, while the risks associated with some products used in Africa and Asia approach those of smoking"*[13]

### 2.1.2 Tobacco Harm Prevention

"Almost all efforts to reduce the harm from smoking have focused on eliminating nicotine use, rather than the harm from nicotine use. This represents an anomaly in public health practice, since it is generally accepted that we are better off making common beneficial activities safer rather than assuming we can reduce or eliminate them. For example, we encourage seatbelts and other transportation safety improvements, but do not even bother to encourage reducing travel.

Even for hazardous behaviors that are not generally socially accepted, if eliminating the behavior is clearly impractical then risk reduction is encouraged. For example, we discourage all injection of recreational drugs, but some countries also try to provide clean needles for those who continue to use them. In cases like illicit drug use, large segments of the public and government may object to harm reduction on puritanical grounds (often mislabeled as "moral" grounds), but public health practitioners almost universally accept it. Yet many

[13] WHO Tob. Reg. Report; Scientific Basis of Tobacco Product Regulation, March 2009

public health actors join those for whom purity is more important than protecting people from disease, and actively fight against preventing harm for tobacco consumers.

This contrast is especially odd given that the only substantial difference between harm reduction for smokers and others engaged in risky behaviors is the magnitude of the potential benefits:

First, the risks from smoking are greater than those from almost any other voluntary exposure, and when multiplied by the number of smokers totals up to a far greater public health impact than any other voluntary exposure. Second, and even more important, is that the potential reduction in risk for each individual dwarfs the reductions available from seatbelts or needle exchanges. Some sources of nicotine have been shown to be about 99% less harmful than smoking, and others probably have similar low risks. The implications of this can hardly be overstated: Switching from smoking to a low-risk source of nicotine is so close to being as healthy as quitting that it is hardly worth worrying about the difference.

Despite the widespread misperception about the risks from tobacco or nicotine, anyone with a basic knowledge of environmental health, or who notices that about half the health burden from smoking involves lung disease, would predict that getting nicotine without inhaling smoke causes less harm than smoking."[14]

### 2.1.3 The Tobacco Harm Prevention Index (THPI) 2012

The THPI 2012 is an effort to analyze how European countries succeed in the field of Tobacco Harm Prevention, looking at actual practices and outcomes and without a bias as to what strategy should be considered "right" or politically correct. In the Index project, there has been an effort to look at what seems to work for preventing harm to the population caused by tobacco use, be it information campaigns, substitution of cigarettes by pharmaceutical nicotine (PN) or by smokeless tobacco products (SLT).

High weight in the THPI has been given to indicators showing the level of tobacco use and incidence/mortality of diseases being perceived as tobacco-related.

## 2.2 Revision of the EU Tobacco Products Directive

The Commission with DG SANCO in the lead is expecting to adopt a revised tobacco products directive by December, 2011[15].

"According to DG SANCO's own roadmap, the European Parliament's Resolution of 2007 on the Green Paper "Towards a Europe free from tobacco smoke: policy options at EU level", asked Member States to reduce smoking amongst young people by 50% by 2025 and that young people's health is a priority. Therefore, all changes that would prevent young people from taking up smoking and which lead them to quit are very important."

It continues to state that:

[14] Phillips, C.V., Heavner, K.K. & Bergen, P.L. in *Tobacco Harm Reduction 2010 – a yearbook of recent research and analysis*, ISBN 978-0-9866007-0-8.

[15] ROADMAP: Title of the initiative: *Revision of the Tobacco Products Directive*, Type of initiative (CWP/Catalogue/Comitology): CWP, Lead DG: DG SANCO, Expected date of adoption of the initiative (month/year): 12/2011, Date of modification: 25.3.2010.

"The Second Report on the implementation of the Directive of November 2007 (COM (2007) 754 final) showed that the Directive is implemented in Member States, and outlined potential areas for changes.

The Tobacco Products Directive 2001/37/EC has two objectives: (1) facilitating the functioning of internal market in tobacco products sector and (2) ensuring a high level of public health.

There are still differences between the Member States' laws and other provisions on the manufacture, presentation and sale of tobacco products which impede the functioning the *internal market.*

Smoking continues to be the largest single cause of preventable death and disease in the EU, accounting for 650 000 deaths a year. Smoking remains the main cause of preventable morbidity and premature death in Europe. The smoking prevalence remains still high with an average of around 30 %. It is even more worrying that prevalence of smoking by young people is still significant, and although a slight downward trend in smoking of boys can be seen, there is an upward trend in smoking by girls. Therefore, its reduction of can significantly decrease the burden of diseases and premature deaths and thus increase healthy life years and productivity."

The scope of the revision of the directive is described in the following

**"Elements for policy options**

(a) Adjusting the scope of the Directive by including tobacco leaf, new and emerging tobacco and nicotine products, and paraphernalia;

(b) Changes to the labelling requirements :

– replacing quantitative information on tar, nicotine and carbon monoxide (TNCO) on cigarette packages by the qualitative information on harmful substances and information on cessation services;

– making pictorial warnings compulsory;

– introducing enlarged warnings;

– introducing warnings on both sides of the package;

– introducing standardised packaging;

(c) Introducing reporting and registration requirements (including sanctions for industry in case of non-delivery of ingredients data) and accompanying fees;

(d) Regulating the ingredients of tobacco products:

– introducing common list of ingredients with tackling toxicity, carcinogenicity, mutagenicity, attractiveness and addictiveness;

– setting limits for other yields and also for other tobacco products;

– further decreasing maximum limits for TNCO;

(e) Revising the sales arrangements for tobacco products:

– aligning availability of tobacco and nicotine replacement therapies;

– introducing standard package size;

(f) Allow for adaptations of technical nature:

– reporting formats;

– amendment of the common list of ingredients;

– requirements for testing and verification laboratories."

# 3. Countries involved

In 2005, the EHCI started with a dozen countries and 20 indicators; the 2009 edition included all 27 European Union member states, plus Norway and Switzerland, the candidate countries of Croatia and FYR Macedonia, and for the first time also Albania and Iceland.

The THPI has been limited to the EU-27 plus the well-off reference countries Norway and Switzerland, 29 countries in all. In spite of its tiny population, it could have been of interest to include Iceland; the country deviates from all the countries in the THPI by having a higher lung cancer incidence for females than for males, although the smoking prevalence follows the common European pattern with more male smokers than female.

# 4. Results of the Tobacco Harm Prevention Index 2012

## Euro Tobacco Harm Prevention Index 2012

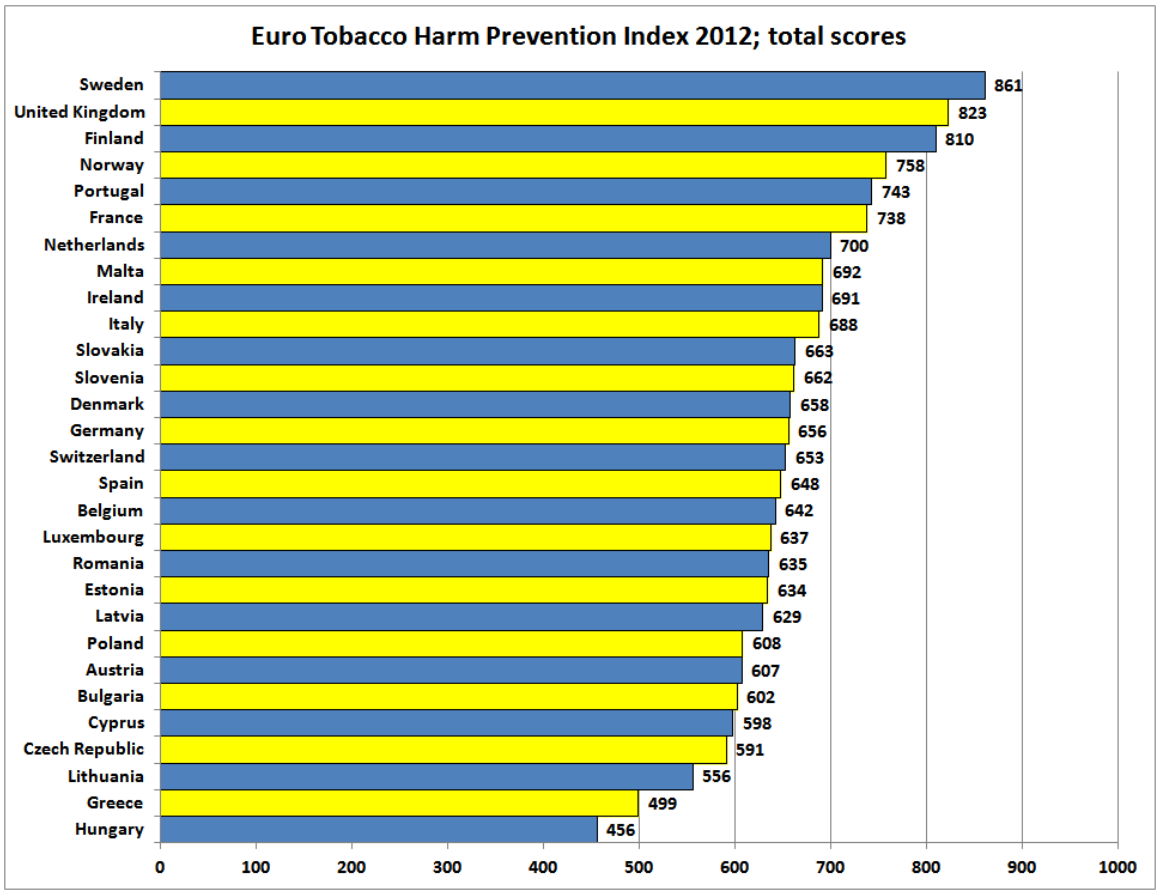
| Sub-discipline | Indicator | Austria | Belgium | Bulgaria | Cyprus | Czech Republic | Denmark | Estonia | Finland | France | Germany | Greece | Hungary | Ireland | Italy | Latvia |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Prevention/ Policies | 1.1 Taxation | ○ | ● | ● | ○ | ◐ | ◐ | ◐ | ◐ | ● | ● | ◐ | ◐ | ● | ◐ | ● |
| | 1.2 Advertising restrictions | ○ | ◐ | ● | ● | ◐ | ◐ | ● | ● | ◐ | ○ | ○ | ○ | ● | ◐ | ◐ |
| | 1.3 Smoking restrictions in public places | ○ | ◐ | ○ | ◐ | ○ | ○ | ○ | ◐ | ◐ | ○ | ○ | ○ | ● | ◐ | ◐ |
| | 1.4 Consumer awareness of health risks of cigarettes | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | 1.5 Exposure to passive smoke | ○ | ◐ | ○ | ○ | ◐ | ◐ | ◐ | ● | ◐ | ◐ | ○ | ○ | ● | ● | ◐ |
| | 1.6 Health Warnings | ○ | ● | ○ | ○ | ○ | ○ | ○ | ◐ | ○ | ○ | ○ | ○ | ◐ | ○ | ◐ |
| | 1.7 Vending machines w/o age verification | ◐ | ● | ● | ● | ● | ○ | ● | ● | ● | ○ | ○ | ● | ● | ◐ | ● |
| | 1.8 Age limits for purchase | ◐ | ◐ | ● | ● | ● | ● | ● | ● | ◐ | ● | ○ | ● | ● | ◐ | ● |
| | 1.9 Overall National budget for tobacco control | ○ | ○ | ○ | ○ | ○ | ◐ | ○ | ○ | ◐ | ○ | ○ | ○ | ◐ | ○ | ◐ |
| | Subdiscipline weighted score | 113 | 186 | 181 | 162 | 167 | 167 | 176 | 201 | 186 | 162 | 108 | 147 | 235 | 167 | 206 |
| 2. Tobacco use | 2.1 Cigarette consumption per capita, males | ◐ | ◐ | ○ | ○ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ○ | ○ | ◐ | ◐ | ○ |
| | 2.2 Cigarette consumption per capita, females | ◐ | ○ | ○ | ● | ◐ | ◐ | ● | ● | ● | ◐ | ○ | ○ | ◐ | ● | ◐ |
| | 2.3 Quit rates | ◐ | ◐ | ○ | ○ | ○ | ◐ | ◐ | ● | ◐ | ◐ | ○ | ○ | ◐ | ◐ | ○ |
| | 2.4 Smoking commencement age, boys | ○ | ◐ | ○ | n.a. | ◐ | ● | ○ | ○ | ◐ | ◐ | ◐ | ○ | ○ | ◐ | ○ |
| | 2.5 Smoking commencement age,girls | ○ | ◐ | ○ | n.a. | ○ | ● | ◐ | ◐ | ○ | ○ | ◐ | ○ | ○ | ◐ | ◐ |
| | 2.6 Smokeless tobacco consumption | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | Subdiscipline weighted score | 187 | 193 | 127 | 167 | 180 | 240 | 220 | 240 | 220 | 200 | 153 | 127 | 187 | 233 | 160 |
| 3. Healthcare contribution | 3.1 Smoking cessation support | ◐ | ● | ○ | ◐ | ○ | ● | ◐ | ● | ◐ | ◐ | ○ | ○ | ◐ | ◐ | ○ |
| | 3.2 Telephone quitlines | ◐ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ◐ | ○ |
| | 3.3 NRT availability | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ● | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ |
| | 3.4 Varenicline and bupropion use per smoker | ○ | ◐ | ○ | n.a. | ○ | ◐ | ○ | ● | ◐ | ○ | ○ | ○ | ● | ○ | ○ |
| | Subdiscipline weighted score | 94 | 113 | 69 | 88 | 69 | 113 | 88 | 138 | 94 | 88 | 69 | 69 | 100 | 94 | 69 |
| 4. Prevalence/ mortality of tobacco-related disease | 4.1 Lung cancer, male | ◐ | ○ | ◐ | ◐ | ○ | ◐ | ○ | ◐ | ○ | ◐ | ○ | ○ | ◐ | ○ | ○ |
| | 4.2 Lung cancer, female | ◐ | ◐ | ◐ | ○ | ○ | ○ | ○ | ◐ | ● | ◐ | ◐ | ○ | ◐ | ● | ◐ |
| | 4.3 Oral cancer, male | ◐ | ○ | ◐ | ● | ◐ | ◐ | ◐ | ● | ○ | ◐ | ● | ○ | ● | ◐ | ◐ |
| | 4.4 Oral cancer, female | ◐ | ○ | ● | ◐ | ◐ | ○ | ◐ | ◐ | ○ | ◐ | ● | ○ | ◐ | ◐ | ● |
| | 4.5 Pancreatic cancer, male | ◐ | ● | ◐ | ◐ | ○ | ◐ | ○ | ◐ | ● | ◐ | ◐ | ○ | ◐ | ◐ | ○ |
| | 4.6 Pancreatic cancer, female | ○ | ◐ | ● | ○ | ○ | ○ | ◐ | ○ | ● | ● | ● | ○ | ○ | ○ | ◐ |
| | 4.7 (C)VD, vascular obstructive disease | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. |
| | 4.8 Respiratory disease male | ● | ○ | ◐ | ◐ | ● | ○ | ◐ | ● | ● | ◐ | ○ | ○ | ○ | ◐ | ● |
| | 4.9 Respiratory disease female | ◐ | ○ | ● | ◐ | ● | ○ | ◐ | ● | ● | ◐ | ○ | ◐ | ○ | ◐ | ◐ |
| | Subdiscipline weighted score | 213 | 150 | 225 | 181 | 175 | 138 | 150 | 231 | 238 | 206 | 169 | 113 | 169 | 194 | 194 |
| | Total score | 607 | 642 | 602 | 598 | 591 | 658 | 634 | 810 | 738 | 656 | 499 | 456 | 691 | 688 | 629 |
| | Rank | 23 | 17 | 24 | 25 | 26 | 13 | 20 | 3 | 6 | 14 | 28 | 29 | 9 | 10 | 21 |

