

# The Snus Experience

Lessons from Norway, Sweden and  
Canada on the public health consequences  
of widespread oral tobacco use.

# Executive Summary

This review uses data on tobacco use in Sweden, Norway and Canada and other countries to test key assumptions and claims made by promoters of snus-style tobacco. Sweden and Norway are the only countries where snus is widely used and where it is legal (it is also used to a lesser extent in Finland, but is not legally sold in that country). Snus has not been sold in Canada, although oral tobacco is widely available.

## Claim:

**WHEN MORE PEOPLE USE SNUS, FEWER PEOPLE SMOKE.**

Our finding:

- **Sweden is not in a better situation than Canada with respect to cigarette smoking. Norway is in a much worse situation.**

Although Sweden has a slightly lower rate of daily smoking among men than Canada, the overall rates of smoking are almost one-fourth higher in Sweden than in Canada (19% in Canada, 25% in Sweden), and almost twice as high in Norway (19% in Canada, 35% in Norway).

Snus has not protected Swedish nor Norwegian men and women from high rates of current smoking than in countries where oral tobacco is not used.

**See section 2.2**

Over the past decade, Canada has reduced smoking at a faster pace than Sweden, Norway and Australia.

**(Section 2.3)**

## Claim:

**WHEN MORE PEOPLE USE SNUS, ADDICTION IS TRANSFERRED FROM SMOKING TO SNUS, BUT IS NOT INCREASED.**

Our finding:

- **Sweden and Norway are in much worse situations than Canada with respect to the number of people who are addicted to tobacco.**

The prevalence of tobacco use is much higher in Sweden and Norway than in Canada.

Establishing the extent to which tobacco use in Canada, Sweden and Norway is 'addictive' is not straightforward. However, data does exist for daily use.

Daily use of tobacco by men is twice as high in Sweden (at 37%) and Norway (at 36%) than in Canada (at 15%).

Among women, daily use of tobacco products is 1.6 higher in Sweden (at 21%) and Norway (24%) than in Canada (13%).

**(Section 2.4)**

## Claim:

**WIDESPREAD SNUS USE DOES NOT LEAD TO HIGHER LEVELS OF YOUTH SMOKING.**

Our finding:

- **Sweden and Norway have much higher rates of youth tobacco use than Canada**

Addiction to tobacco is much higher among young people in Norway and Sweden than in Canada. Among those aged 16-24

Daily use of tobacco products among men is 2.5 times higher in Sweden (at 37%) and Norway (at 36%) than it is in Canada (at 15%).

Among women, daily use of tobacco products is 1.6 higher in Sweden (at 21%) and Norway (24%) than it is in Canada (13%).

**(Section 2.4)**

- **Sweden is not in a better situation than Canada with respect to protecting people from becoming smokers.**

The rates of 'never smoking' in are roughly the same in Canada as in Sweden.

Canada has been equally able to protect its population from the onset of smoking as Sweden. It has also protected them from addiction to smokeless tobacco.

**(Section 2.6)**

## Claim:

**WIDESPREAD SNUS USE LEADS TO MORE SUCCESSFUL QUITTING AMONG SMOKERS.**

Our finding:

- **Canadians who smoke have been more successful at quitting than their Swedish counterparts.**

Swedish men—even though snus is widely available and accepted as a smoking alternative — have had less success in quitting than Canadian men, on a population level.

Canadian women have been more successful in quitting than Swedish women.

**(Section 2.7)**

- **In recent years, Sweden has made much slower progress than Canada in reducing the amount of tobacco consumed.**

Unlike Sweden, Canada is experiencing a decline in per capita consumption in all forms of tobacco. Sweden is one of the few developed countries where total tobacco consumption is not falling.

**(Section 2.5)**

**Claim:**

**WHEN MORE PEOPLE USE SNUS,  
DEATHS FROM TOBACCO ARE LOWER.**

Our finding:

- **Sweden has lower rates of mortality from smoking than Canada, but is making slower progress.**

Canada—without snus use—is making faster progress against smoking related deaths among both men and women — than Sweden is.

Sweden’s current rate of progress against tobacco related disease is slower than that of England, Australia, New Zealand, the United States .

**(Section 3.1)**

- **Sweden’s success is more likely due to early tobacco control than to snus use.**

Sweden’s exemplary comprehensive tobacco control policies, implemented in the 1970s, helped prevent rates of tobacco consumption from ever growing to the high levels in other countries. Sweden’s current low rates of smoking-related mortality is a continuing benefit of effective primary prevention policies implemented in the 1970s.

Since then, however, Sweden has experienced some tobacco control policy reversals (after joining the European Union, the number of and size of warnings was reduced). Sweden is now making slower progress than other countries in reducing tobacco consumption and consequent tobacco-related mortality.

**(Section 4.2)**



**Imperial Tobacco Canada :**

*“Sweden has the world’s highest consumption of smokeless tobacco per capita. As snus use has risen, cigarette consumption has fallen. Some 25% of Swedish men use snus regularly and fewer than 15% smoke. Long-term studies have shown that Swedish men now have among the lowest lung cancer rates in the world and Sweden’s mouth cancer rate is amongst the lowest in Europe.”*

**Press release, September 13, 2007.**

# 1.1 Introducing Snus

In May, BAT-Imperial Tobacco Canada announced that, within the following year, it would begin test marketing snus in Canada. [1] They are expected to market it using the name, colours and brand imagery of “du Maurier”.

BAT has similarly launched snus in South Africa and Sweden, using the imagery of its leading brands in those markets, “Lucky Strike” and “Peter Stuyvesant.”

BAT is not the only manufacturer of ‘snus’, nor the only cigarette manufacturer to launch snus under a cigarette brand name. Camel and Marlboro branded snus were launched in the United States in 2006 and 2007.

Although very few Canadians use oral tobacco, it is widely available and distributed under the Skoal, Copenhagen and other brand names. There are significant differences between these currently available brands and the soon-to-be-introduced snus, but they share the same basic principle of delivering nicotine through mucous membranes in the mouth.

There are no legal barriers to the introduction of snus in Canada nor in the United States. Federal and provincial tobacco laws allow for the sale of tobacco, and set comparable levels of regulation for all forms of tobacco (whether they be cigars, cigarettes, loose tobacco, nasal snuff, chewing tobacco, etc.).

Many other countries have banned oral tobacco, including New Zealand and Israel. Australia banned oral tobacco in 1991 (although some Australian states had passed earlier laws banning it). The European Union banned snuff in 1992 (an exception was made for Sweden when it joined the European Union in 1995).

The claims made in favour of snus by tobacco manufacturers and others are generally based on their interpretations of the so-called “Swedish Experience” of lower male smoking prevalence and lower tobacco mortality amongst men.



These health claims, and the harm reduction approach, are also built on the implicit assumption that smokers can and will switch to snus in ways that will have public health benefit.

Sweden is not the only country to have had a long experience with snus: it is also much used in Norway (which is not a member of the European Union) and also in Finland (where it was banned in 1995, without any apparent decrease in usage).

Nor is Sweden the only country to have had good experiences in reducing tobacco use and its subsequent mortality. Canada’s own experience in this regard is comparable with Sweden’s.

Comparing the “Swedish Experience,” with the “Norwegian Experience,” the “Canadian Experience” and the experience of other countries is the purpose of this paper. This comparison shows that many countries—with or without the use of oral tobacco—have reduced the harms of smoking without the risks inherent in a so-called ‘harm reduction’ approach .

## References

1. Imperial Tobacco Canada Ltd, press release, “Imperial Tobacco Canada Demonstrates Action on Three Important Tobacco Related Issues, May 7, 2007; “Smokeless snus to be pioneered in Canada” 13 September 2007.
2. QUIT Australia. Tobacco in Australia: Facts and Issues, 1995.