# Euro Tobacco Harm Prevention Index 2012

| Sub-discipline | Indicator | Lithuania | Luxembourg | Malta | Netherlands | Norway | Poland | Portugal | Romania | Slovakia | Slovenia | Spain | Sweden | Switzerland | United Kingdom |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Prevention/ Policies | 1.1 Taxation | ◐ | ● | ○ | ◐ | ● | ◐ | ● | ● | ◐ | ○ | ◐ | ◐ | ○ | ● |
| | 1.2 Advertising restrictions | ◐ | ◐ | ◐ | ◐ | ● | ◐ | ◐ | ○ | ◐ | ◐ | ◐ | ● | ○ | ◐ |
| | 1.3 Smoking restrictions in public places | ◐ | ○ | ◐ | ◐ | ◐ | ○ | ◐ | ○ | ○ | ◐ | ● | ◐ | ○ | ● |
| | 1.4 Consumer awareness of health risks of cigarettes | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | 1.5 Exposure to passive smoke | ◐ | ◐ | ◐ | ● | ◐ | ○ | ◐ | ○ | ◐ | ● | ○ | ● | ◐ | ● |
| | 1.6 Health Warnings | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ◐ | ○ | ○ | ○ | ○ | ● | ● |
| | 1.7 Vending machines w/o age verification | ● | ◐ | ◐ | ◐ | ● | ● | ● | ● | ● | ● | ○ | ● | ◐ | ○ |
| | 1.8 Age limits for purchase | ● | ◐ | ● | ◐ | ● | ● | ● | ● | ● | ● | ● | ● | ◐ | ● |
| | 1.9 Overall National budget for tobacco control | ○ | ○ | ○ | ● | ◐ | ○ | ○ | ● | ○ | ○ | ○ | ◐ | ○ | ● |
| | Subdiscipline weighted score | 176 | 118 | 157 | 186 | 211 | 157 | 191 | 186 | 167 | 172 | 167 | 206 | 132 | 230 |
| 2. Tobacco use | 2.1 Cigarette consumption per capita, males | ○ | ◐ | ◐ | ◐ | ◐ | ○ | ○ | ◐ | ◐ | ◐ | ○ | ● | ◐ | ◐ |
| | 2.2 Cigarette consumption per capita, females | ● | ◐ | ● | ◐ | ● | ◐ | ● | ◐ | ● | ◐ | ○ | ● | ◐ | ● |
| | 2.3 Quit rates | ○ | ◐ | ◐ | ● | ◐ | ◐ | ◐ | ○ | ○ | ● | ◐ | ● | ◐ | ● |
| | 2.4 Smoking commencement age, boys | ○ | ◐ | ● | ◐ | ● | ◐ | ● | ○ | ◐ | ◐ | ● | ● | ◐ | ● |
| | 2.5 Smoking commencement age,girls | ◐ | ○ | ◐ | ○ | ● | ● | ● | ● | ● | ◐ | ◐ | ● | ● | ◐ |
| | 2.6 Smokeless tobacco consumption | ● | ● | ● | ● | ◐ | ● | ◐ | ◐ | ● | ● | ● | ○ | ● | ● |
| | Subdiscipline weighted score | 180 | 200 | 247 | 220 | 247 | 207 | 227 | 180 | 227 | 233 | 187 | 273 | 227 | 267 |
| 3. Healthcare contribution | 3.1 Smoking cessation support | ○ | ◐ | ◐ | ○ | n.a. | ○ | ◐ | ○ | ○ | ○ | ◐ | ◐ | ◐ | ● |
| | 3.2 Telephone quitlines | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | 3.3 NRT availability | ○ | ◐ | ◐ | ● | ● | ◐ | ● | ◐ | ◐ | ◐ | ◐ | ● | ◐ | ● |
| | 3.4 Varenicline and bupropion use per smoker | ○ | ◐ | n.a. | ◐ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ● | ◐ | ● |
| | Subdiscipline weighted score | 50 | 94 | 88 | 94 | 100 | 69 | 106 | 69 | 69 | 69 | 88 | 119 | 94 | 138 |
| 4. Prevalence/ mortality of tobacco-related disease | 4.1 Lung cancer, male | ○ | ◐ | ◐ | ◐ | ◐ | ○ | ◐ | ○ | ◐ | ○ | ◐ | ● | ◐ | ◐ |
| | 4.2 Lung cancer, female | ◐ | ● | ● | ○ | ◐ | ○ | ● | ● | ◐ | ○ | ● | ◐ | ○ | ◐ |
| | 4.3 Oral cancer, male | ◐ | ○ | ● | ● | ● | ◐ | ○ | ○ | ○ | ◐ | ◐ | ● | ◐ | ● |
| | 4.4 Oral cancer, female | ◐ | ○ | ◐ | ○ | ◐ | ◐ | ● | ◐ | ● | ◐ | ◐ | ◐ | ○ | ◐ |
| | 4.5 Pancreatic cancer, male | ○ | ● | ◐ | ● | ◐ | ◐ | ● | ◐ | ○ | ◐ | ● | ● | ○ | ● |
| | 4.6 Pancreatic cancer, female | ◐ | ● | ○ | ● | ○ | ◐ | ● | ● | ◐ | ○ | ● | ● | ● | ◐ |
| | 4.7 (C)VD, vascular obstructive disease | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. | n.ap. |
| | 4.8 Respiratory disease male | ○ | ◐ | ○ | ◐ | ◐ | ◐ | ○ | ◐ | ◐ | ● | ○ | ● | ● | ○ |
| | 4.9 Respiratory disease female | ◐ | ◐ | ◐ | ◐ | ◐ | ● | ◐ | ◐ | ● | ● | ○ | ◐ | ● | ○ |
| | Subdiscipline weighted score | 150 | 225 | 200 | 200 | 200 | 175 | 219 | 200 | 200 | 188 | 206 | 263 | 200 | 188 |
| | Total score | 556 | 637 | 692 | 700 | 758 | 608 | 743 | 635 | 663 | 662 | 648 | 861 | 653 | 823 |
| | Rank | 27 | 18 | 8 | 7 | 4 | 22 | 5 | 19 | 11 | 12 | 16 | 1 | 15 | 2 |

The size of the circle symbols indicates High, Medium and Low weight indicators.

## 4.1 Results Summary




The scoring has intentionally been done in such a way that the likelihood that two states should end up sharing a position in the ranking is almost zero. It must therefore be noted that great efforts should not be spent on in-depth analysis of why one country is in 13$^{th}$ place, and another in 16$^{th}$. Very subtle changes in single scores can modify the internal order of countries, particularly in the middle of the ranking list.

The THPI 2012 total ranking of countries shows a landslide victory for Sweden, scoring 861 points out of 1000, 38 points ahead of runners-up United Kingdom at 823 points, closely followed by Finland at 810 points, with a prominent gap another close group of three countries: 4$^{th}$ place Norway (758), 5$^{th}$ Portugal (743) and 6$^{th}$ France at 738 points.

Sweden has a tobacco use quite different from that of any other country. In the rest of Europe and the OECD, tobacco use consists to ~98 % of cigarette smoking. Sweden, and to some extent also Norway, is the only country having a form of tobacco use which is significant in comparison with cigarette smoking. It is beyond the scope of this report to try to prove any causality behind the Swedish results on tobacco harm prevention. The Swedish habit of using SLT (smokeless tobacco, "snus") is mainly exhibited by males, and the low smoking prevalence and low incidences of lung cancer, pancreatic cancer and respiratory disease are also most evident for the Swedish male population.

Theoretically, it might be that the causality behind the Swedish results has nothing to do with the ratio of cigarette use *vs.* SLT. However, it seems worth to make the observation that these two conditions are peculiar to Sweden.

Ireland and the United Kingdom have introduced severe smoking restrictions in recent years.

These two countries have the highest scores on the sub-discipline Prevention and Policies, with the UK (823 points) finishing 2nd in the total score, mainly losing out to Sweden due to a 75-point handicap in the sub-discipline Tobacco-related disease.

Just like the Nordic countries (with Sweden an exception for cigarette smoking), the British Isles show an emancipated smoking pattern, with a low gender difference in per capita cigarette consumption – the same pattern can be seen for alcohol[16]. The UK cigarette consumption for both sexes is 1400 ±50 cigarettes per capita per year, that of Ireland 1900 ±50. (The Swedish average for both sexes is roughly 1000, and the European average male/female cigarette consumption is approximately 2500/1700.)

The high rate of cigarette taxation in the UK has led to a "non-duty paid" (duty-free, illicit) share of cigarette consumption of 27 % (industry estimate), exceeded among the THPI countries only by Norway.

Ireland lands a rather more modest 9th place (691 points) overall. This is an example of why the HCP is normally reluctant to award Index scores for policies alone.

What the Irish position in the THPI indicates is that restrictive policies do not have 100% effectiveness. It seems that the Irish reputation for being a care-free nation does reflect in high smoking levels, in spite of the high cost, as well as being European champions at binge drinking: "At the top of the country scale is, by a considerable margin, Ireland. Here 36% claimed to drink 3 – 4 drinks on a typical drinking occasion, and a further 34% 5 or more".[17] This is confirmed by a later Eurobarometer[18].

Finland is the bronze medallist in the THPI with 810 points. After supreme sub-discipline winners Sweden, France (total score 738) and Finland score best on Tobacco-related disease. The cigarette consumption of both shows slightly larger gender variation; the male/female numbers for cigarettes per capita per year is 1500/1100 (Finland) and 1700/1300 (France).

Worth observing is that the fairly modest smoking rates of Finland have been achieved with a modest cigarette tax, and independent of a significant use of smokeless tobacco, which in Finland is banned for being marketed according to the current EU Directive on Tobacco Products (2001/37). Some oral smokeless tobacco is traditionally used, mainly by the Swedish-speaking minority.

Norway has a long-standing tradition of roll-your-own cigarette smoking due to a significant difference in taxation of cigarettes and fine-cut tobacco. Also, due to the high cigarette tax and the long land border with Sweden, 40% of Norwegian tobacco consumption has been estimated to be sourced outside the country (see Section 7.12.2). The total Norwegian per capita cigarette consumption is essentially the same as that of the UK, and is essentially the same for both sexes.

Norway has the third highest score on Prevention/Policies with 216 sub-discipline points.

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[3,17] Special Eurobarometer 272, *Attitudes towards Alcohol,* March 2007.

[18] Special Eurobarometer 331, *EU citizen's attitudes towards alcohol*, April 2010.

Just as for alcohol, of which French consumption 25 years ago was among the highest in Europe, French smoking rates have come down considerably. The Gauloise-puffing Frenchman, happily sucking on a high-tar cigarette, seems to have become a breed extinct. With the exception of male lung cancer, the French somehow seem able to escape the disease effects of pleasant living – the French heart disease rate has been the lowest in Europe as long as anybody can remember[19].

Spain, Bulgaria, Greece and Hungary land in 14th, 25th, 28th and 29th place respectively.

These four countries are those scoring Red on the smoking prevalence for both men and women.

Spain, due to dietary and other beneficial lifestyle effects(?), seems to be able to avoid the most severe tobacco harm.

Hungarians, Bulgarians and Greeks are the three heaviest smokers among European nations.

Considering the smoking rate of Bulgarians, it is difficult to avoid the suspicion that there can be an under-reporting of disease rates of smoking-related diseases, and that therefore the proper rank of Bulgaria should be 27th/28th. Considering the tight correlation between long-term cigarette smoking and COPD, it is very difficult to believe the fairly low COPD rates reported from Bulgaria (the indicator is calculated on the total death rate in respiratory disease excluding pneumonia – if the official statistics on COPD alone were used, Bulgaria would get shining Green scores for respiratory disease, which seems implausible.

Just as in the Euro Consumer Health Indexes, Hungary unfortunately scores very low on disease outcomes. For the HCP it remains a mystery how a country, which has had a healthcare system covering all citizens as long as the U.K. (since 1948) can keep showing such poor results on the treatment of major diseases.

Greeks are the heaviest smokers in Europe. Greece enjoys the doubtful distinction of being the only country without an effective age limit for cigarette purchase. (The re-introduction of an age limit is supposed to have been done on 2010-07-01, but Greek officials tell the HCP that it will presumably be some time before that age restriction becomes adhered to in real life.)

### 4.1.1 Country scores

Unusual for a HCP Index, the top scores are fairly concentrated to the countries getting the highest total scores in the THPI. In a typical European Index, there are no countries, which excel across the entire range of indicators. The national scores frequently seem to reflect more of "national and organisational cultures and attitudes", rather than mirroring how large resources a country is spending. The cultural streaks have in all likelihood deep historical roots. The THPI results convey the impression that a number of countries; the Nordics (with Denmark not quite catching up), Ireland and the U.K., Portugal and France have been putting in a more focussed effort than most other countries.

[19] Blake, S.: *Clinical and Pathological Reports* (monograph), Newry, N. Ireland, 1818.

### 4.1.2 Results in "Quadrathlon"

The THPI 2012 is made up of four sub-disciplines. Most frequently in HCP Indexes, no country excels across all aspects of measuring a healthcare system. It can therefore be of interest to study how the 29 countries rank in each of the four parts of the "quadrathlon". The scores within each sub-discipline are summarized in the following table:

**Euro Tobacco Harm Prevention Index 2012**

| Sub-discipline | Austria | Belgium | Bulgaria | Cyprus | Czech Republic | Denmark | Estonia | Finland | France | Germany | Greece | Hungary | Ireland | Italy | Latvia | Lithuania | Luxembourg | Malta | Netherlands | Norway | Poland | Portugal | Romania | Slovakia | Slovenia | Spain | Sweden | Switzerland | United Kingdom |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Prevention/Policies | 113 | 186 | 181 | 162 | 167 | 167 | 176 | 201 | 186 | 162 | 108 | 147 | 235 | 167 | 206 | 176 | 118 | 157 | 186 | 211 | 157 | 191 | 186 | 167 | 172 | 167 | 206 | 132 | 230 |
| 2. Tobacco use | 187 | 193 | 127 | 167 | 180 | 240 | 220 | 240 | 220 | 200 | 153 | 127 | 187 | 233 | 160 | 180 | 200 | 247 | 220 | 247 | 207 | 227 | 180 | 227 | 233 | 187 | 273 | 227 | 267 |
| 3. Healthcare contribution | 94 | 113 | 69 | 88 | 69 | 113 | 88 | 138 | 94 | 88 | 69 | 69 | 100 | 94 | 69 | 50 | 94 | 88 | 94 | 100 | 69 | 106 | 69 | 69 | 69 | 88 | 119 | 94 | 138 |
| 4. Prevalence/mortality of tobacco-related disease | 213 | 150 | 225 | 181 | 175 | 138 | 150 | 231 | 238 | 206 | 169 | 113 | 169 | 194 | 194 | 150 | 225 | 200 | 200 | 200 | 175 | 219 | 200 | 200 | 188 | 206 | 263 | 200 | 188 |
| Total score | 607 | 642 | 602 | 598 | 591 | 658 | 634 | 810 | 738 | 656 | 499 | 456 | 691 | 688 | 629 | 556 | 637 | 692 | 700 | 758 | 608 | 743 | 635 | 663 | 662 | 648 | 861 | 653 | 823 |
| Rank | 23 | 17 | 24 | 25 | 26 | 13 | 20 | 3 | 6 | 14 | 28 | 29 | 9 | 10 | 21 | 27 | 18 | 8 | 7 | 4 | 22 | 5 | 19 | 11 | 12 | 16 | 1 | 15 | 2 |

The top countries show an unusually even performance, Sweden seizing the victory mainly through its very low incidence of tobacco-related diseases, *i.e.* low actual "tobacco harm", which is where the U.K., performing well in the other sub-disciplines, loses out. Ireland, having the strictest regulations on tobacco, does not do terribly well overall – it seems that the ancient wisdom that good results cannot be achieved using a stick only; there has to be some sort of carrot involved! Where Sweden misses out, is that its superior results are mainly for men – for women, the Swedish situation is not as outstanding.

| Sub-discipline | Top country/countries | Score | Maximum score |
|---|---|---|---|
| 1. Prevention/Policies | Ireland | 235 | 250 |
| 2. Tobacco use | Sweden | 273 | 300 |
| 3. Healthcare contribution | Finland, United Kingdom | 138 | 150 |
| 4. Tobacco-related disease | Sweden | 263 | 300 |

# 5. How to interpret the Index results?

The first and most important consideration on how to treat the results is: with caution!

The Euro Tobacco Harm Prevention Index 2012 is an attempt at measuring and ranking the how well European countries tackle the vital issue of harmful effects of tobacco use. The results definitely contain information quality problems. There is a shortage of pan-European, uniform set procedures for data gathering.

But again, the HCP finds it far better to present the results to the public, and to promote constructive discussion rather than staying with the only too common opinion that as long as healthcare information is not a hundred percent complete it should be kept in the closet. Again, it is important to stress that the Index displays consumer information, not medically or individually sensitive data.

While by no means claiming that the THPI 2012 results are dissertation quality, the findings should not be dismissed as random findings. On the contrary, previous experience from the general Euro Health Consumer Indexes reflects that ranking by similar indicators is looked upon as an important tool to display public service quality. The HCP hopes that the THPI 2009 results can serve as inspiration for how and where European efforts to limit Tobacco Harm can be improved.

# 6. European data shortage

## 6.1 Outcomes indicators included in the THPI

There is one predominant feature, which characterizes European/Canadian public systems as opposed to their more industrialised counterparts in countries such as the U.S.A.: there is an abundance of statistics on input of resources, but a traditional scarcity of data on quantitative or qualitative *output*.

Organisations like the WHO and OECD are publishing easily accessible and frequently updated statistics on topics like:

- the number of doctors/nurses per capita
- hospital beds per capita
- share of patients receiving certain treatments
- number of consultations per capita
- number of MR units per million of population
- health expenditure by sources of funds
- drug sales in doses and monetary value (endless tables)

Systems with a history of funding structures based on grant schemes and global budgeting often exhibit a management culture, where monitoring and follow-up is more or less entirely focused on input factors. Such factors can be staff numbers, costs of all kinds (though not usually put in relation to output factors) and other factors of the nature illustrated by the above bullet list.

Public systems operating more on an industrial basis have a natural inclination to focus monitoring on *output*, and also much more naturally relate measurements of costs to output factors in order to measure productivity, cost-effectiveness and quality.

The THPI project has endeavoured to obtain data on the output of tobacco harm prevention efforts. Doing this, the ambition has been to concentrate on indicators, where the contribution of "somebody actually having done something" is a major factor.

# 7. Evolution of the Euro Tobacco Harm Prevention Index

## 7.1 Indicators introduced for THPI 2012

In the design and selection of indicators, the EHCI has been working on the following three criteria since 2005:

1. Relevance
2. Scientific soundness
3. Feasibility (*i.e.* can data be obtained)

Incidentally, these are the same three principles are also governing the new German quality indicators project, www.bqs-online.de.

As every year the international expert panel has fed in a long list of new indicators to be included in the THPI (find more on expert panel composition), there was a true brainstorm of new bright ideas to be included in this Index. Unfortunately, the research team was unable to turn all of them into a green-yellow-red score in the matrix; for example, the indicator "Hospital admissions for asthma" (a high number giving a Red score) had to be discarded due to the chaos of diagnosis differentiation between asthma, COPD, bronchitis and possibly other ailments.

For description and more details on the indicators, see section "Content of indicators in the THPI 2012".

## 7.2 Indicator areas (sub-disciplines)

As all European HCP Indices, the THPI 2012 is built up with indicators grouped in sub-disciplines. After having had to surrender to the "lack of statistics syndrome", and after scrutiny by the expert panel, 28 indicators survived into the THPI 2012.

The indicator areas for the THPI 2012 thus became:

| **Sub-discipline** | **Number of indicators** |
|---|---|
| • Prevention/Policies | 9 |
| • Tobacco use | 6 |
| • Healthcare contribution | 4 |
| • Tobacco-related disease | 9 |

## 7.3 Scoring in the THPI 2012

The performance of the respective countries was graded on a three-grade scale for each indicator, where the grades have the rather obvious meaning of Green = good (●), Amber = so-so (◐) and Red = not-so-good (○). A Green score earns 3 points, an Amber score 2 points and a Red score (or a "not available", **n.a.**) earns 1 point on Low weight indicators – see Section 7.7.1 on individual indicator weights.

The indicator "*4.7 CVD incidence/mortality*" has been subject to a new score in the THPI 2012: "not applicable". For reasons explained in Section 7.12.4, all countries receive the "**n.ap.**" score, which also is not included in the sub-discipline score calculation.

Since the EHCI 2006, the same methodology has been used: For each of the sub-disciplines, the country score was calculated as a percentage of the maximum possible (*e.g.* for Waiting times, the score for a state has been calculated as % of the maximum 3 x 5 = 15).

Thereafter, the sub-discipline scores were multiplied by the weight coefficients given in the following section and added up to make the final country score. These percentages were then multiplied by 100, and rounded to a three digit integer, so that an "All Green" score on the 28 indicators would yield 1000 points.

## 7.4 Weight coefficients

The possibility of introducing weight coefficients was discussed already for the EHCI 2005, *i.e.* selecting certain indicator areas as being more important than others and multiplying their scores by numbers other than 1.

For the EHCI 2006, explicit weight coefficients for the five sub-disciplines were introduced after a careful consideration of which indicators should be considered for higher weight. The accessibility and outcomes sub disciplines were decided as the main candidates for higher weight coefficients based mainly on discussions with expert panels and experience from a number of patient survey studies. Here, as for the whole of the Index, we welcome input on how to improve the Index methodology.

In the THPI 2012, the scores for the four sub-disciplines were given the following weights:

| **Sub discipline** | **Relative weight ("All Green" score contribution to total maximum score of 1000)** | **Points for a Green score on a Low weight indicator*) in each sub-discipline** |
|---|---|---|
| Prevention/Policies | 250 | 14.71 |
| Tobacco use | 300 | 20.00 |
| Healthcare contribution | 150 | 18.75 |
| Tobacco-related disease | 300 | 18.75 |
| **Total sum of weights** | **1000** | |

*) A Medium weight Green score contributes twice these numbers, and a High weight Green three times these numbers; see section 7.8.1.

Consequently, as the percentages of full scores were added and multiplied by (1000/Total sum of weights), the maximum theoretical score attainable for a country in the Index is 1000, and the lowest possible score is 333.

It should be noted that, as there are not many examples of countries that excel in one sub-discipline but do very poorly in others, the final ranking of countries presented by the THPI 2012 is remarkably stable if the weight coefficients are varied within rather wide limits.

The project has been experimenting with other sets of scores for green, amber and red, such as 2, 1 and 0 (which would really punish low performers), and also 4, 2 and 1, (which would reward real excellence). The final ranking is remarkably stable also during these experiments.

### 7.4.1 Individual indicator weights

In the THPI, a weighting novelty has been introduced in the form of different weights for *individual indicators* in three levels, Low, Medium or High. The relative weights of L/M/H have been set as 1/2/3, which simply means that a Green for a Low weight indicator gives 3 points, for a Medium weight Indicator 6 points and for a High weight indicator 9 points. For all indicators, an Amber score gives 2/3 of a Green score, and a Red gives 1/3. Low/Medium/High weights are indicated in the final score matrix by small, medium size and large circle symbols respectively.

This means that for Prevention/Policies, the score for a country has been calculated as percent of the maximum: 9 x (3 x individual weight for each indicator) = 51.

### 7.4.2 Regional differences within European states

The HCP is well aware that many European states have very decentralised public health systems. Not least for the U.K. it is often argued that “Scotland and Wales have separate NHS services, and should be ranked separately”.

The uniformity among different parts of the U.K. is probably higher than among regions of Spain and Italy, Bundesländer in Germany and possibly even than among counties in tiny 9 million population Sweden.

Grading European states does present a certain risk of encountering the syndrome of “if you stand with one foot in an ice-bucket and the other on the hot plate, on average you are pretty comfortable”. This problem would be quite pronounced if there were an ambition to include the U.S.A. as one country in a HCP Index.

As equity in health has traditionally been high on the agenda in European states, it has been judged that regional differences are small enough to make statements about the national levels of healthcare services relevant and meaningful.

## 7.5 Indicator definitions and data sources for the THPI 2012

| Sub-discipline | Indicator | Explanatory comment | ● Score 3 | ◑ Score 2 | ○ Score 1 | Main Information Sources |
|---|---|---|---|---|---|---|
| **1. Prevention/ Policies** | 1.1 Taxation | Excise yield per 1000 cigarettes, per 1000 PPP$ GDP per capita | ≥ 4 | 3.9 - 3.0 | < 3.0 | Tobacco Excise Tables; EC official table REF 1031 July 2010. GDP/capita from WHO HfA July 2010 |
| | 1.2 Advertising restrictions | comprehensive bans on the advertising and promotion of all tobacco products, logos and brand names | ≥ 12 out of 13 | 11 - 7 out of 13 | < 7 out of 13 | Joossens-Raw; The Tobacco Control Scale 2010 in Europe, ECToH Conference, Amsterdam, March 2011 |
| | 1.3 Smoking restrictions in public places | Classification from data reference | Total protection in all enclosed workplaces and public places | "Comprehensive protection"; smoking allowed only in separate smoking rooms | Partial protection | SCENIHR: Implementation of Smoke-free laws in the EU May 2010 |
| | 1.4 Consumer awareness of health risks of cigarettes | Awareness of smoking health risks on a 1 - 10 scale | Average > 7 (but less than 8.5) | Average 7 -5 | Average < 5 | Steptoe et al. "Beliefs in health risks in 23 countries (2002) |
| | 1.5 Exposure to passive smoke | In the workplace, % exposed > 1 hour/day | ≤ 5 % | 5 - 19 % | ≥ 20 % | Special Eurobarometer 332, May 2010 |
| | 1.6 Health Warnings | Large, direct health warning labels on cigarette boxes and other tobacco products | ≥ 7 out of 10 | 7 - 6 out of 10 | ≤ 5 out of 10 | Joossens-Raw; The Tobacco Control Scale 2010 in Europe, ECToH Conference, Amsterdam, March 2011 |
| | 1.7 Vending machines wo age verification | | Banned, or strict customer age verification | Allowed, with weak function of customer age verification | Allowed | See indicator description Indicator 1.7 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 1.8 Age limits for purchase | I.e. for purchase, not minimum smoking age | > 18 | > 16 | No age limit | European Tobacco Control Report 2007 |
| | 1.9 Overall National budget for tobacco control | Overall National budget for tobacco control, millionths of GDP | ≥ 30/1 000 000 | > 10/1 000 000 | < 10/1 000 000 | WHO world report on the Global Tobacco Epidemic, 2009. WHO Health for All database, July 2010. |
| **2. Tobacco use** | 2.1 Cigarette consumption per capita, males | Cigarette sales, including non-duty paid and RYO, gender distributed from % of daily smokers | < 1000 cigarettes per capita per year | < 3000 cigarettes per capita per year | > 3000 cigarettes per capita per year | www.ceccm.eu ,tobacco industry fine cut (RYO) sales, WHO health for All Jan 2010 |
| | 2.2 Cigarette consumption per capita, females | Cigarette sales, including non-duty paid and RYO, gender distributed from % of daily smokers | < 1500 cigarettes per capita per year | < 2000 cigarettes per capita per year | > 2000 cigarettes per capita per year | www.ceccm.eu , tobacco industry fine cut (RYO) sales, WHO health for All Jan 2010 |
| | 2.3 Quit rates | % of once-smokers who have quit smoking | > 50% | 50 - 35 % | < 35% | Flash Eurobarometer 253, March 2009 |
| | 2.4 Smoking commencement age, boys | Proportion of 15-year-old boys being daily smokers | ≤ 10 % | 11 -15 % | ≥ 16 % | Currie C et al., eds. Inequalities in young people's health: HBSC international report from the 2005/2006 Survey. Copenhagen, WHO Regional Office for Europe, 2008 (Health Policy for Children and Adolescents, No. 5) (http://www.euro.who.int/Document/E91416.pdf |
| | 2.5 Smoking commencement age,girls | Proportion of 15-year-old girls being daily smokers | | | | Currie C et al., eds. Inequalities in young people's health: HBSC international report from the 2005/2006 Survey. Copenhagen, WHO Regional Office for Europe, 2008 (Health Policy for Children and Adolescents, No. 5) (http://www.euro.who.int/Document/E91416.pdf |
| | 2.6 Smokeless tobacco consumption | % of daily users | < 3 % | 3 - 10 % | > 10 % | Flash Eurobarometer #253, March 2009 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **3. Healthcare contribution** | 3.1 Smoking cessation support | % of smokers having tried to quit who received support from a healthcare professional | ≥ 20 % | 19 - 10 % | < 10% | Special Eurobarometer 272, September 2007 |
| | 3.2 Telephone quitlines | At your last quit attempt, did you use a "telephone quitline"? | ≥ 10 % | 9 - 5 % | < 5% | Special Eurobarometer 332, May 2010 |
| | 3.3 NRT availability | | General sales | OTC in pharmacies | Rx only | WHO world report on the Global Tobacco Epidemic, 2009. |
| | 3.4 Varenicline and bupropion use per smoker | SU's of Champix and Zyban sold per smoker 15+ | ≥ 800 | 799 - 200 | < 200 | IMS Health MIDAS database. WHO Health for All database, July 2010. |
| **4. Prevalence/ mortality of tobacco-related disease** | 4.1 Lung cancer, male | Age-standardized incidence per 100000 (2006) | < 40 | 40 - 75 | > 75 | Estimates of the cancer incidence and mortality in Europe in 2006, J. Ferlay et al., Annals of Oncol., 2007 |
| | 4.2 Lung cancer, female | Age-standardized incidence per 100000 (2006) | < 12 | 13 - 25 | > 25 | Estimates of the cancer incidence and mortality in Europe in 2006, J. Ferlay et al., Annals of Oncol., 2007 |
| | 4.3 Oral cancer, male | Age-standardized incidence per 100000 (2006) | < 15 | 15 - 25 | > 25 | European Cancer Observatory; http://eu-cancer.iarc.fr/cancer-0-oral-cavity-and-pharynx.html,en |
| | 4.4 Oral cancer, female | Age-standardized incidence per 100000 (2006) | ≤ 3 | ≤ 6 | > 6 | European Cancer Observatory; http://eu-cancer.iarc.fr/cancer-0-oral-cavity-and-pharynx.html,en |
| | 4.5 Pancreatic cancer, male | Age-standardized incidence per 100000 (2006) | < 10 | 10 - 14 | > 14 | European Cancer Observatory; http://eu-cancer.iarc.fr/cancer-8-pancreas.html,en |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 4.6 Pancreatic cancer, female | Age-standardized incidence per 100000 (2006) | < 7 | 7 - 8.5 | > 8.5 | European Cancer Observatory; http://eu-cancer.iarc.fr/cancer-8-pancreas.html,en |
| | 4.7 (C)VD, vascular obstructive disease | Poorly correlated - too many confounding factors | | | | |
| | 4.8 Respiratory disease male | SDR/100 000 age 45+, all resp. disease minus pneumonia and influenza | ≤ 90 | ≤ 120 | > 120 | Detailed Mortality Database, WHO Europe |
| | 4.9 Respiratory disease female | SDR/100 000 age 45+, all resp. disease minus pneumonia and influenza. | < 22 | 22 - 35 | > 35 | Detailed Mortality Database, WHO Europe |

### 7.5.1 Additional data gathering – feedback from National Ministries/Agencies

On July 11th, 2010, preliminary score sheets were sent out to Ministries of Health or state agencies of all 29 states, giving the opportunity to supply more recent data and/or higher quality data than what is available in the public domain.