# 1.2 Using snus

Snus is made by grinding tobacco with water, salt, preservatives and flavourings, and then submitting this mixture to a heating and cooling process. Snus is packaged in loose form or in tea-bag style portions. It is intended to be kept refrigerated until used. [1]

BAT reports that each sachet of snus contains from 0.4 to 1.5 grams of nicotine and about the same amount is absorbed by a snus user as a smoker would get from a single cigarette. [2]

Snus is placed in the mouth between the teeth and the gum. Snus users do not chew or actively suck the tobacco. Spitting is not necessary.

Nicotine from snus is absorbed slowly through the oral mucosa. Even though blood levels of nicotine of smokers and snus users would be similar, snus users would not experience sudden jolts of nicotine that smokers experience through rapid absorption of nicotine through inhalation and rapid transfer to arterial blood.



The average snus user has a snus pinch or sachet in their mouth for 11–14 hours — about 75% of their waking time.

about 16 sachets each day.

Snus is typically held in the mouth for 30 minutes before being discarded.

The average user keeps snus in their mouth for 11 to 14 hours per day. [3]

A typical snus user would consume



### Snus is different than:

#### Moist snuff

Like snus, moist snuff is made from grinding tobacco with water and flavourings. Unlike snus, it is fermented. The fermentation process leads to higher levels of cancer-causing nitrosamines.

#### Nasal Snuff

Once popular but now rather archaic, nasal snuff is made from fermented and powdered tobacco, and then inhaled up the nostril.

#### Chewing Tobacco

Chewing tobacco is dryer, sweeter and made from differently cured tobacco than snus. Chewing tobacco is tucked between the gum and jaw and is chewed or held in place. Saliva is spit or swallowed.

### References

1. [www.swedishmatch.com](http://www.swedishmatch.com).
2. [www.BAT.com](http://www.BAT.com) Smokeless Snus. (August 2007).
3. European Commission. Scientific Committee on Emerging and Newly Identified Health Risks. Health Effects of Smokeless Tobacco Products, p. 16

# 1.3 The Politics of Snus

In recent years, tobacco companies and a minority of health researchers have promoted the idea that smokers should be encouraged to use snus as a 'harm reduction' strategy.

Proponents of this approach say it is not fair to present smokers with the narrow choice to "quit or die" and to not ensure smokers are encouraged to turn to less harmful sources of nicotine.

A particular focus of this approach has been placed on rescinding bans on oral tobacco in jurisdictions where they are in place, as they are in the EU and Australia.

As a result, the EU has been reviewing its policies with regard to snuff. This review has drawn together useful summaries of the issues and evidence available (see references below). The experience of Canada and other non-EU countries, however, is not included in this review.

Some of these issues are helpfully parsed by the European Network for Smoking Prevention (see Figure 1.3a).

In Canada, because there are no legal barriers to marketing oral tobaccos, the political issues surrounding the introduction of snus are somewhat different than they are in Europe or Australia. The issue in Canada is not whether or not to permit the sale of snus, but rather how to prepare for the introduction of a new tobacco product.

Complex evidentiary and risk-assessment research questions include:

- Is harm reduction an appropriate tobacco control approach?
- If so, should snus play a role in such a strategy? Does it have any advantage over pharmaceutical nicotine (patches, inhalers, etc.)?
- If so, should tobacco or nicotine manufacturers have any role in developing a harm reduction tobacco strategy?

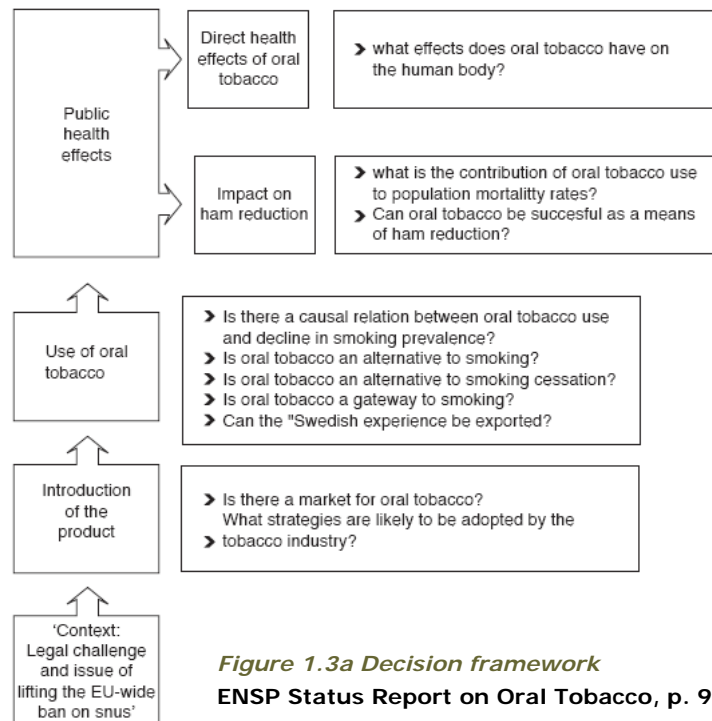


Figure 1.3a Decision framework  
ENSP Status Report on Oral Tobacco, p. 9

## References

European Network for Smoking Prevention

**ENSP Status Report on Oral Tobacco**

<http://www.ensp.org/publications/enspreports>

European Commission Health and Consumer Protection Directorate General,  
Scientific Committee on Emerging and Newly Identified Health Risks  
(SCENIHR)

**Health Effects of Smokeless Tobacco Products. Preliminary Report. June 2007.**

[http://ec.europa.eu/health/ph\\_risk/committees/04\\_scenihhr/docs/](http://ec.europa.eu/health/ph_risk/committees/04_scenihhr/docs/)

## 2.2 Smoking prevalence

### Comparing Smoking Rates

Finding out how many people smoke should be a relatively easy undertaking, but comparing smoking rates between countries is a task which can easily be done in misleading or inaccurate ways.

That's because different methods are used to measure smoking behaviour and these measures change over time even within countries. For example, some countries only report the number of people who smoke each day, while others also include the number of people who say they smoke 'occasionally.'

Additional problems can arise when comparing changes in smoking rates over time because of the expected progress of the tobacco epidemic, described in the Lopez et al. paradigm (Section 5.1). Differences in factors which lead to smoking (regulations, prices, wealth, social attitudes) can mask otherwise significant comparisons, as it is difficult to control for all these factors.

Nonetheless, some useful comparisons can be made between Canada, Sweden, Norway and Australia. Each of these are countries where tobacco use has been declining for several years. They are similar in other respects, ranking high in global indices of human development and regulatory development.

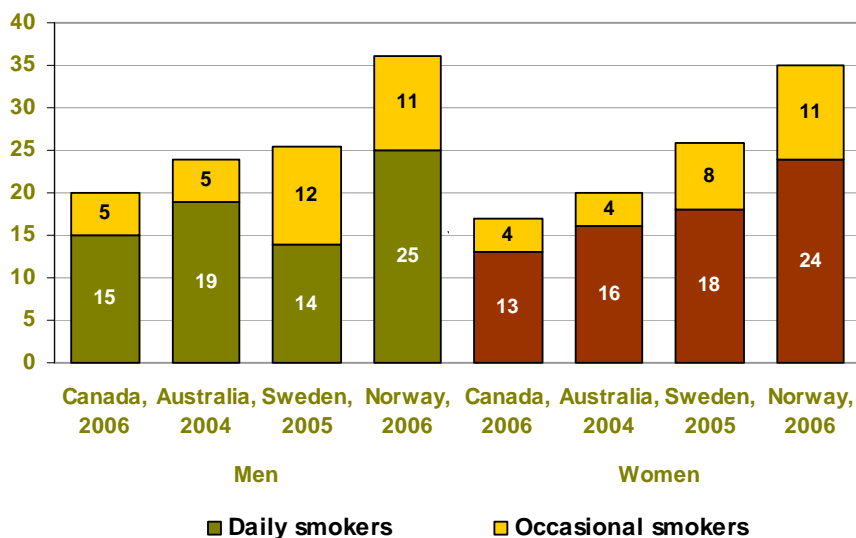
With respect to oral tobacco use, however, these four countries exhibit very different patterns:

- Snus use is high in both Sweden and Norway
- Oral tobacco has been banned in Australia since 1991 [1]
- Oral tobacco is available for sale in Canada (including Swedish style snus), but is not widely used.

Although Sweden has a slightly lower rate of daily smoking among men than Canada, the overall smoking rates are almost one-fourth higher in Sweden than in Canada (19% in Canada, 25% in Sweden), and almost twice as high in Norway (19% in Canada, 35% in Norway).

Snus has not protected Swedish nor Norwegian men and women from smoking at higher rates than in countries where oral tobacco is not used.

Prevalence of daily and occasional cigarette smoking, men and women



Canada and Australia have the lowest prevalence of current smoking, although Sweden has the lowest rates of daily smoking among men.

**Australia and Canada—countries with little or no use of oral tobacco have lower rates of smoking than Sweden and Norway.**

### References

*Quit Australia: Tobacco in Australia: Facts and Issues (1995)*

### Data Sources

Norway.  
Statistics Norway, custom tabulation.  
*Www.ssb.no*  
Canada

*Physicians for a Smoke-Free Canada "Smoking in Canada"*

Sweden.  
Statistics Sweden. *Www.scb.se*.  
Table HA 12; *Alkohol och tobaksbruk Rapport 114*

Australia  
PN Lee. "International Smoking Statistics" web edition

# 2.3 Progress against smoking

## Measuring progress

Progress in reducing smoking can be measured in several ways — the reduction in the percentage points of the number of people who smoke or proportionate size of the change in smoking prevalence. If smoking rates fell from 20% to 10%, the first measure would be a 10 percentage point reduction, the second would be a 50% reduction. Metrics used to compare progress can be daily smokers or those who smoke on a daily or occasional basis. Comparisons can be made for general population or for both sexes or different age groups.

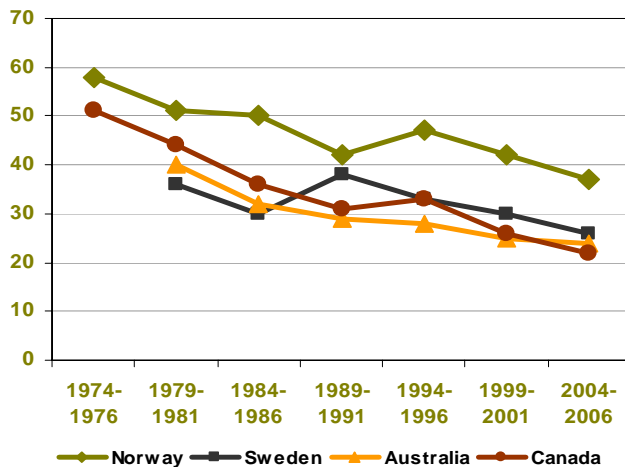
All four countries have seen significant improvements in smoking rates in the past decade.

- Canada has made the highest rate of progress among daily smokers (11 percentage points and a drop of 39% for men and 44% for women)
- Canada has made the highest rate of progress among current smokers (11 percentage points for men, 12 for women and a drop of 33% for men and 43% for women)

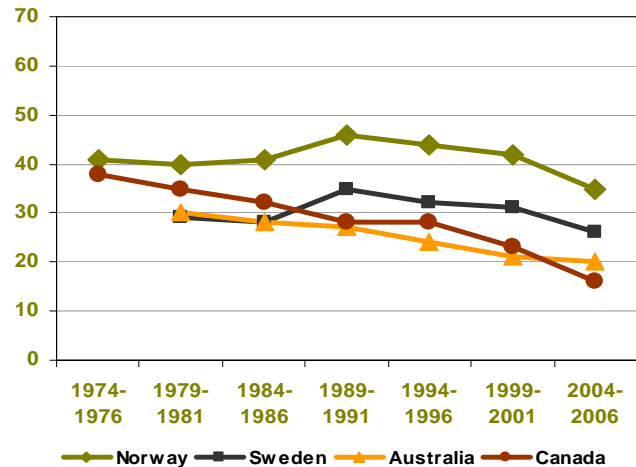
- Sweden has made the second lowest improvement for daily current smoking and men (7 percentage points and 14% drop). Australia has had worse outcomes.

**Over the past decade, Canada has reduced smoking at a faster pace than Sweden, Norway and Australia.**

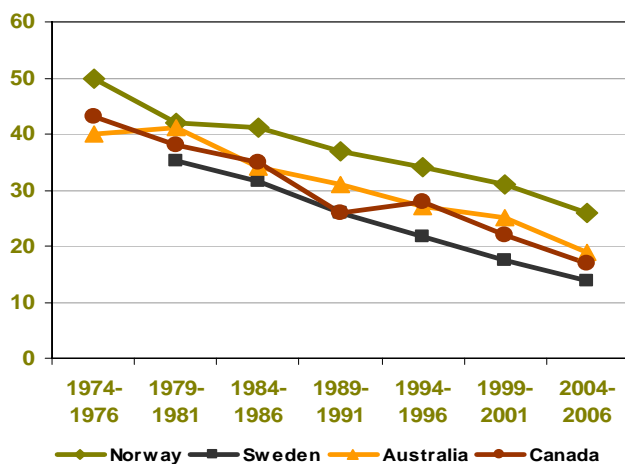
Prevalence of current smoking among adult men 1974 - 2006



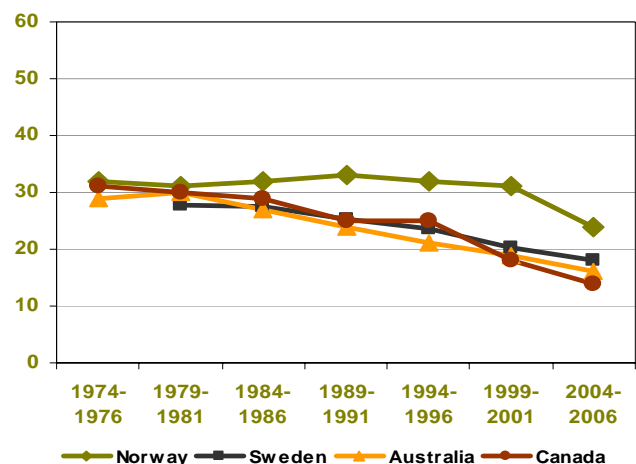
Prevalence of current smoking among adult women 1974 - 2006



Prevalence of daily smoking among adult men 1974 - 2006



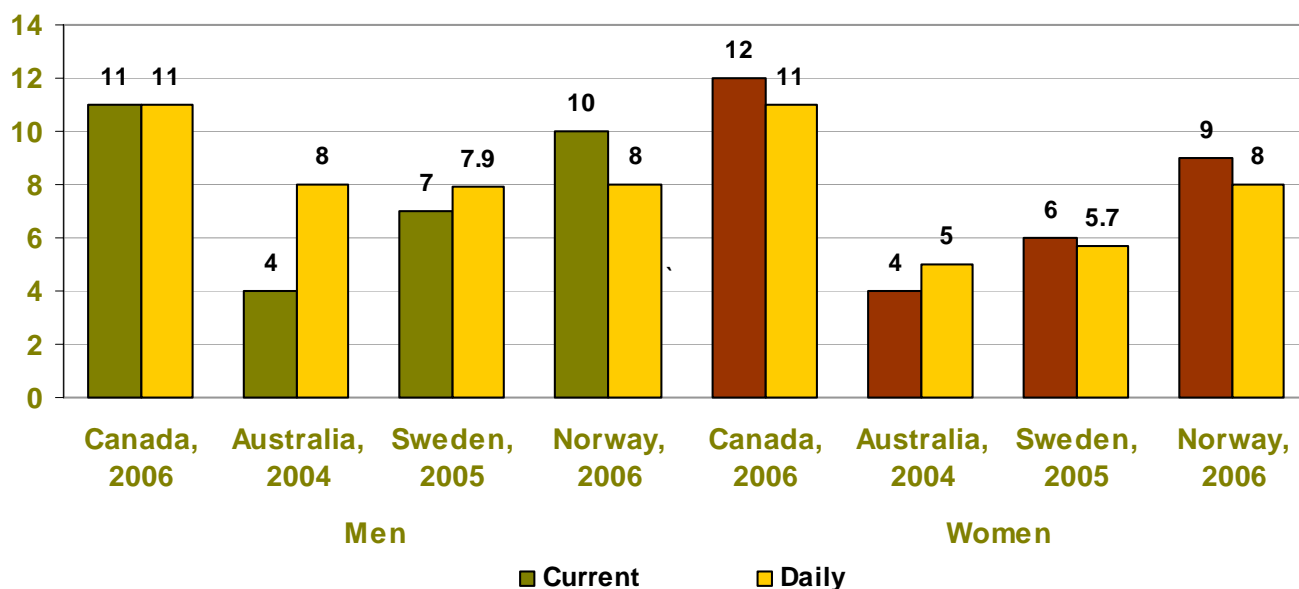
Prevalence of daily smoking among adult women 1974 - 2006