This procedure had been prepared for during the spring and summer of 2010 by extensive mail, e-mail and telephone contacts. For previous HCP Indices, personal visits have been paid to essentially all the ministries/agencies concerned. Finally, feedback responses, in the form of returned "single country score sheets" and/or thorough discussions at personal visits to MoH:s/national agencies, have been had from official national sources as illustrated in the following table:

| Country | Responded |
|---|---|
| Austria | |
| Belgium | √ |
| Bulgaria | √ |
| Cyprus | √ |
| Czech Republic | |
| Denmark | |
| Estonia | |
| Finland | |
| France | |
| Germany | |
| Greece | |
| Hungary | √ |
| Ireland | √ |
| Italy | √ |
| Latvia | √ |
| Lithuania | |
| Luxembourg | √ |
| Malta | √ |
| Netherlands | √ |
| Norway | |
| Poland | |
| Portugal | √ |
| Romania | |
| Slovakia | |
| Slovenia | √ |
| Spain | |
| Sweden | |
| Switzerland | √ |
| United Kingdom | √ |

Score sheets sent out to national agencies contained only the scores for that respective country. Corrections were accepted only in the form of actual data, not by national agencies just changing a score (frequently from Red to something better, but surprisingly often honesty prevailed and scores were revised downwards).

In addition to the countries ticked in the table above for having returned actual reviewed single country score sheets, contacts with national bodies to confirm scores on one or a few indicators have taken place.

## 7.6 Threshold value settings

It has not been the ambition to establish a global, scientifically based principle for threshold values to score green, amber or red on the different indicators. Threshold levels have been set after studying the actual parameter value spreads, in order to avoid having indicators showing "all Green" or "totally Red".

Setting threshold values is typically done by studying a bar graph of country data values on an indicator sorted in ascending order. The usually "S"-shaped curve yielded by that is studied for notches in the curve, which can distinguish clusters of states, and such notches are often taken as starting values for scores. A slight preference is also given to threshold values with even numbers.

The performance of a country was graded on a three-grade scale for each indicator (see more information in Scoring section).

For each of the four sub-disciplines, the country score was calculated as a percentage of the maximum possible (e.g., for Prevention/Policies, the score for a state has been calculated as percent of the maximum 51).

Thereafter, the sub-discipline scores were multiplied by the weight coefficients given in section 7.7 above and added to make the total country score. The scores thus obtained were multiplied by (1000/the sum of weights) and rounded to a three digit integer, giving a score system where a state with "all Green" would receive 1000 points (and "all Red" 333 points).

One (minor) reason for this somewhat complex scoring methodology has been driven by the "competition" element of the Heart Index, reducing the likelihood of two or more states ending up in a tied position. The Eurovision Song Contest, for example, changed the score in the same direction after four countries tied for first place in 1969.

## 7.7 "CUTS" data sources

Whenever possible, research on data for individual indicators has endeavoured to find a "CUTS" (Comprehensive Uniform Trustworthy Source). If data on the underlying parameter behind an indicator is available for all or most of the 29 states from one single and reasonably reliable source, then there has been a definitive preference to base the scores on the CUTS. As CUTS would be considered WHO databases, OECD Health data, Special Eurobarometers, and scientific papers using well-defined and established methodology.

Apart from the sheer effectiveness of the approach, the basic reason for the concentration on CUTS, when available, is that data collection primarily based on information obtained from 29 national sources, even if those sources are official Ministry of Health or National Health/Statistics agencies, generally yields a high noise level. It is notoriously difficult to obtain precise answers from many sources even when these sources are all answering the same question. For example, in the Euro Consumer Diabetes Index 2008, it was difficult to find answers to indicators like "Do you have nurse practitioners in your country?" or "Is diabetes foot (podiatrist) a recognized sub-speciality in your country?". The reason is very simple: the definition of what is a diabetes nurse or a diabetes podiatrist and the amount of education and training required to qualify are different in every country. It has to be emphasized that also when a CUTS for an indicator has been identified, the data are

still reviewed through cross-check procedures, as there have frequently been occasions where national sources or scientific papers have been able to supply more recent and/or higher precision data.

### 7.7.1 The "Rolls-Royce gearbox" factor

Another reason for preferably using CUTS whenever possible is the same reason why Rolls-Royce (in their pre-BMW days) did not build their own gearboxes. The reason was stated as "We simply cannot build a better gearbox than those we can get from outside suppliers, and therefore we do not make them ourselves". For the small size organisation HCP, this same circumstance would be true for an indicator where a Eurobarometer question, the WHO HfA database, or another CUTS happens to cover an indicator.

## 7.8 Content of indicators in the THPI 2012

The research team of the THPI 2012 has been collecting data on 28 performance indicators, structured in a framework of four sub-disciplines. Each of these sub-disciplines reflects a certain logical entity, *e.g.* Prevention/Policies or Tobacco use.

The indicators come numbered in the report, to provide more reader friendliness and clarity.

Where possible, CUTS - Comprehensive Uniform Trustworthy Sources - were used; see section "CUTS Data Sources" for more information on this approach, typical for HCP research work.

### 7.8.1 Prevention/policies

There are nine indicators in this sub-discipline:

***1.1 Taxation*** *(High weight indicator)*

Increasing the price of tobacco products through significant tax increases is the single most effective way to decrease tobacco use and to encourage current users to quit. In addition, higher tobacco taxes are particularly effective in keeping youth from taking up tobacco use and in reducing use among the poor, as both groups are highly responsive to price changes[20].

According to Joossens-Raw: *Progress in Tobacco Control in 30 European Countries, 2005 to 2007*, raising the sales tax on cigarettes is one of the most effective measures for reduction of smoking.

The precise indicator scored is the "Excise yield per 1000 cigarettes, per 1000 PPP$ (Purchasing Power Parity USD) GDP per capita", as the restrictive effect of cigarette taxation is strongly dependent on the buying power of the public. The division by the GDP per capita parameter serves for the indicator to more closely reflect the affordability of cigarettes to the public – Romania, still having a rather modest nominal cigarette tax, thus scores high, which seems to reflect the general experience of Romanian consumers; that cigarettes have become very expensive in the last five years.

[20] WHO REPORT ON THE GLOBAL TOBACCO EPIDEMIC, 2009, p. 62.

On this indicator, Luxembourg has been given a unique Purple score, equal to 0 points; the LUX cigarette tax, in relation to Luxembourgian buying power, is low enough o be in a class of its own in Europe!

Sources of data: Tobacco Excise Tables; EC official table REF 1031 July 2010. GDP/capita from WHO HfA July 2010. CUTS data.

### ***1.2 Advertising restrictions*** *(Medium weight indicator)*

The authors of the data source have scored countries on a 0 – 13 point scale for effective tobacco advertising restrictions. The THPI has simply converted those scores to Green/Amber/Red.

Sources of data: Luuk Joossens-Martin Raw: *The Tobacco Control Scale 2010 in Europe*, European Conference Tobacco or Health 2011, Amsterdam, The Netherlands. CUTS data.

### ***1.3 Smoking restrictions in public places*** *(Medium weight indicator)*

SCENHIR (http://ec.europa.eu/health/scientific_committees/emerging/index_en.htm), Scientific Committee on Emerging and Newly Identified Health Risks, a body under the European Commission, . The Committee provides opinions on emerging or newly-identified health and environmental risks and on broad, complex or multidisciplinary issues requiring a comprehensive assessment of risks to consumer safety or public health and related issues not covered by other Community risk assessment bodies.

The indicator uses the classification straight from the data source. These scores were checked against the scores of the discipline Public Place Smoking Bans in the Joossens-Raw *The Tobacco Control Scale 2010 in Europe* (TCS). Scores agree very well, except for Cyprus, which gets a dramatically lower score in the TCS. The Cypriotic score has therefore been lowered to Amber.

Source of data: SCENIHR: Implementation of Smoke-free laws in the EU May 2010, Luuk Joossens-Martin Raw: *The Tobacco Control Scale 2010 in Europe*, European Conference Tobacco or Health 2011, Amsterdam, The Netherlands. CUTS data.

### ***1.4 Consumer awareness of health risks of cigarettes*** *(Low weight indicator)*

Really, a very boring indicator. As the data source showed, already in 2002 the awareness of health risks associated with smoking ranked between 7½ and 8½ on a 1 – 10 scale for the 23 countries in the study. This awareness has presumably not decreased since, *i.e.* very few smokers seem to be smoking because they are uninformed about the health risks.

The study becomes slightly more interesting when looking at the awareness of different health hazards associated with smoking. One example: Korean smokers seemed almost totally unaware of the heart disease risks from smoking.

Sources of data: Steptoe et al. "Beliefs in health risks in 23 countries, *Addiction*, **Volume 97, Issue 12,** pages 1561–1571, December 2002. National healthcare agencies. CUTS data.

### *1.5 Exposure to passive smoke (Medium weight indicator)*

How often are you exposed to tobacco smoke indoors at your workplace?, Question QD9 from the Eurobarometer survey. Scores have been awarded for the percentage of respondents saying they are exposed for one hour or more.

Also good quality studies based on surveys to the public, such as Eurobarometers, suffer from inexplicable variation. The same question did appear in the Flash Eurobarometer #253, published March 2009. 24% of Austrians said they were exposed in 2010 *vs.* 10% in 2009; this is hardly possible. The reverse relationship is shown for Italian respondents, which agrees with the introduction of stricter legislation in 2010.

This indicator could also be based on exposure in the home. Such data is available. However,ETS exposure in the home seems to be an indicator which could just as well be accommodated by raising the weight of the smoking prevalence indicators, as the correlation is close to 100%. Also, as there are no countries forbidding people to smoke in their home, it would not qualify under the Prevention/Policies sub-discipline.

Sources of data: Special Eurobarometer #332, May 2010. National healthcare agencies. CUTS data.

### *1.6 Health Warnings (Low weight indicator)*

Mandated labels on tobacco products are a modestly effective way of informing smokers of the hazards of smoking, encouraging smokers to quit, and of discouraging non-smokers from starting to smoke. Scores are taken straight from the data source, which grades countries on a 1 – 10 scale made up such as:

**Total (max=10)**

- Size of warning (max= 3 points)
- Pictorial health warnings (max= 3 points)
- Plain packaging (4 points) (No country got points for this)

Source of data: Luuk Joossens-Martin Raw: *The Tobacco Control Scale 2010 in Europe*, European Conference Tobacco or Health 2011, Amsterdam, The Netherlands. CUTS data.

### *1.7 Vending machines without age verification (Low weight indicator)*

The next indicator becomes meaningless if young people in a country have access to cigarettes from vending machines. It was first considered to include the existence of

vending machines in indicator 1.8, meaning that the Green score for an 18-year age limit would turn Red if the country allows unsupervised vending machines. It was then decided to make the vending machines a separate indicator.

Sources of data: *Tobacco or Health in the European Union*, European Commission 2004; *Drug Use among very young people* http://eusk.tai.ee/failid/SelectedIssues_Narko_ja_noored.pdf ); *Tobacco Vending Machines evidence*, November 2009, British Heart Foundation; http://noticias.juridicas.com/base_datos/Admin/l28-2005.html# (Spain); S.I. No. 42/2009 — Public Health (Tobacco) (Self Service Vending Machines) Regulations 2009, (Ireland); http://data.euro.who.int/tobacco ; The European Tobacco Control Report 2007; National newspapers, National healthcare agencies. Non-CUTS data.

### *1.8 Age limits for cigarette purchase (High weight indicator)*

From the European Tobacco Control Report 2007: Since 2002, 14 countries have introduced age restrictions on the sale of tobacco products. In 2007, 34 countries (in the WHO European Region) banned the sale of tobacco products to young people under 18 years old and 10 countries to young people under 16 years old. The majority of Member States ban the sales of single or unpacked cigarettes and the distribution of free samples, and close to half of the Member States ban sales from vending machines – a notable increase since 2002.

Notwithstanding these bans, tobacco is still widely available to young people throughout the Region. Compliance with laws on age restrictions appears to need improvement in the majority of countries.

Sources of data: European Tobacco Control Report 2007. National healthcare agencies. CUTS and non-CUTS data.

### *1.9 Overall National budget for tobacco control* (Medium weight indicator)

Building national capacity to carry out effective and sustainable national tobacco control programmes is critical to reducing tobacco consumption and harm, and countries are obligated to implement a national tobacco control programme as part of their WHO obligations. Nongovernmental organizations and other members of civil society not affiliated with the tobacco industry, including health professional bodies, women's, youth, environmental and consumer groups, and academic and health-care institutions, have made great contributions to tobacco control efforts nationally and internationally.

Although involvement by many sectors of government and civil society is required to implement an effective national tobacco control programme, strategic planning and leadership should occur centrally within a country's ministry of health.

This indicator measures the overall national budget for tobacco control activities, expressed in millionths of GDP to compensate for the wide difference in national wealth between countries.

Source of data: WHO report on the Global Tobacco Epidemic, 2009, WHO Health for All database, July 2010. CUTS data.

### 7.8.2 Tobacco use

As is the custom for most HCP indexes, actual results – in the THPI measured as rates of use of tobacco – is a highly weighted sub-discipline. Tobacco consumption in almost all European countries is totally dominated by cigarette smoking; cigars and pipe smoking have therefore been omitted.

In the construction of this sub-discipline, the original intention was to use prevalence data on the "% of daily smokers", which is available from several surveys such as Eurobarometers, the European Commission (for earlier years commissioned from auditors KPMG), WHO databases, tobacco industry General Customer Surveys (GCS) etc. However, when these different data sets were compared it appeared obvious that the accuracy of any single survey had much to be desired[21].

In discussions with survey makers, the HCP team learned about unexpected sources of error in surveys, such as the "New Year's Resolution Factor" (surveys give lower smoking prevalence in January than in September) and also that self-reported smoking prevalence tends to be lower than actual; this is known also for other lifestyle factors such as alcohol consumption or obesity.

The graph on the following page illustrates the spread between a number of survey-based data sets.

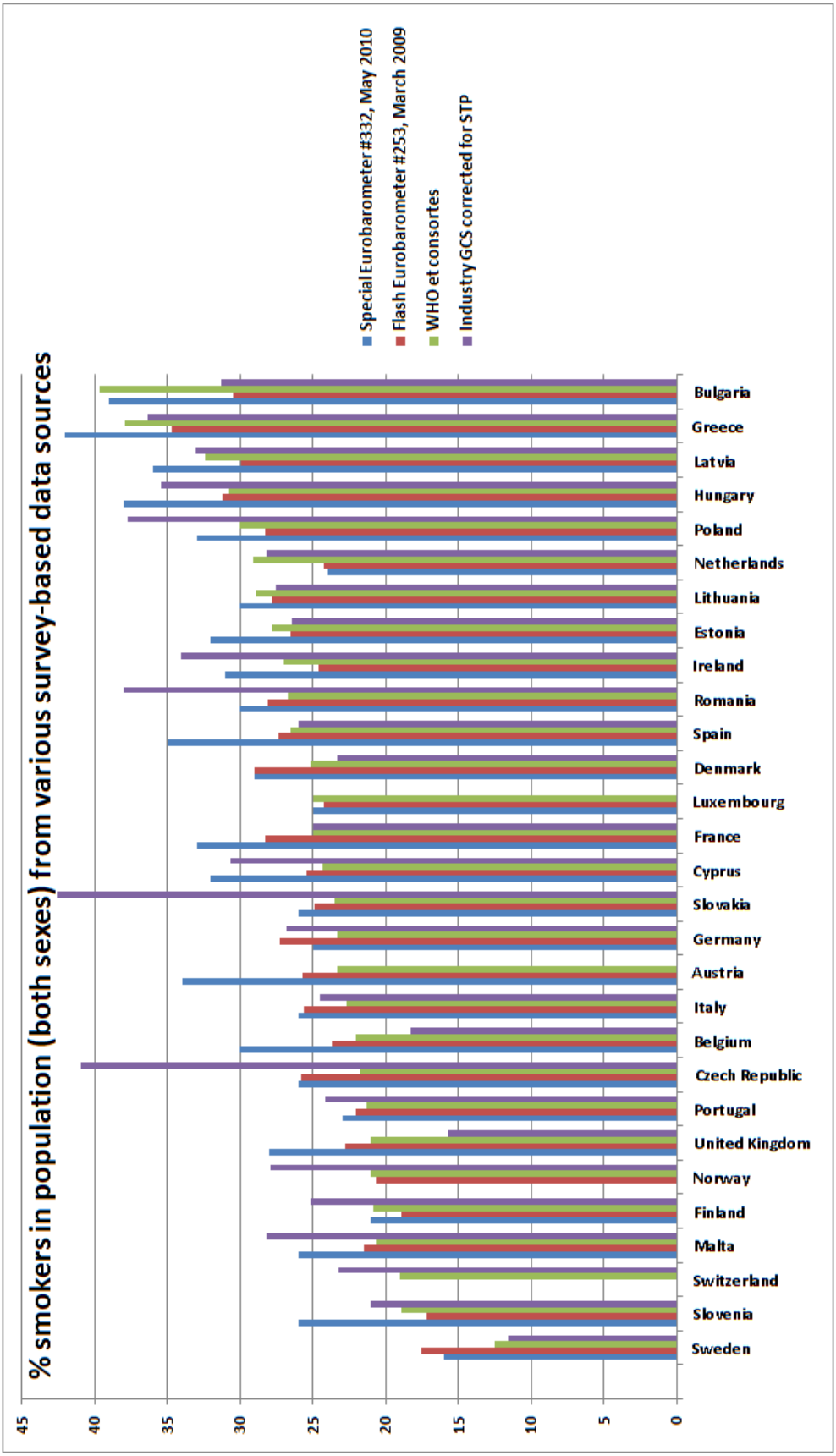
For this reason, it was decided to base smoking consumption data on the sales numbers published by CECCM (Confederation of European Community Cigarette Manufacturers), www.ceccm.eu, adjusted for the industry estimates of non-duty paid (duty-free, self-imported and illicit) cigarettes[22] and also for Roll-Your-Own cigarettes consumption.

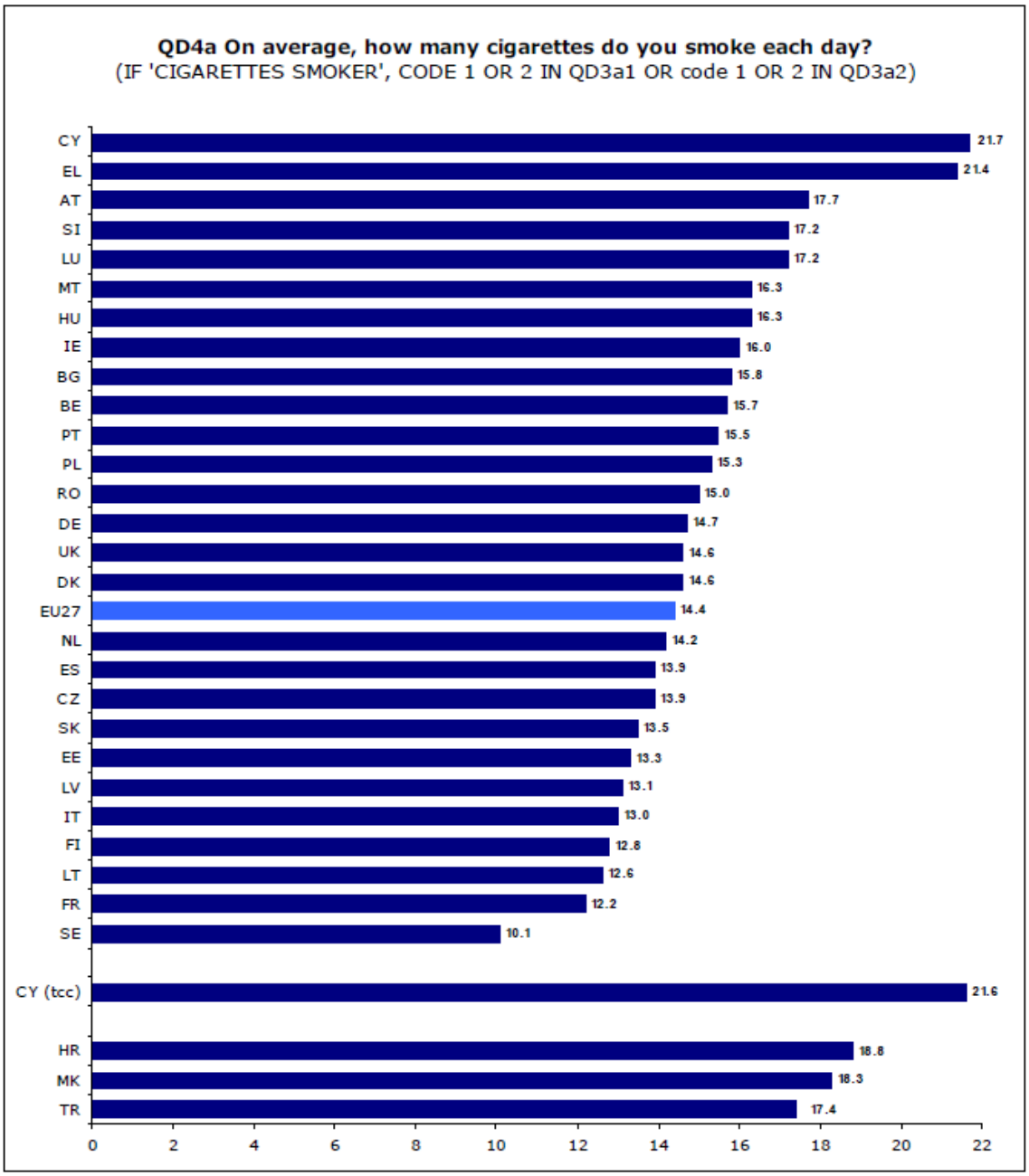
This approach also takes into account that "daily smokers", (see next graph) smoke more in some countries, which should be taken into account when studying the incidence of tobacco-related disease, particularly cancers. Any gender differences in the number of cigarettes smoked per day would not be detected by either the "Are you a daily smoker?" survey data, or by cigarette sales data.

It should be observed that there are no major contradictions between the results from sales data and the smoking prevalence data (see graphs below). The sales data would also take into account the circumstance that there are considerable differences between countries in the number of cigarettes smokes by a "daily smoker", some thing that the "prevalence of daily smokers" misses out.

[21] Bogdanovica, I., Godfrey, F., McNeill, A., *et al.*: *Smoking prevalence in the European Union: a comparison of national and transnational prevalence survey methods and results*, Tobacco Control, October 21, 2010, http://tobaccocontrol.bmj.com/content/early/2010/10/21/tc.20...

[22] For Norway, this estimate was taken from *Evaluering av myndighetenes samlede innsats for å forebygge tobakksrelaterte sykdommer i perioden 2003 til 2007*, Aarø, Lund, Vedøy and Øverland, Statens institutt for rusmiddelforskning, Oslo 2009.


% smokers in population (both sexes) from various survey-based data sources
Special Eurobarometer #332, May 2010
Flash Eurobarometer #253, March 2009
WHO et consortes
Industry GCS corrected for STP
45
40
35
30
25
20
15
10
5
0
Bulgaria
Greece
Latvia
Hungary
Poland
Netherlands
Lithuania
Estonia
Ireland
Romania
Spain
Denmark
Luxembourg
France
Cyprus
Slovakia
Germany
Austria
Italy
Belgium
Czech Republic
Portugal
United Kingdom
Norway
Finland
Malta
Switzerland
Slovenia
Sweden



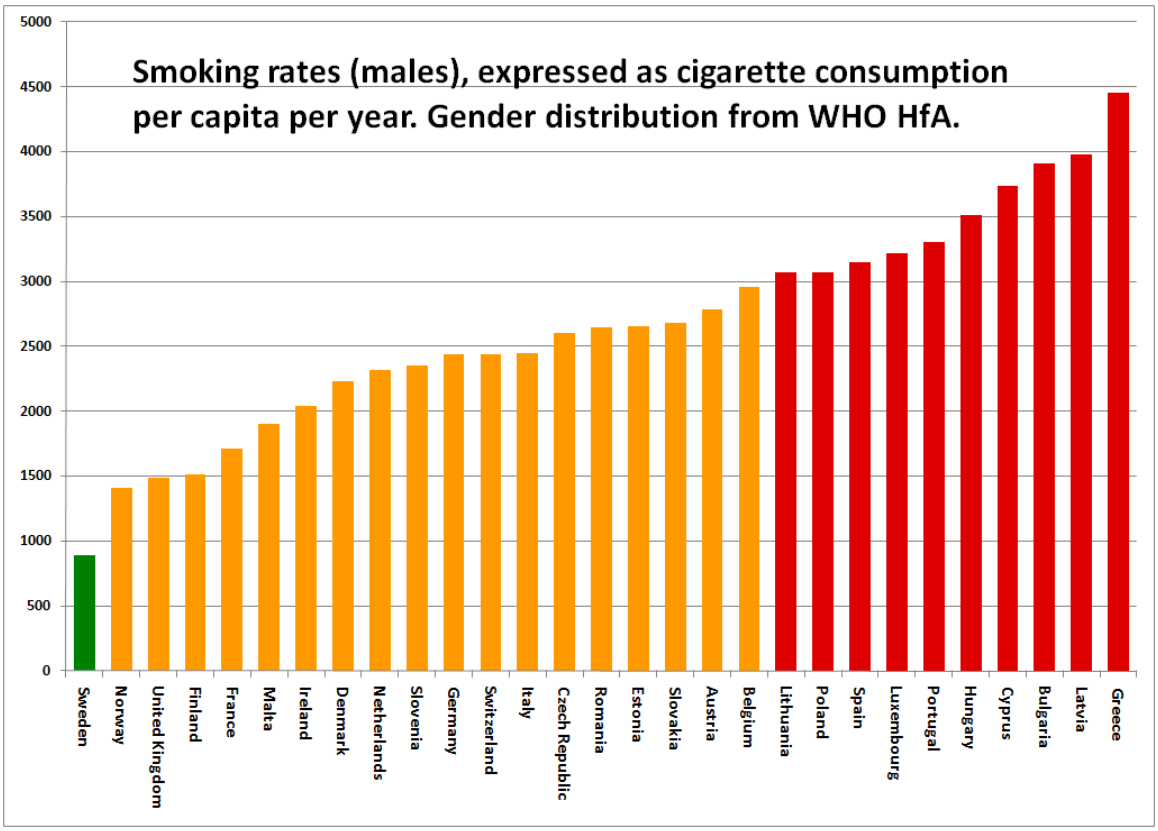

Average daily consumption of cigarettes per smoker. Source: Special Eurobarometer 332, 2010.

### *2.1 Cigarette consumption per capita, males* (High weight indicator)

Data consists of cigarette sales data as described above, with gender separation done by applying WHO HfA male/female smoking prevalence data on the cigarette sales numbers.

It should be observed that there are no major contradictions between the results from sales data and the smoking prevalence data (see graph below). However, as has also been

found for drug compliance data[23], the authors would argue that the sales data are higher accuracy.




Male cigarette consumption (cigarettes per capita per year), 2006.

Sources of data: www.ceccm.eu , WHO HfA database July 2010. Mainly CUTS data.

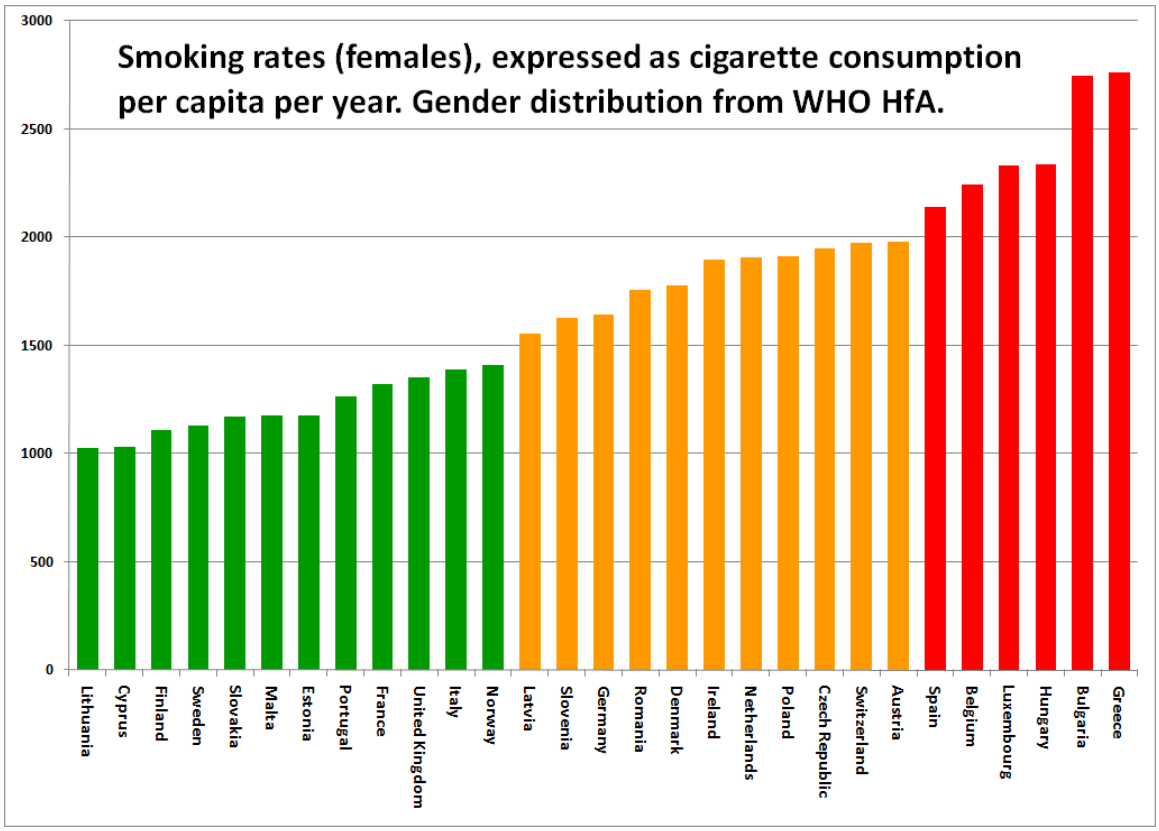
### *2.2 Cigarette consumption per capita, females* (High weight indicator)

Data consists of cigarette sales data as described above, with gender separation done by applying WHO HfA male/female smoking prevalence data on the cigarette sales numbers.

It should be observed that there are no major contradictions between the results from sales data and the smoking prevalence data (see graph below). However, as has also been found for drug compliance data, the authors would argue that the sales data are higher accuracy.

Sources of data: www.ceccm.eu , WHO HfA database July 2010. Mainly CUTS data.

[23] The Euro Consumer Heart Index 2008 report, www.healthpowerhouse.com/files/euro-heart-index-2008.pdf .




Female cigarette consumption (cigarettes per capita per year), 2006.

### *2.3 Quit rates* (High weight indicator)

As well as the absolute smoking rates, in the THPI is also graded the rate of success of different countries to stimulate smokers to quit the habit. The "% of once-smokers who have quit smoking" was therefore calculated from Flash Eurobarometer #253 (2009), Table 1a, page 41.

Sources of data: Flash Eurobarometer #253: *Survey on Tobacco. Analytical report* (2009). CUTS data.

### *2.4 Smoking commencement age, boys* (Medium weight indicator)

There are numerous studies on the issue "At what age did you take your first puff on a cigarette?". The replies to this question tend to fall in the range 11 years ± 6 months, and are hardly a response to evaluate at what age people become habitual smokers. As it was not possible to find any comprehensive data on "At what age did habitual smokers in various countries consider to have acquired the habit?", it was decided to settle for the proxy indicator "% of 15-year olds being smokers".