*Among men, current smoking rates have fallen 50% faster in Canada than Sweden (33% vs. 21%). The rate has been twice as fast for women (43% vs. 19%).*

### 10 year decrease of percentage points of current and daily smokers



**Table 2.3: Prevalence of current and daily smoking, 1975—2006**

	Age range	1974-1976	1979-1981	1984-1986	1989-1991	1994-1996	1999-2001	2004-2006	10 year decline	
									Percentage point	Percentage
<b>Daily</b>										
<b>Men</b>										
Norway	16-74	50	42	41	37	34	31	26	8	24
Sweden	16-84		35	32	26	22	17	14	8	36
Australia	18+	40	41	34	31	27	25	19	8	30
Canada	15+	43	38	35	26	28	22	17	11	39
<b>Women</b>										
Norway	16-74	32	31	32	33	32	31	24	8	35
Sweden	16-84		28	28	25	24	20	18	6	34
Australia	18+	29	30	27	24	21	19	16	6	24
Canada	15+	31	30	29	25	25	18	14	11	44
<b>Daily &amp; Occasional</b>										
<b>Men</b>										
Norway	16-74	58	51	50	42	47	42	37	10	21
Sweden	16-84		36	30	38	33	30	26	7	21
Australia	18+		40	32	29	28	25	24	4	14
Canada	15+	51	44	36	31	33	26	22	11	33
<b>Women</b>										
Norway	16-74	41	40	41	46	44	42	35	9	20
Sweden	16-84		29	28	35	32	31	26	6	19
Australia	18+		30	28	27	24	21	20	4	17
Canada	15+	38	35	32	28	28	23	16	12	43

## 2.4 Tobacco Addiction

Opinions differ whether addiction, in and of itself, is a problem. From a harm-reduction perspective, the objective is to reduce the negative physical, social and psychological consequences of recreational drug use. If the drug brings benefits, it is argued, and the disease can be mitigated, the public health concerns may be allayed.

Notwithstanding these arguments, tobacco dependence is classified as a disease (F17.2) in the 10th revision of the International Classification of Diseases. Whatever the disease consequences of snus use (the EU SCENIHR, referred to earlier, provides a lengthy overview on the diseases associated with snus), addiction comes with economic and social consequences for tobacco addiction include:

- Accommodating the addiction: snus users keep a sachet or pinch of snus in the mouth for 3 in every 4 waking hours
- Economic costs to self and family of maintaining addiction
- Externalized costs (second hand smoke, garbage, etc).



**The prevalence of addiction to tobacco is much higher in Sweden and Norway than in Canada.**

### Among adults

- Daily use of tobacco products among men is more than twice as high in Sweden (at 37%) and Norway (at 36%) than it is in Canada (at 15%).
- Among women, daily use of tobacco products is 1.6 higher in Sweden (at 21%) and Norway (24%) than it is in Canada (13%).

**Among adolescents (aged 16 to 24)**

- Daily use of tobacco products among men is 2.5 times higher in Sweden (at 37%) and Norway (at 36%) than it is in Canada (at 15%).
- Among women, daily use of tobacco products is 1.6 higher in Sweden (at 21%) and Norway (24%) than it is in Canada (13%).

### Dual use of smokeless and cigarettes

Some people use both oral tobacco and cigarettes on a daily basis. Total tobacco prevalence should be adjusted to reflect this 'dual use.' There is not consistent data available for the countries reviewed, so adjustments have not been made in the figures shown here.

The EU Scientific Committee on Emerging and Newly Identified Health Risks reports that 1-3% of Swedish men use both snus and cigarettes on a daily basis.

Slightly more than 1% of Norwegian men were both daily snus users and daily smokers. 3% of Norwegian men used snus daily and smoked on an occasional basis. Among occasional snus users, 3% of Norwegian men

used were also daily smokers, and an additional 1% smoked cigarettes on an occasional basis.

The 'total' prevalence of Norwegian tobacco use arrived at by simply adding the data provided (54%) is thus overstated by about 8 percentage points.

#### Data Sources

##### Canada

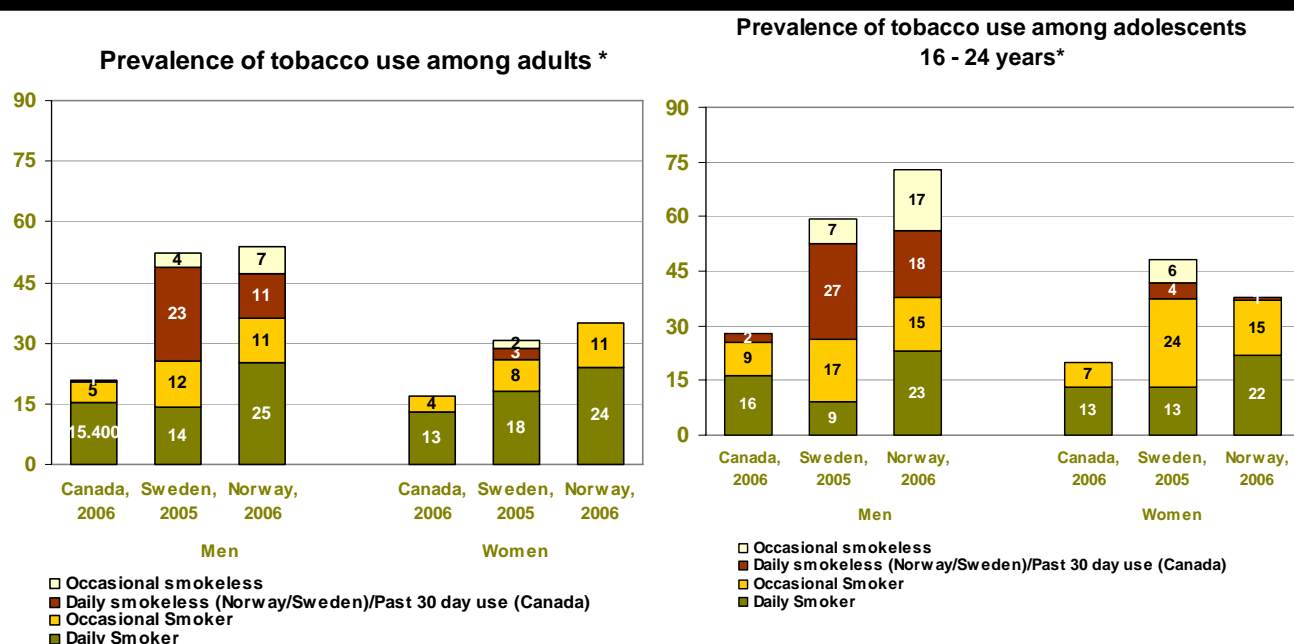
Canadian Tobacco Use Monitoring Survey, 2006