Sources of data: European Environment and Health Information System (ENHIS); *Exposure of children to second-hand tobacco smoke, Fact sheet 3.4*, December 2009. National healthcare agencies. CUTS data.

***2.5 Smoking commencement age, girls*** (Medium weight indicator)

This indicator is identical in its construction to indicator 2.4 above.

Sources of data: European Environment and Health Information System (ENHIS); *Exposure of children to second-hand tobacco smoke, Fact sheet 3.4*, December 2009. National healthcare agencies. CUTS data.

***2.6 Smokeless tobacco (SLT) consumption*** (Medium weight indicator)

"Literature reviews of the health effects of SLT have concluded that some forms of SLT such as Swedish snus, which is low in nitrosamines, are significantly less harmful than smoking cigarettes. SLT use is not associated with respiratory diseases, including lung cancer and chronic obstructive pulmonary disease (COPD), but some potential health risks remain, namely oral and pancreatic cancer[24], cardiovascular disease and type 2 diabetes. Even so, these risks appear to be much lower than those of smoking. An expert panel estimated on the basis of the epidemiological literature that the overall risk of tobacco-related mortality in LNSLT users was 10 % of the risk of cigarette smokers."[25]

In spite of the lower harm levels seemingly associated with SLT consumption, this indicator has been included in the THPI for completeness' sake. The only countries in Europe showing a significant SLT consumption are above all Sweden; Norway, Portugal and Romania also showing noticeable uses of SLT. In Norway, snus use has increased significantly over the last 5 – 10 years, with an estimated 40 – 50 million boxes p.a. being sold[26], this for almost exactly half the population of Sweden. This coincides with Norway being the only country where the female smoking prevalence is the same as for males (except Sweden, where women smoke more than men).

The abovementioned risk level should normally give this indicator a low weight. As it has not been possible to obtain gender separated data for the use of SLT, and consequently the SLT use indicator appears only once, it has been given Medium weight.

Sources of data: Flash Eurobarometer #253, March 2009. CUTS data.

### 7.8.3 Healthcare contribution

There is little doubt that healthcare services can provide good support to smokers wishing to quit the habit. It is not as evident that healthcare services should be the main or only institutions in society held accountable for the general level of smoking prevalence. As an example, it could be argued that in order to prevent 14-year olds from commencing to smoke, powerful lifestyle advertising could be at least as efficacious as white-coated healthcare staff preaching against tobacco use in schools or elsewhere! For this reason, the healthcare contribution sub-discipline has been limited to only four indicators.

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[24] See indicators 4.3 – 4.6

[25] EMCDDA (European Monitoring Centre for Drugs and Drug Addiction) monograph: *Harm reduction: evidence, impacts and challenges,* Lisbon (2010).

[26] Swedish Match, *interview with*

***3.1 Smoking cessation support from healthcare professional*** (High weight indicator)

"% of smokers having tried to quit who received support from a healthcare professional."

According to Eurobarometer and other surveys, what really helps a smoker to quit the habit is good sound advice from a family doctor, specialist or other healthcare professional who the smoker trusts.

In the data source used, there are significant differences between European countries on the extent of which smokers have been obtaining this support. The results on this indicator are probably correlated with ease of access to doctors (*e.g.* Sweden, being notorious for having the lowest number of doctor appointments *per capita* in Europe, gets a rather weak Amber score). Nevertheless, countries standing out for positive responses on getting healthcare support for smoking cessation, most notably the UK and Belgium, probably have done a better job of prioritizing this activity, mainly in primary care.

Sources of data: Special Eurobarometer 272, September 2007. CUTS data.

***3.2 Telephone quitlines*** (Low weight indicator)

Indicator question: What % of smokers did use a "telephone quitline" at their last quit attempt?

The low weighting of this indicator was confirmed by the very low degree of appreciation of this service from smokers wanting to quit. Italy and Austria turned out to be the only two countries where this service was appreciated by more than 5% of the target group. The indicator is included to shed light on the fact that indicator 3.1 seems to be the only healthcare service really noticeably appreciated by smokers wanting to quit.

Sources of data: Special Eurobarometer 332, May 2010. CUTS data.

***3.3 Nicotine Replacement Therapy (NRT) availability*** (High weight indicator)

Initially, this indicator was constructed with the definition "DDD:s of nicotine medication (chewing gum, patches, etc.) sold per smoker". That statistic seemed heavily influenced by nicotine chewing gum being a Swedish invention, with the Nordic countries outdistancing the rest of Europe.

The indicator is now based on the simple question of NRT accessibility; prescription only (Lithuania scoring the only Red), OTC in pharmacies only (Amber) or available in general sales (Green). There seems to be a quite swift movement of nicotine medication from being restricted to pharmacy sales into general sales in many countries, meaning that even though the source is fairly fresh, this situation might have changed recently for several countries.

Sources of data: WHO world report on the Global Tobacco Epidemic, 2009. CUTS data.

***3.4 Varenicline and bupropion use per smoker*** (Low weight indicator)

Definition: # of DDD:s of (varenicline + bupropion) sold per smoker in countries.

The use of prescription ("Rx") smoking cessation support drugs is small compared with the use of NRT. The high-use countries for both NRT and Rx drugs (the Nordics, UK and

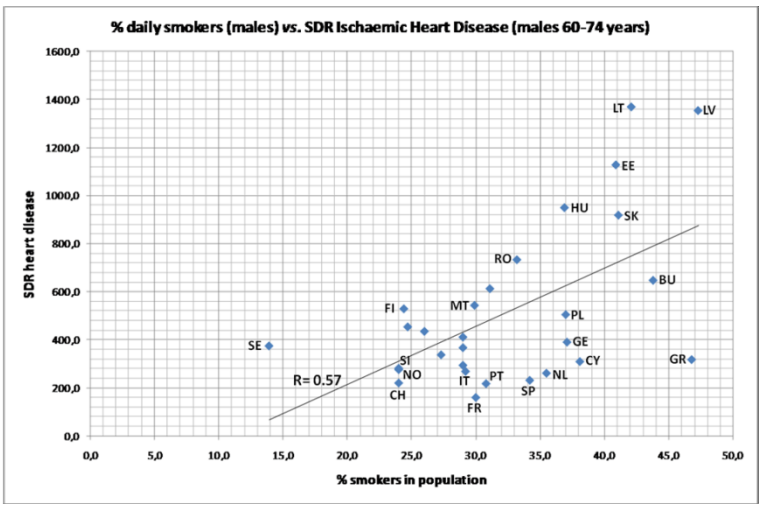
Ireland) typically show NRT use several 100 times that of Rx cessation support drugs, which motivated the Low weight of this indicator. As an example, the Swedish use of NRT (total DDD:s *p.a.*) is 28 million DDD/year, Rx drugs 45 000 DDD:s, both to be compared with the Swedish use of smokeless tobacco, which is approximately 400 million "DDD:s" per year.

Sources of data: IMS Health MIDAS database. WHO Health for All database, July 2010 (for % of smokers in population). CUTS data.

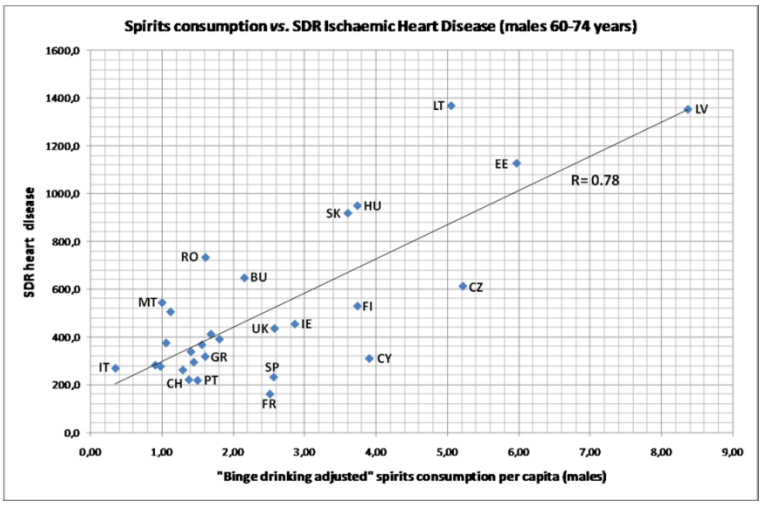
### 7.8.4 Incidence/mortality of tobacco-related disease

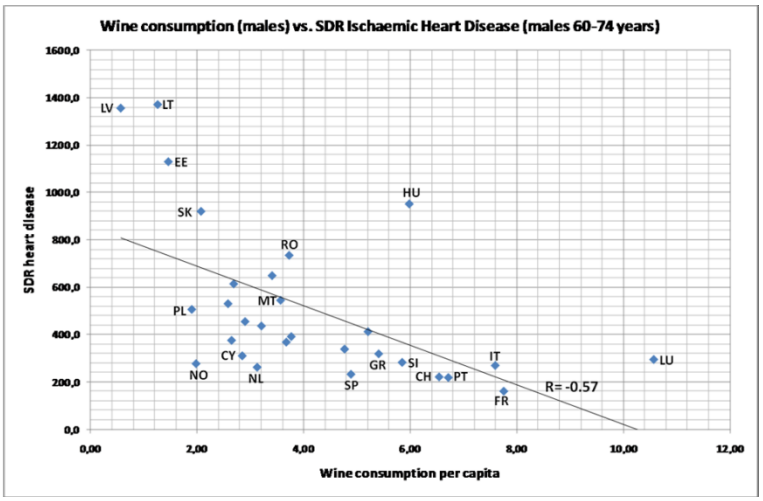
Originally, the ambition was to include prevalence or mortality for all major smoking-related diseases; lung, oral and pancreatic cancer, CardioVascular Disease (CVD) and COPD (Chronic Obstructive Pulmonary Disease).

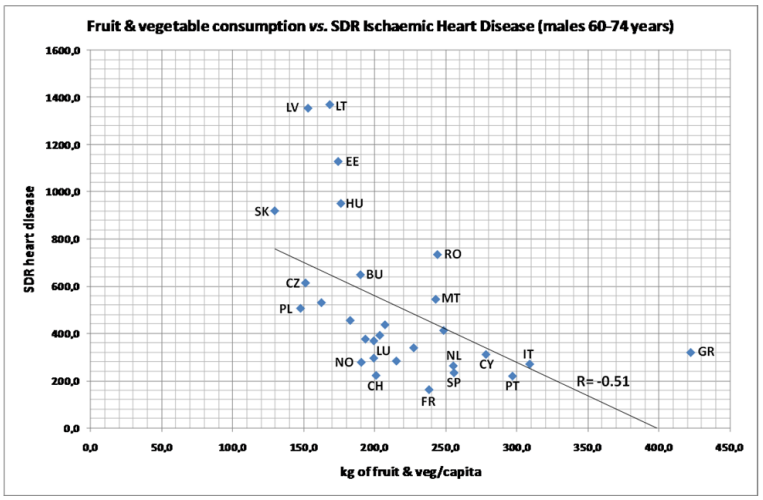
The cancer and COPD indicators survived. However, CVD prevalence/mortality was found to be influenced by so many other lifestyle factors besides smoking that it became difficult to see the significant connection with smoking prevalence. This is illustrated by the graphs below, showing the correlation between a number of lifestyle factors and CVD mortality[27].

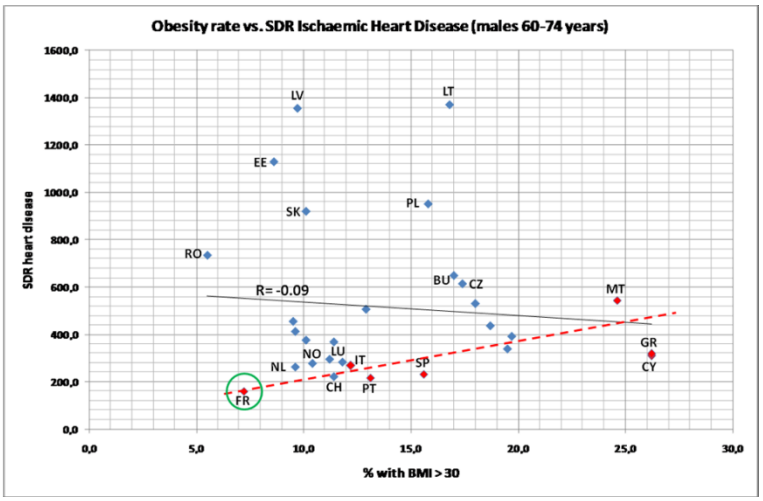



[27] Björnberg, A., Yazbeck, A.-M., and Odén, A., *Which European country has the best cardiac care: Risk factor based expected heart disease death rates vs. actual observed death rates in 29 European countries.*Poster 89200, European Society of Cardiology Congress 2008, Munich.


Spirits consumption vs. SDR Ischaemic Heart Disease (males 60-74 years)
SDR heart disease
"Binge drinking adjusted" spirits consumption per capita (males)
R= 0.78
LT
LV
EE
HU
SK
RO
BU
CZ
MT
FI
UK
IE
GR
CY
IT
SP
CH
PT
FR


Wine consumption (males) vs. SDR Ischaemic Heart Disease (males 60-74 years)
SDR heart disease
Wine consumption per capita
R= -0.57
LV
LT
EE
HU
SK
RO
MT
PL
CY
NO
NL
GR
SI
SP
CH
PT
IT
FR
LU


Fruit & vegetable consumption vs. SDR Ischaemic Heart Disease (males 60-74 years)
SDR heart disease
kg of fruit & veg/capita
R= -0.51
LV
LT
EE
HU
SK
RO
BU
CZ
MT
PL
LU
NO
CH
NL
CY
SP
PT
IT
FR
GR




## Cancer incidence

As for any disease, there will always be a conflict between freshness of data and avoiding data loss. Even a small country such as Sweden, with healthcare quality registries covering a large part of a 9 M population all required to quote their 10-digit personal number for anything healthcare- or public service-related, just about manages to produce statistics on in-patient care and causes of death with a backlog of 18 months.

Even though the European Cancer Observatory did publish cancer incidence data for 2008 on the web in August 2010, some countries (most notably Cyprus, Greece and Portugal) report so low incidences for 2008 compared with previous years that the necessary assumption – that some countries have made astounding breakthroughs in cancer prevention – seemed highly unlikely. It was therefore decided to base the cancer indicators on more stable 2006 data.

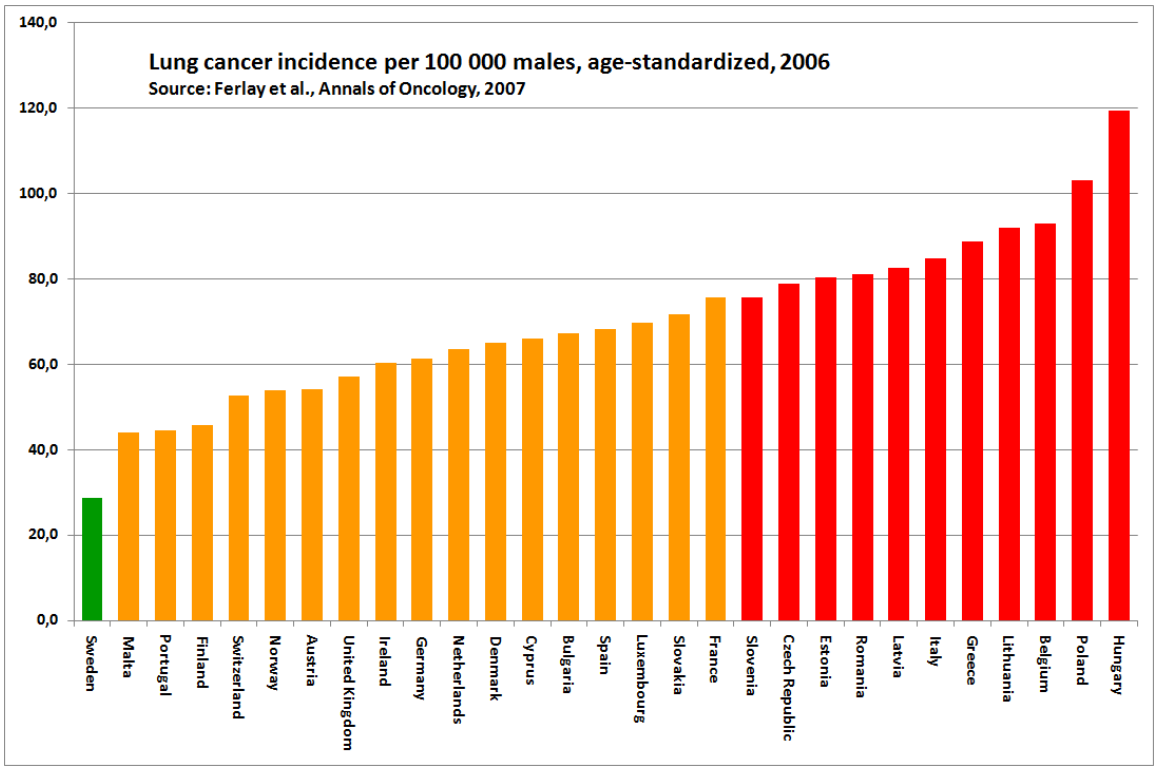
***4.1 Lung cancer incidence, male*** (High weight indicator)

The habit of smoking while inhaling carries with it a 7 – 10-fold increase in the risk of lung cancer[28], which is a cancer risk increase rarely seen for any other lifestyle or environmental factor.