**Norway.** EU SCENIHR "Health Effects of Smokeless Tobacco Products Preliminary Report".

##### Sweden.

Statistics Sweden. [www.scb.se](http://www.scb.se). Table HA 12; Alkohol och tobaksbruk Rapport 114

*Among Canadians, fewer than 1 in 5 people use tobacco products.  
In Sweden and Norway the number is closer to 1 in 2 for men and 1 in 3 for women.*

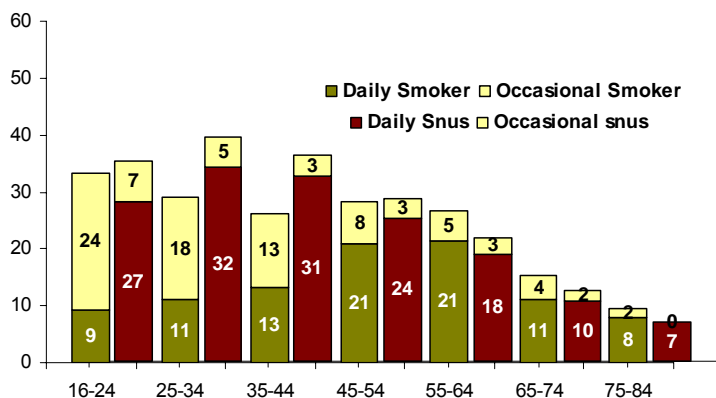


\* Totals overstate the number of people who use tobacco products as they do not reflect dual use of both smokeless and cigarettes. (see text)

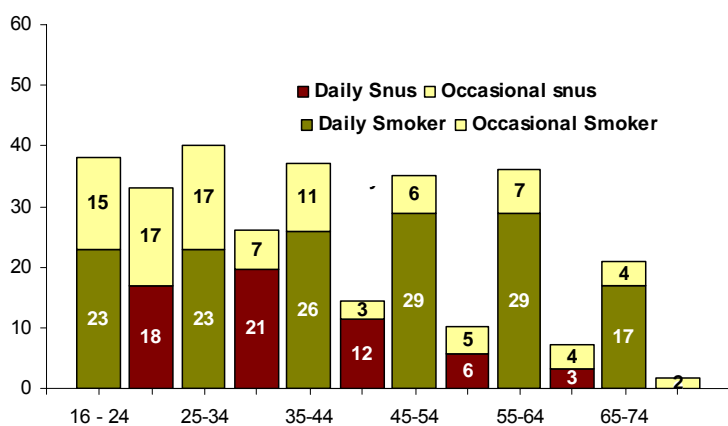
**Table 2.4a: Prevalence of tobacco use (including smokeless), adults and youth**

	Men			Women		
	Canada, 2006	Sweden, 2005	Norway, 2006	Canada, 2006	Sweden, 2005	Norway, 2006
<b>Age range</b>	15+	16-84	16-74	15+	16-84	16-74
Daily Smoker	15	14	25	13	18	24
Occasional Smoker	5	12	11	4	8	11
Daily smokeless		23	11		3	
Occasional smokeless		4	7		2	
Used smokeless in past 30 days	2			<1		
Former daily Smokers	28	28		20	23	
Never Smokers	49	46		60	51	
<b>Age range</b>	16-24	16-24	16-24	16-24	16-24	16-24
Daily Smoker	16	9	23	13	13	22
Occasional Smoker	9	17	15	7	24	15
Daily smokeless		26	18		4	1
Occasional smokeless		7	17		6	
Used smokeless in past 30 days	2			<1		

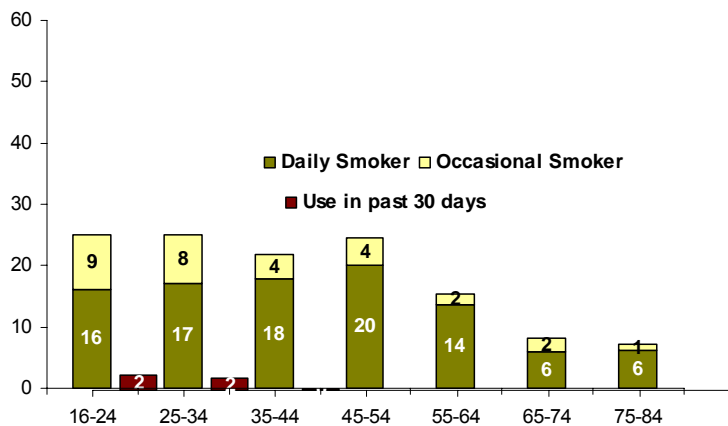
# Prevalence of tobacco use (smokeless and smoking) among men in Sweden, Norway and Canada



SWEDEN				
Age Range	Daily Smoker	Occa-sional Smoker	Daily Snus	Occa-sional Snus use
16-24	9	24	27	7
25-34	11	18	32	5
35-44	13	13	31	3
45-54	21	8	24	3
55-64	21	5	18	3
65-74	11	4	10	2
75-84	8	2	7	0



Norway				
Age Range	Daily Smoker	Occa-sional Smoker	Daily Snus	Occa-sional Snus use
16-24	23	15	18	17
25-34	23	17	21	7
35-44	26	11	12	3
45-54	29	6	6	5
55-64	29	7	3	4
65-74	17	4	0	2



CANADA				
Age Range	Daily Smoker	Occa-sional Smoker	Ever used smokeless	Used smokeless in past 30
16-24	16	9	15	1
25-34	17	8	18	4
35-44	18	4	15	1
45-54	20	4		
55-64	14	2		
65-74	6	2		
75-84	6	1		

# 2.5 Tobacco consumption

One way of measuring smoking, as we have seen, is prevalence—the proportion of the population which uses tobacco products. Another way of measuring smoking is the amount of tobacco consumed.

Because tobacco has long been subject to excise taxes, information on the amount of tobacco sold has been recorded for several decades in most countries. This information, together with population estimates, can be used to measure changes in the amount of tobacco consumed on a per-capita basis.

Consumption measurements do not rely on survey data, but that does not mean that there are no methodological concerns. Not all tobacco is legally sold, and the amounts recorded do not include illegal sales, or personal imports (such as a duty free allowance when travelling). Although it is well known

that Sweden and Canada have significant levels of illegal cigarette sales, there are no agreed on measurements of these for recent years.

Nonetheless, per-capita consumption does allow us to consider historic changes in the amount of tobacco consumed as well as the types of tobacco consumed.

From an historic perspective, cigarettes are a relatively recent form of tobacco use, and only became commercially available in the 20th century. Only generations born after 1900 could have been expected to use manufactured cigarettes as a preferred tobacco source: earlier generations were more likely to begin smoking a pipe or cigars, or to use chewing/smokeless tobacco.

### Data Sources

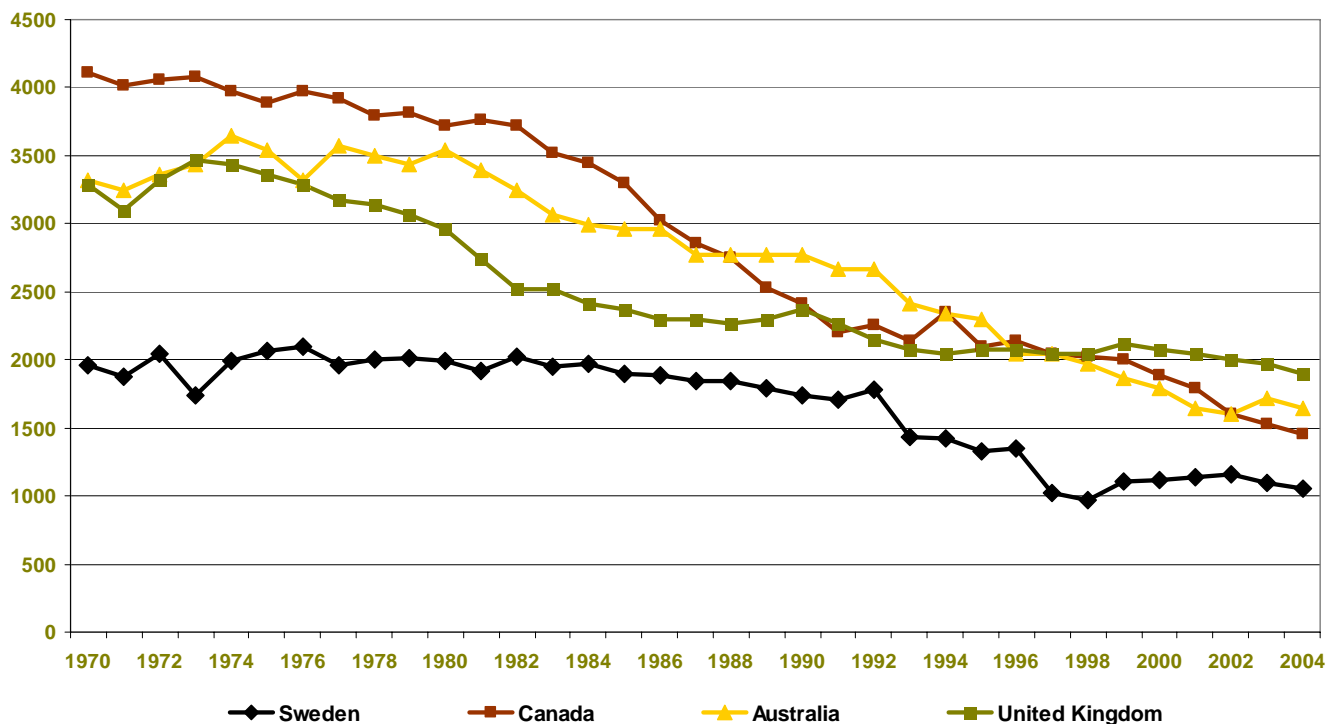
**Canada and Australia:** International Smoking Statistics, PN Lee

**Sweden:** Drogutvecklingen I Sverige 2006

### References:

[1] U.S. Centre for Disease Control. Fact Sheet. Smokeless Tobacco. (updated April 2007)

**Per capita consumption of smoked tobacco (i.e. cigarettes and loose tobacco) Sweden, Canada, Australia and United Kingdom 1970 –2004**



*Thirty years ago, Swedes smoked half as many cigarettes per person as Canadians. The gap is narrowing. Today, Swedes smoke more than two-thirds as many.*

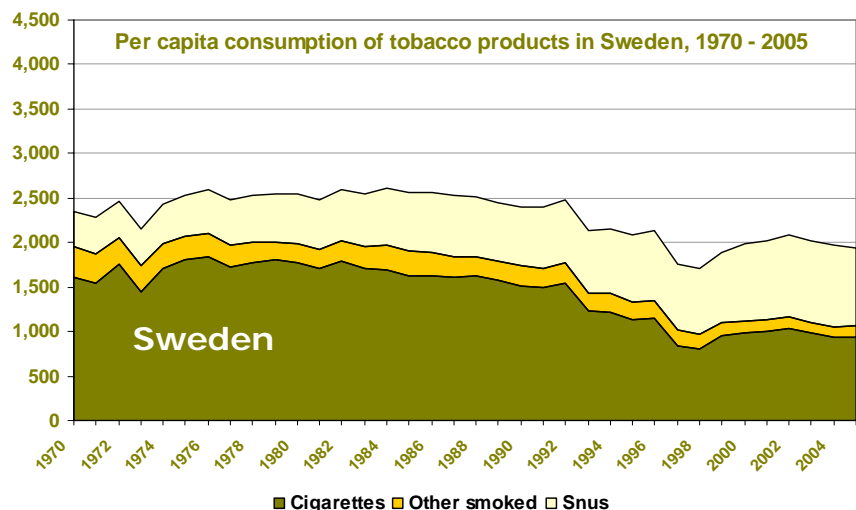
**Table 4.1: Per capita consumption of tobacco products, 1970—2005**

*For adults over 15 years of age*

*From International Smoking Statistics (PN Lee) and Swedish Government)*

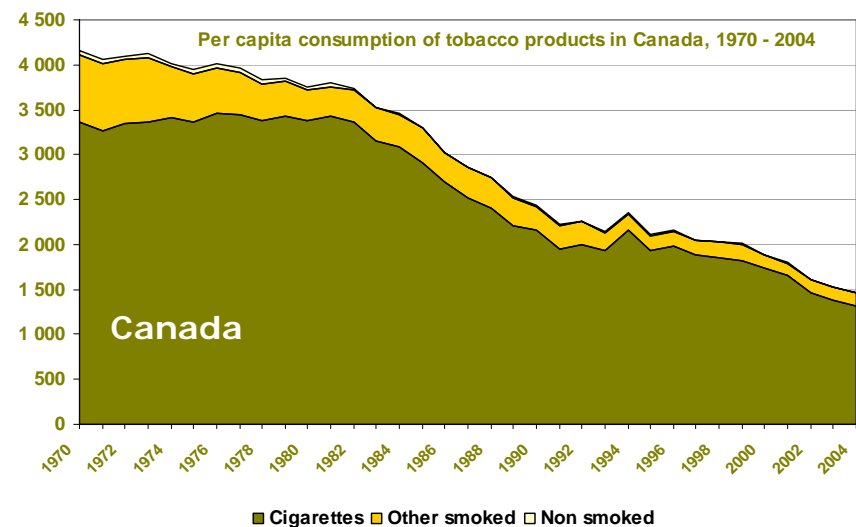
	SWEDEN			CANADA			AUSTRALIA	
	Cigarettes per person per year (sticks)	Other smoked tobacco (pipe, cigars) (grams)	Snus (g)	Cigarettes per person per year	Pipes, cigars and other smoked tobacco (g)	Non Smoked tobacco (chewing) (g)	Cigarettes per person per year (stick)	Pipes, cigars and other smoked tobacco (g)
1970	1,610	349	395	3 357	755	42	2 920	402
1971	1,550	322	410	3 264	752	40	2 884	365
1972	1,750	298	414	3 344	709	40	2 957	402
1973	1,440	296	420	3 364	717	39	3 066	365
1974	1,710	283	435	3 416	560	36	3 322	329
1975	1,800	270	453	3 369	524	56	3 212	329
1976	1,840	258	489	3 462	506	53	2 993	329
1977	1,730	234	512	3 448	469	48	3 249	329
1978	1,780	219	522	3 372	418	47	3 212	292
1979	1,800	209	535	3 430	383	44	3 176	256
1980	1,780	211	548	3 385	333	36	3 285	256
1981	1,710	204	559	3 429	330	37	3 176	219
1982	1,790	229	582	3 364	354	16	3 066	183
1983	1,700	252	594	3 151	366	15	2 884	183
1984	1,690	285	636	3 080	363	12	2 811	183
1985	1,630	271	667	2 903	391	9	2 811	146
1986	1,630	256	681	2 693	335		2 811	146
1987	1,610	237	681	2 517	341		2 665	110
1988	1,620	225	663	2 411	340		2 665	110
1989	1,570	224	660	2 202	323	17	2 665	110
1990	1,510	225	659	2 166	250	13	2 701	73
1991	1,490	219	685	1 954	253	13	2 555	110
1992	1,550	230	708	1 996	254	12	2 592	73
1993	1,230	204	709	1 937	198	13	2 336	73
1994	1,220	203	734	2 153	193	14	2 227	110
1995	1,130	197	755	1 934	163	21	2 190	110
1996	1,150	197	785	1 974	171	16	1 935	110
1997	830	191	741	1 879	165	10	1 935	110
1998	800	168	743	1 849	173	10	1 862	110
1999	960	143	789	1 825	173	11	1 789	73
2000	980	139	861	1 741	142	6	1 716	73
2001	1,000	134	889	1 664	128	12	1 570	73
2002	1,030	130	924	1 468	134	11	1 533	73
2003	980	120	920	1 385	138	9	1 606	110
2004	930	129	908	1 320	134	10	1 570	73
2005	930	136	880					