As the graph (below) shows, it is fairly easy to distinguish a correlation between smoking prevalence (indicator 2.1 above) and lung cancer incidence.

Sweden is given the only Green score, as the next country up (Malta) shows a lung cancer incidence 50% higher than that of Sweden – a difference very rarely seen on any indicator in any HCP index.

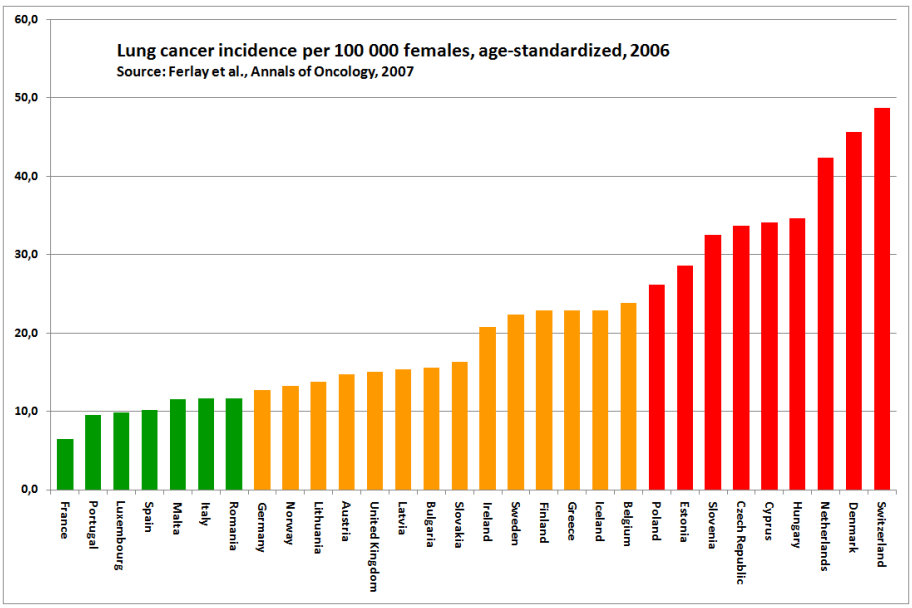
[28] http://rex.nci.nih.gov/NCI_Pub_Interface/raterisk/risks67.html




Sources of data: Ferlay et al., *Estimates of the cancer incidence and mortality in Europe in 2006*, J. Annals of Oncol., 2007. (This paper is based on the same data as the European Cancer Observatory data used for indicators 4.3 – 4.6, and the Index authors appreciated the chance to have cancer data reviewed by a renowned research team.) CUTS data.

***4.2 Lung cancer incidence, female*** (High weight indicator)

Just as the very low smoking prevalence of Swedish males seem to be reflected in a very low lung cancer incidence, Swedish women, showing a lung cancer incidence close to the EU average, do not deviate from that of other countries. Neither does the Swedish female smoking prevalence.



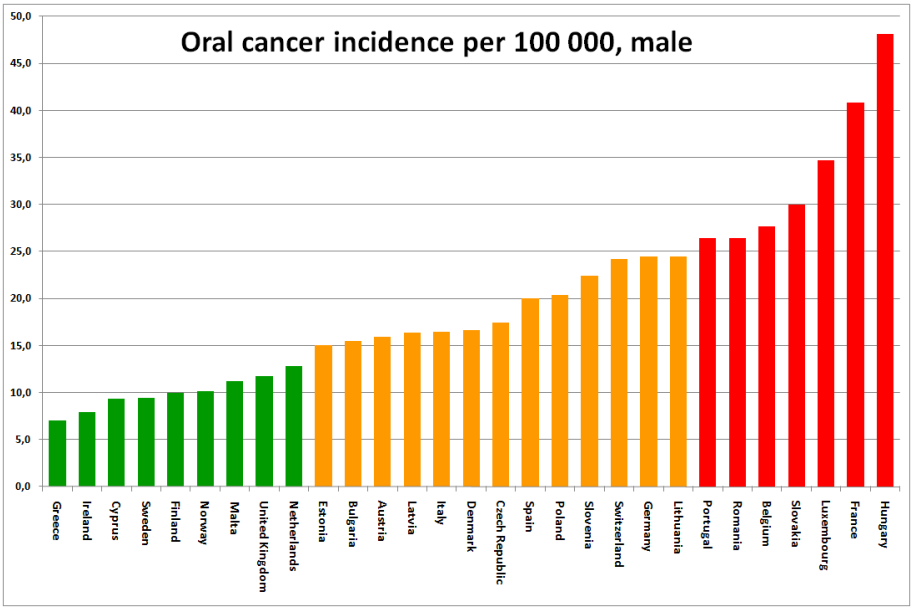
Sources of data: Ferlay et al., *Estimates of the cancer incidence and mortality in Europe in 2006*, J. Annals of Oncol., 2007. CUTS data.

### *4.3 Oral cancer incidence, male* (Low weight indicator)

The data source for indicators 4.3 – 4.6 is the European Cancer Observatory data tables for the year 2006. During the later stages of preparation of the THPI, the ECO did publish data for 2008 on their website. Reporting data that recent for cancer prevalence and mortality for many countries is quite impressive, and when scrutinized, the 2008 data appear to contain reporting deficiencies. As it seemed improbable that a few countries had made amazing breakthroughs on cancer prevention between 2006 and 2008, it was decided to sacrifice data freshness for stability, and base the indicators on the 2006 data set.

The oral cancer indicators have been given low weight, as it is very difficult to see a correlation between the prevalence of smoking and incidence of oral cancer.

According to Professor Tony Axell of the University Hospital MAS, Malmö, Sweden, who has conducted extensive investigations on oral cancer epidemiology, oral cancer is typically found in "smoking alcoholics" (= "smokers with poor oral hygiene"?)[29].

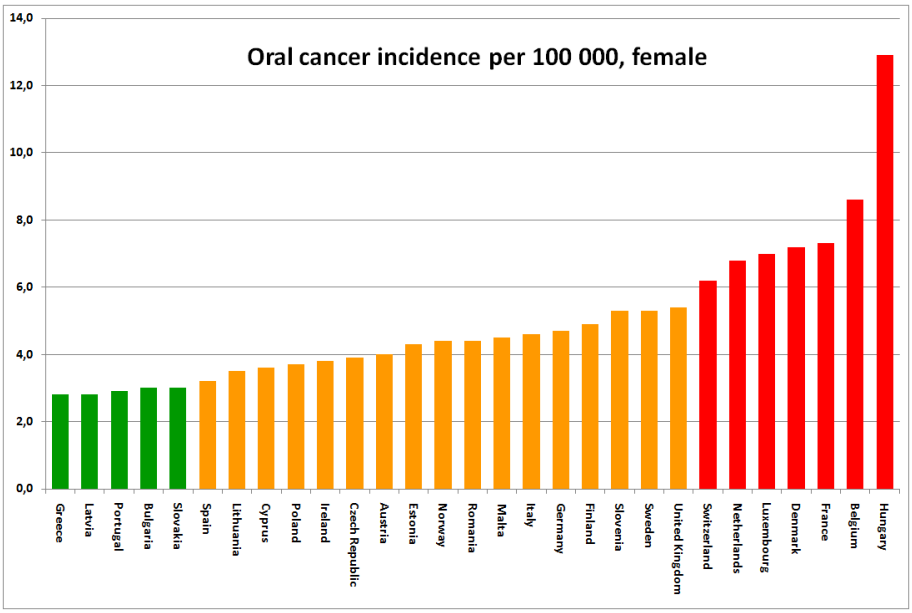



Sources of data: European Cancer Observatory; 2006. CUTS data.

### *4.4 Oral cancer incidence, female* (Low weight indicator)

The oral cancer indicators have been given low weight, as it is very difficult to see a correlation between the prevalence of smoking and oral cancer.

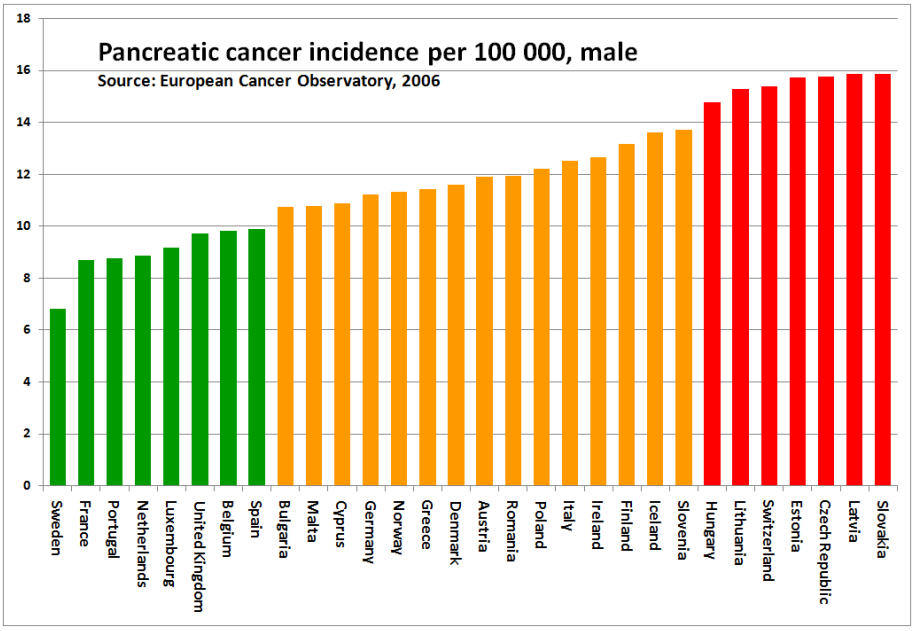
[29] Professor Tony Axell, *Personal communication.*




Sources of data: European Cancer Observatory 2006. CUTS data.

### *4.5 Pancreatic cancer incidence, male* (Medium weight indicator)

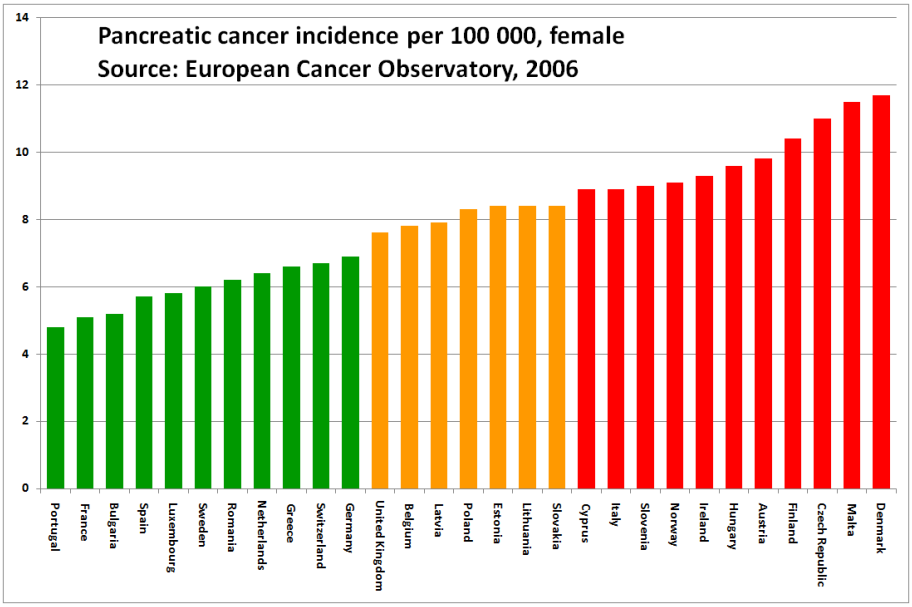
As there have been reports associating pancreatic cancer with the use of smokeless tobacco, the pancreatic cancer indicators were selected as Medium weight. However, as can be seen from the indicator graph below, it is difficult to discover any sort of correlation between any form of tobacco use and the prevalence of pancreatic cancer. Indeed, the only cohort in the graph having an extensive use of SLT, Swedish men, shows the *lowest* incidence rate for pancreatic cancer in Europe.




Sources of data: European Cancer Observatory, 2006. CUTS data.

### *4.6 Pancreatic cancer incidence, female* (Low weight indicator)

As there is no cohort in Europe of women having had a long tradition of SLT use, this indicator was given low weight. Indeed, the pancreas cancer incidence for females does not appear to show a significant and closer correlation to tobacco use than that of men.




Sources of data: European Cancer Observatory, 2006. CUTS data.

### *4.7 CVD incidence/mortality*

For reasons stated above, all countries get a score of "not applicable".

Sources of data: WHO HfA database, July 2008.

### *4.8 Respiratory disease mortality, male* (High weight indicator)

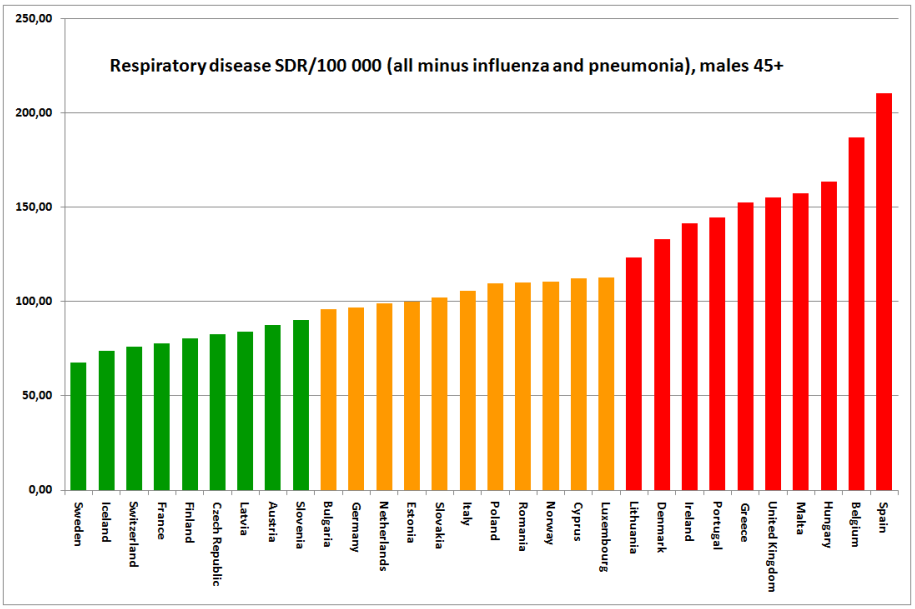
As was discovered in the work for the Swedish COPD index[30], Chronic Obstructive Pulmonary Disease is very closely linked to long-term cigarette smoking.

However, statistics for COPD all over Europe is affected by a very variable skill of physicians to distinguish between COPD, asthma, bronchitis and possibly other pulmonary conditions. This is manifest by some countries, *e.g.* Bulgaria, with very high smoking prevalence reporting virtually no COPD. In the Swedish COPD Index work, it was indeed suggested by Professor Claes-Göran Löfdahl, President of the Swedish Lung Medicine Association, that COPD diagnosis data even for Sweden (normally a country with good data accessibility) was so bad that "15+ years of cigarette smoking" would probably be a more accurate proxy for COPD prevalence than actually available COPD data[31].

[30] www.healthpowerhouse.se/files/Rapport-KOL-index-090420.pdf

[31] Prof. Claes-Göran Löfdahl, *Personal communication*.

In the above index work, it was discovered that the proxy "prevalence/mortality of all respiratory diseases (code J00 – J99) *minus* pneumonia and influenza (J10 – J18)" appears to be a better measure on COPD than COPD data itself. Therefore, indicators 4.8 and 4.9 are based on this parameter, *i.e.* "SDR/100 000 age 45+ for all respiratory disease minus pneumonia and influenza". The result is shown in the graph below:



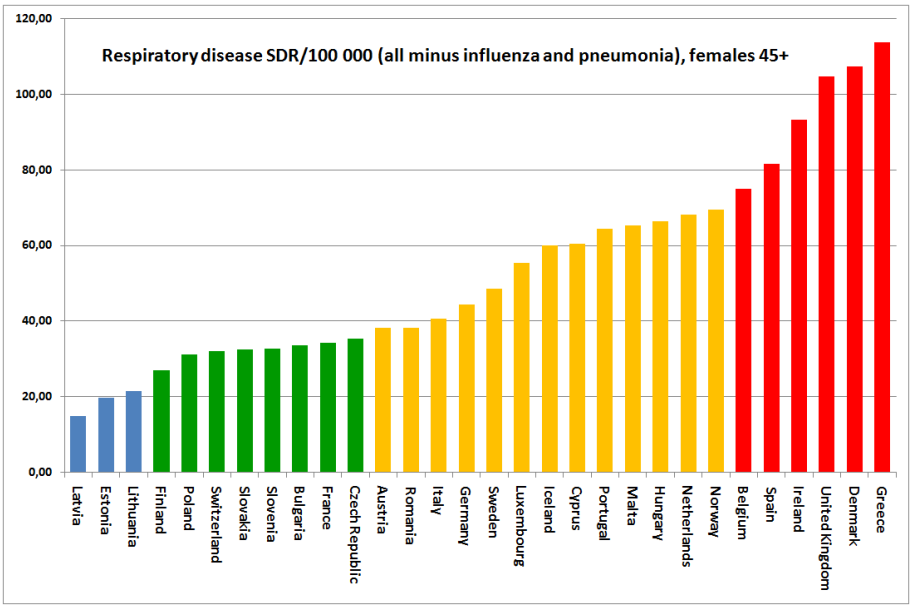

Again, the low smoking prevalence of Swedish men seems to show up in a disease indicator.

Data source: WHO Europe Detailed Mortality Database, June 2010. CUTS data.

### *4.9 Respiratory disease mortality, female* (Medium weight indicator)

This indicator is based on the same parameter as indicator 4.8. However, the reporting of lung disease mortality data for women, for a number of countries, seems so affected by reporting deficiencies that it did not seem defensible to give the indicator the High weight it would normally deserve, and the weight was therefore reduced to Medium. Indeed, the numbers for Estonia, Latvia and Lithuania seem so low that it appeared not appropriate to score these three countries on this parameter. Not to overly stigmatize the Baltic States for this, they were all awarded an Amber score on this indicator (see below).

There seems to be an interesting phenomenon protecting females on the eastern shores of the Baltic Sea from dying from respiratory disease; the low SDR:s are reported also for Finland and Poland.




Data source: WHO Europe Detailed Mortality Database, June 2010. CUTS data.

# 8. How the Tobacco Harm Prevention Index 2012 was built

The Index does not take into account whether national systems are publicly or privately funded and/or operated. The purpose is citizen empowerment, not the promotion of political ideology. Aiming for dialogue and co-operation, the ambition of HCP is to be looked upon as a partner in developing healthcare-related issues around Europe.

## 8.1 HCP Background

Since 2004 the HCP has been publishing a wide range of comparative publications on healthcare in various countries, first, the Swedish Health Consumer Index in 2004. By ranking the 21 county councils by 12 basic indicators concerning the design of ”systems policy”, consumer choice, service level and access to information we introduced benchmarking as an element in consumer empowerment. In two years time this initiative had inspired – or provoked – the Swedish Association of Local Authorities and Regions together with the National Board of Health and Welfare to start a similar ranking, making public comparisons an essential Swedish instrument for change.

For the pan-European indexes in 2005 – 2008, HCP followed basically the same approach, *i.e.* selecting a number of indicators describing to what extent the national healthcare systems are “user-friendly”, thus providing a basis for comparing different national systems.

Furthermore, since 2008 the HCP has enlarged the existing benchmarking program considerably:

- In January 2008, the Frontier Centre and HCP released the first Euro-Canada Health Consumer Index, which compared the health care systems in Canada and 29 European countries. The 2009 edition was released in May, 2009.

- The Euro Consumer Heart Index, launched in July 2008, compares 29 European cardiovascular healthcare systems in five categories, covering 28 performance indicators.
- The Canada Health Consumer Index was released in September 2008, and again in May 2010 in co-operation with Frontier Centre for Public Policy, examining healthcare from the perspective of the consumer at the provincial level.
- The first Euro Consumer Diabetes Index, launched in September 2008, provides the first ranking of European diabetes healthcare services across five key areas: Information, Consumer Rights and Choice; Generosity, Prevention; Access to Procedures and Outcomes.
- The Euro HIV Index was published in October 2010, analyzing how 29 European countries are performing on HIV care and conditions for People Living With HIV (PLWH).

Though still a somewhat controversial standpoint, HCP advocates that quality comparisons on healthcare-related issues is a true win-win situation. To the consumer, who will have a better platform for informed choice and action. To governments, authorities and providers, the sharpened focus on quality outcomes will support change. To media, the ranking offers clear-cut facts for consumer journalism with some drama into it. This goes not only for evidence of shortcomings and method flaws but also illustrates the potential for improvement. With such a view the THPI is designed to become an important benchmark system supporting interactive assessment and improvement.

As we heard one of the Ministers of health saying when seeing his country's preliminary results: "It´s good to have someone still telling you: you could do better."

## 8.2 Scope and content of EHCI 2005

Countries included in the EHCI 2005 were: Belgium, Estonia, France, Germany, Hungary, Italy, the Netherlands, Poland, Spain, Sweden, the United Kingdom and, for comparison, Switzerland.

To include all 25 member states right from the start would have been a very difficult task, particularly as many memberships were recent, and would present dramatic methodological and statistic difficulties

The EHCI 2005 was seeking a representative sample of large and small, long-standing and recent EU membership states.

The selection was influenced by a desire to include all member states with a population of ~40 million and above, along with the above-mentioned mix of size and longevity of EU membership standing. As the Nordic countries have fairly similar healthcare systems, Sweden was selected to represent the Nordic family, purely because the project team members had a profound knowledge of the Swedish healthcare system.

As already indicated, the selection criteria had nothing to do with healthcare being publicly or privately financed and/or provided. For example, the element of private

providers is specifically not at all looked into (other than potentially affecting access in time or care outcomes).

One important conclusion from the work on EHCI 2005 was that it is indeed possible to construct and obtain data for an index comparing and ranking national healthcare systems seen from the consumer/patient's viewpoint.

## 8.3 Scope and content of EHCI 2006 – 2009

The EHCI 2006 included all the 25 EU member states of that time, plus Switzerland using essentially the same methodology as in 2005.

The number of indicators was also increased, from 20 in the EHCI 2005 to 28 in the 2006 issue. The number of sub-disciplines was kept at five; with the change that the "Customer Friendliness" sub-discipline was merged into "Patient Rights and Information". The new sub-discipline "Generosity" (What is included in the public healthcare offering?) was introduced, as it was commented from a number of observers, not least healthcare politicians in countries having pronounced waiting time problems, that absence of waiting times could be a result of "meanness" – national healthcare systems being restrictive on who gets certain operations could naturally be expected to have less waiting list problems.

In order to test this, the new sub discipline "Generosity" of public healthcare systems, in 2009 calles "Range and reach of services". A problem with this sub discipline is that it is only too easy to land in a situation, where an indicator becomes just another way of measuring national wealth (GDP/capita). The indicator "Number of hip joint replacements per 100 000 inhabitants" is one prominent example of this. The cost per operation of a hip joint is in the neighbourhood of € 7000 (can be slightly more in Western Europe – less in states with low salaries for healthcare staff). That cost, for a condition that might be crippling but not life-threatening, results in Provision levels being very closely correlated to GDP/capita.

Cataract operations seem a better and less GDP-correlated indicator on the Generosity of public healthcare systems. The cost per operation is only one tenth of that for a hip joint and thus much more affordable in less affluent countries. Interestingly, Belgium – a country with minimal waiting list problems, and which was most often to us accused of achieving this through restrictiveness, by far has (along with Canada) the highest provision levels for cataract operations in the OECD.

To achieve a higher level of reliability of information, one essential work ingredient has been to establish a net of contacts directly with national healthcare authorities in a more systematic way than was the case for previous EHCI editions. The weaknesses in European healthcare statistics described in previous EHCI reports can only be offset by in-depth discussions with key personnel at a national healthcare authority level.

In general, the responsiveness from Health Ministries, or their state agencies in charge of supervision and/or Quality Assurance of healthcare services, was good in 2006 – 2008. Written responses were received from 19 EU member states. This situation greatly improved in 2009 (see section 9.9.2).

## 8.4 EHCI 2009

The project work on the Index is a compromise between which indicators were judged to be most significant for providing information about the different national healthcare systems from a user/consumer's viewpoint, and the availability of data for these indicators. This is a version of the classical problem "Should we be looking for the 100-dollar bill in the dark alley, or for the dime under the lamppost?"

It has been deemed important to have a mix of indicators in different fields; areas of service attitude and customer orientation as well as indicators of a "hard facts" nature showing healthcare quality in outcome terms. It was also decided to search for indicators on actual results in the form of outcomes rather than indicators depicting procedures, such as "needle time" (time between patient arrival to an A&E department and trombolytic injection), percentage of heart patients trombolysed or stented, etcetera.

Intentionally de-selected were indicators measuring public health status, such as life expectancy, lung cancer mortality, total heart disease mortality, diabetes incidence, etc. Such indicators tend to be primarily dependent on lifestyle or environmental factors rather than healthcare system performance. They generally offer very little information to the consumer wanting to choose among therapies or care providers, waiting in line for planned surgery, or worrying about the risk of having a post-treatment complication or the consumer who is dissatisfied with the restricted information.

## 8.5 EHCI 2012

### 8.4.1 Other indexes

In addition to the EHCI editions, the HCP has also published special indexes constructed along the same principles. Among these are:

- The Euro Consumer Heart Index 2008; http://www.healthpowerhouse.com/files/euro-heart-index-2008.pdf
- The Euro Consumer Diabetes Index 2008; http://www.healthpowerhouse.com/files/edi-2008/2008-euro-diabetes-index-report.pdf
- The Euro HIV Index 2009; http://www.healthpowerhouse.com/files/Report%20Euro%20HIV%20index%20091008-3.pdf

All the indexes are built along the same principles. The sub-disciplines and indicators are similar but different depending on the issue at hand.

## 8.5 Production phases

The THPI 2012 was constructed under the following project plan.

### 8.5.1 Phase 1

### Start-up meeting with the Expert Reference Panel - Mapping of existing data

The composition of the Expert panel can be found in the section 8.2. The major area of activity was to evaluate to what extent relevant information is available and accessible for the selected countries. The basic methods were:

- Web search, journal search
- Telephone and e-mail interviews with key individuals, and
- Personal visits when required.

Web search:
a) Relevant byelaws and policy documents
b) Actual outcome data in relation to policies

Information providers:

a) National and regional Health Authorities

b) Institutions (EHMA,, Picker Institute, Legal-ethical papers of Catholic University in Leuwen, others)

c) Private enterprise (IMS Health, pharmaceutical industry, others)

Interviews (to evaluate findings from earlier sources, particularly to verify the real outcomes of policy decisions):
a) Phone and e-mail
b) Personal visits to key information providers

### 8.5.2 Phase 2

- Data collection to assemble presently available information to be included in the THPI 2012.
- Identification of vital areas where additional information needed to be assembled was performed.
- Collection of raw data for these areas
- A round of personal visits by the researchers to Health Ministries and/or State Agencies for supervision and/or Quality Assurance of Healthcare Services.
- Regular contact with the Expert Reference Panel mainly to discuss the indicators, the criteria to define them, and the data acquisition problems. Finally, we had a second meeting on September 14th, 2010, at which was discussed in detail each of the indicators, including those that could not be included in the Index due to lack of data. Also, the discrepancies between data from different sources were analyzed. Indicator and sub-discipline relative weights were discussed and set.

### 8.5.3 Phase 3

#### *8.5.3.1 "Score update sheet" send-out.*

On July 12, 2010, all 29 states received their respective preliminary score sheets (with no reference to other states' scores) as an e-mail send-out asking for updates/corrections by August 28. The send-out was made to contacts at ministries/state agencies as advised by states during the contact efforts prior to July 2010. One reminder was also sent out. Corrective feedback from states was accepted up until September 12, by which time replies had been received from countries denoted in section Additional data gathering – feedback from National Ministries/Agencies for more information on national feedback.

### 8.5.4 Phase 4

Project presentation and reports

- A report describing the principles of how the THPI 2012 was constructed.
- Presentation of THPI 2012 at a press conference and seminar in Brussels.
- On-line launch on www.healthpowerhouse.com .

## 8.6 External expert reference panel

As is the standard working mode for all HCP Indexes, an external Expert Reference Panel was recruited. The panel met for two 6-hour sittings during the course of the project, the Panel Members having been sent the Index working material in advance. The following persons have taken part in the Expert Reference Panel work for the THPI 2012:

| **Name** | **Affiliation** |
|---|---|
| Associate Professor . Dr. Ernest Groman | Dept. of Anthropology, Universität Wien, Vienna Institute of Social Medicine, Medical University of Vienna |
| Dr. Karyn Heavner | TobaccoHarmReduction.org (USA) |
| Dr. Delon Human | President & CEO, Health Diplomats, Trélex, Switzerland |

In addition to the above, two very experienced researchers in the field of tobacco and health were also participating at the Expert Panel meetings, giving valuable advice, but not officially wanting to stand as panel members.

The Expert Reference Panel for a HCP Index has two core tasks:

A. To assist in the design and selection of sub-disciplines and indicators. This is obviously of vital importance for an Index, if the ambition is to be able to say that a state scoring well can truly be considered to have good, consumer-friendly public health services.

B. To review the final results of research undertaken by HCP researchers before the final scores are set. If the information obtained seems to clash too violently with the many decades of cardiac care experience represented by the panel members, this has been taken as a strong signal to do an extra review of the results.

The HCP wishes to extend its sincere thanks to the members of the panel for their fundamentally important contribution to the Index work, and for very valuable discussions.

## 8.7 Acknowledgement

HCP has a record of independent research, with a clear separation between unrestricted funding and production of indices and reports. Our belief in this fierce independence enabled us to accept an unconditional educational grant to produce the THPI 2012 from ESTOC (the European Smokeless Tobacco Council), with whom we share just *one* very specific interest: better public access to comprehensive facts to support the work of tobacco harm prevention.

HCP is not in favor of *any* kind of tobacco use – we are in favor of good policy based on reality.

# 9. References

## 9.1 Main sources

The main sources of input for the various indicators are given in Table 7.5 above. For all indicators, this information has been supplemented by interviews and discussions with public health officials.