*Historically, Swedish tobacco addicts didn't switch from oral tobacco to cigarettes, as North Americans did. Nor have they reduced their tobacco consumption as quickly.*



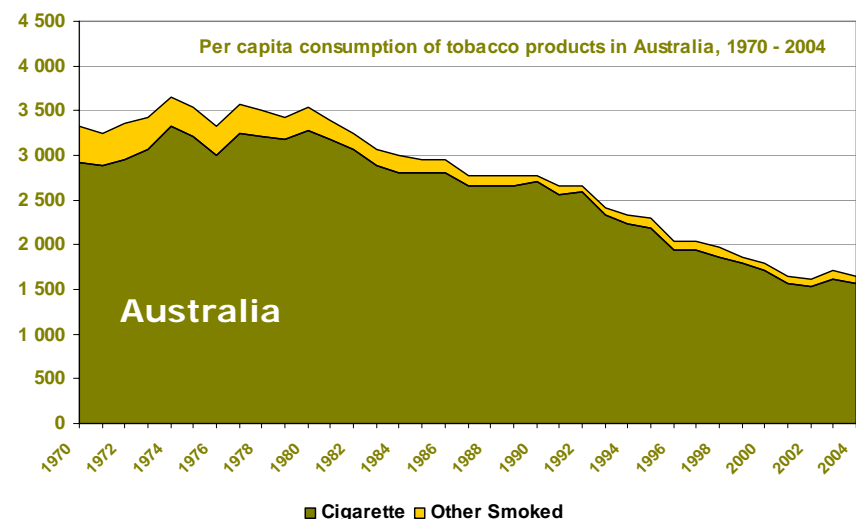
**In Sweden between 1994 and 2004, per capita use of tobacco products:**

- declined for cigarettes by 24%
- declined for other smoked tobacco products by 36%
- increased for snus use by 34%



**In Canada, between 1994 and 2004, per capita use of tobacco products:**

- declined for cigarettes by 39%
- declined for other smoked tobacco products by 31%
- declined for chewing tobacco by 31%



**In Australia, between 1994 and 2004, per capita use of tobacco products:**

- declined for cigarettes by 30%
- declined for other smoked tobacco products by 33%

Unlike Sweden, Canada is experiencing a decline in per capita consumption in all forms of tobacco.

*Swedish men and women are no less likely to start smoking than Canadians, even though they are much more likely to use oral tobacco.*

Does snus reduce the number of smokers? If so, is it because it makes it more likely that someone quits or less likely that they smoke?

'Non-smoking' represents two different population health goals:

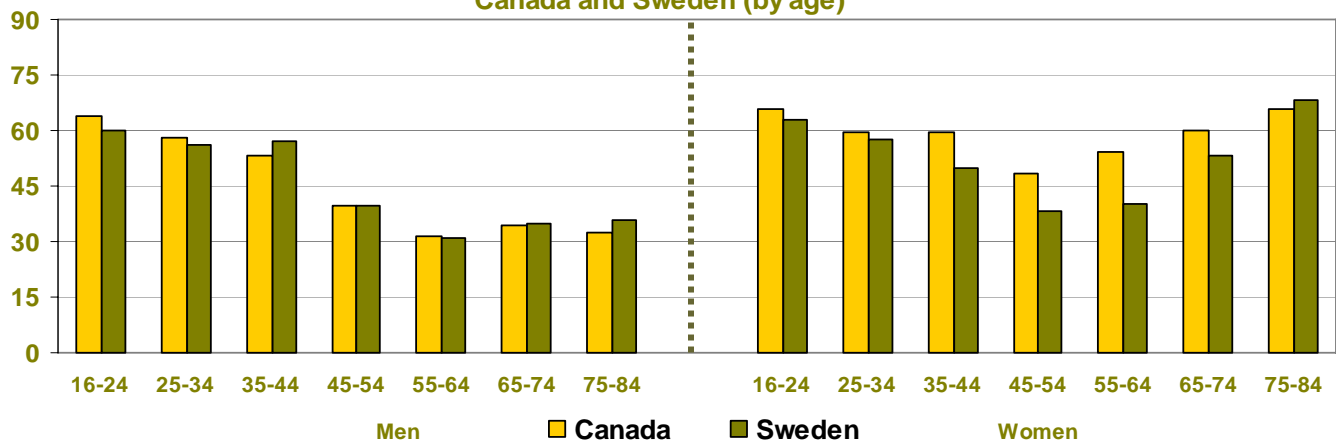
- Protecting an individual or a population from ever smoking
- Assisting or contributing to the successful quitting of a smoker or population of smokers.

Using each country's method for measuring never smokers, Canada and Sweden have comparable rate of never-smoking among both men and women. In most age groups Canada has a slightly higher percentage of never-smokers.

**Canada has been equally able to protect its population from the onset of smoking as Sweden.**

**It has also protected them from addiction to smokeless tobacco.**

**Percentage of men and women who have never smoked cigarettes, Canada and Sweden (by age)**



	MEN				WOMEN		
	Age Range	Former Daily	Never Smoker	Quit Ratio	Former Daily	Never Smoker	Quit Ratio
Sweden	16-24	6	60	0.17	6	63	0.19
Sweden	25-34	14	56	0.49	14	57	0.50
Sweden	35-44	16	57	0.62	23	50	0.85
Sweden	45-54	31	40	1.11	30	38	0.97
Sweden	55-64	42	31	1.56	34	40	1.32
Sweden	65-74	50	35	3.22	29	53	1.66
Sweden	75-84	55	36	5.75	21	68	2.03
Canada	15-24	5	64	0.17	6	66	0.24
Canada	25-34	15	58	0.61	13	60	0.59
Canada	35-44	22	53	0.99	19	59	1.08
Canada	45-54	33	40	1.33	27	48	1.40
Canada	55-64	48	31	3.08	30	54	2.16
Canada	65-74	55	34	6.83	26	60	2.69
Canada	75-84	53	32	7.42	24	66	3.03



# 2.7 Quitting

Measurements of quit behaviour vary in different countries, but both Sweden and Canada have captured data for the number of people who once smoked on a daily basis, but now don't smoke at all. This number is lower than the 'former smoker' category usually used in Canada, as it does not capture people who smoked on an occasional basis, but no longer do.

The proportion of Canadian and Swedish society are comparable and follow a similar pattern — increasing with age and lower for women .

### The Quit Ratio

Comparing the proportion of a population which has quit smoking is meaningful only if there were comparable levels of smoking to begin with. Canada and Sweden both have overall rates of being a former smoker, but Canada has higher rates of never

smoking, and fewer occasional smokers. As a result the proportion of people who have ever smoked on a daily basis but who now don't smoke at all is higher in Canada. This proportion can be expressed as a Quit ratio of Former smokers to current smokers. In Canada the quit ratio is 28:20 (1.4:1) for men and 20:17 (1.17:1) for women. In Sweden, the Quit ratio is 28:26 (1.07:1) for men and 23:26 (.88:1) for women [see Table 2.1].

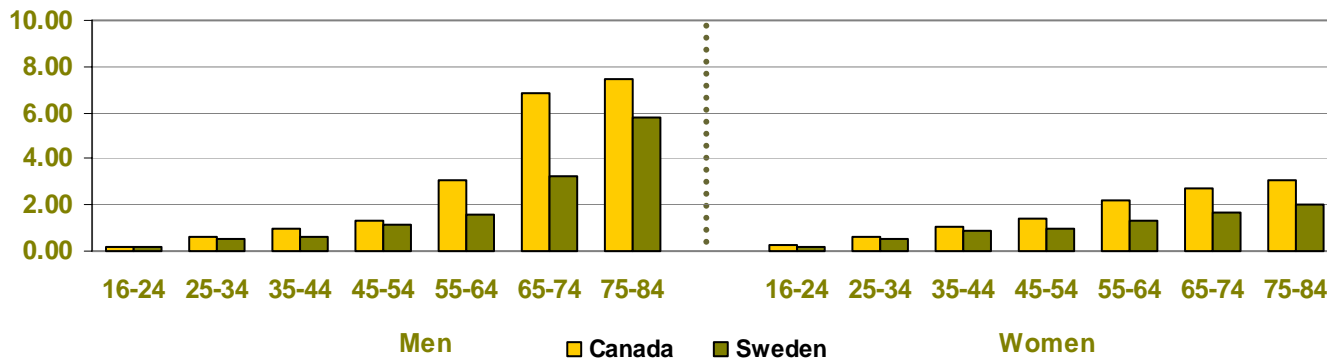
The Quit ratio suggests that Canada has been more successful at encouraging smokers to quit, even if it has been no more successful in preventing smoking.

This has happened without the widespread use of other forms of nicotine.

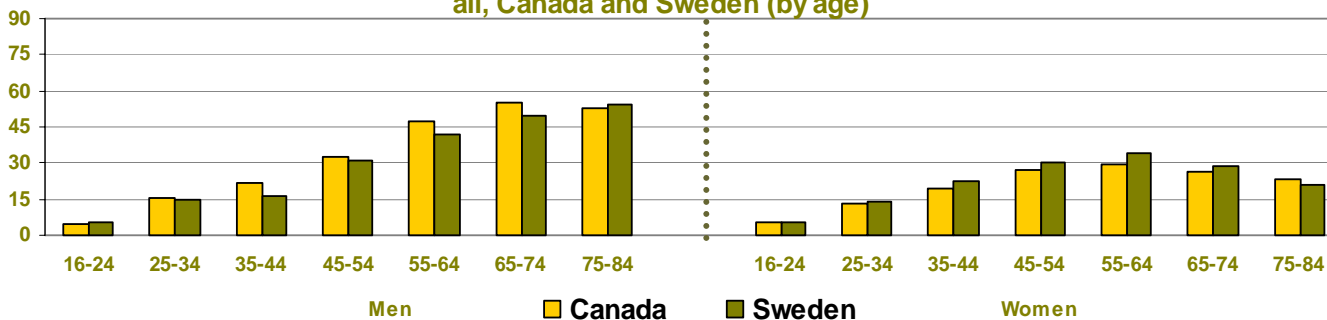
**Swedish men—even though snus is widely available and accepted as a smoking alternative — have had less success in quitting than Canadian men, on a population level.**

**Canadian women have been more successful in quitting than Swedish women.**

**Ratio of daily smokers who quit to current smokers, Canada and Sweden (by age)**



**Percentage of men and women who once smoked every day but now don't smoke at all, Canada and Sweden (by age)**



# 3.1 Mortality

Inferring progress from mortality statistics is difficult when it comes to tobacco-related diseases because of the varying periods between the smoking behaviour and the onset of the many diseases it causes.

Because of the staggered experience of smoking and deaths shown in the Lopez et al paradigm (see section 5.1) it is common to find higher rates of death in countries with lower rates of smoking, and vice-versa.

## The Claims

Promoters of snus point to Sweden's relatively low rate of tobacco-related deaths among men, and claim that the low rate of deaths among men from smoking-related diseases in Sweden is because of Swedish men's high usage of snus instead of smoking.

*"the risk for men of dying from a tobacco-related disease is less in Sweden than in any other European country. In the scientific community this paradox has been referred to as "the Swedish Experience" and can probably be explained by the unique pattern of tobacco use in Swedish males. Swedish men smoke much less than in other countries but instead use Swedish Snus to a large extent. In fact, Snus use is as common as smoking." [1]*

## The Data

Mortality statistics from smoking have been compiled by Richard Peto and colleagues. [2]. This information confirms that Sweden has the lowest tobacco attributable mortality for men, and that, among men, the tobacco epidemic has had a very different profile in Sweden than in other countries (see Figures 3.1 a-b). The epidemic was much flatter, with lower mortality for all of the years studied.

Our review also shows that, among Swedish women, the tobacco epidemic appears to be following the same onset as in other countries. Mortality among Swedish women is relatively low, nonetheless.

Although Sweden is in an enviable position when it comes to smoking-related deaths, it is making much slower progress against mortality among both men and women.

Comparing reductions in smoking-related deaths among the 8 selected countries shows that Sweden is in the bottom half with respect to both sexes in all age groups (younger groups are shown in Figures 3.2a and b).

## Considerations

Because of the varying times and profiles of the use of tobacco among countries, comparing mortality data can often result in 'paradoxes' similar to that seen in Sweden.

Consider, for example, the difference between Canadian and Japanese smoking and death rates among men. In Canada this year, one-fifth of men smoke and one-fifth of men die from smoking. In Japan this year, one-half of men smoke and one-sixth of men die from smoking. It would be wrong to infer that Japanese cigarettes are less dangerous from this paradox.

Similarly, the Swedish 'paradox' reflects the differing onset of smoking in Sweden (arguably associated with snus use). It also obscures the fact improvements in smoking related deaths have been lower in Sweden than in other countries.

## References

[1] Swedish Match: [http://www.gothiatek.com/templates/start.aspx?page\\_id=71](http://www.gothiatek.com/templates/start.aspx?page_id=71)

[2] Peto, R et al. **Mortality from Smoking in Developed Countries, 1950–2000.** <http://www.ctsu.ox.ac.uk/~tobacco/>

**Canada—without snus use—is making faster progress against smoking related deaths among both men and women — than Sweden is.**

**Sweden's progress against tobacco related disease is slower than that of England, Australia, New Zealand, the United States .**

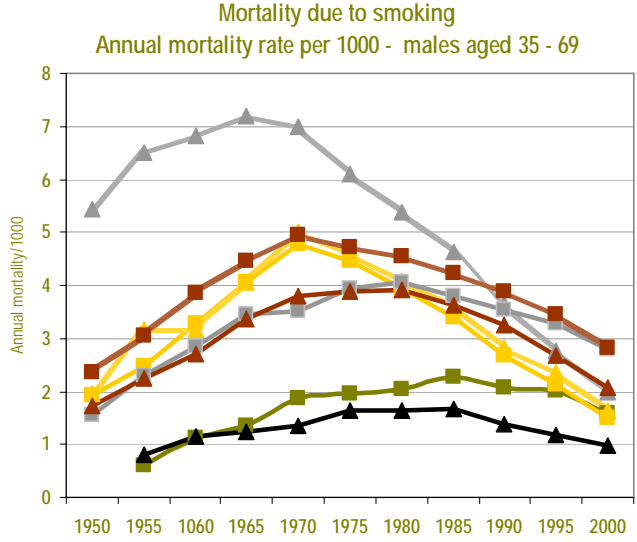
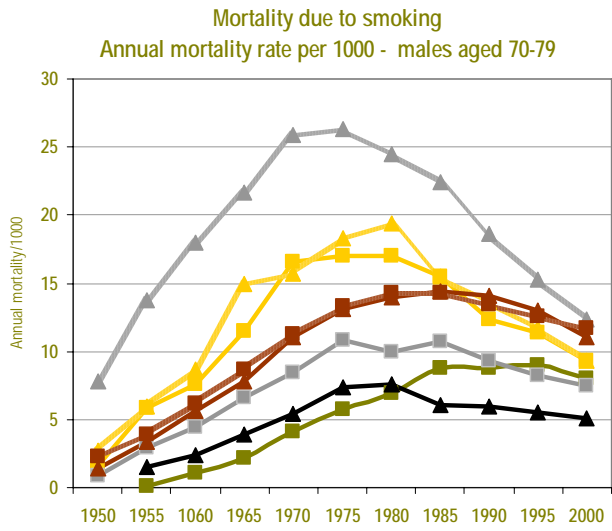
## Sweden's leadership in the 1970s:

**Early comprehensive tobacco control in Sweden in the 1970s prevented a tobacco epidemic on the scale of Canada's. Because tobacco consumption was never as high in Sweden as it was in Canada in the 1960s and 1970s, mortality never got as high either.**

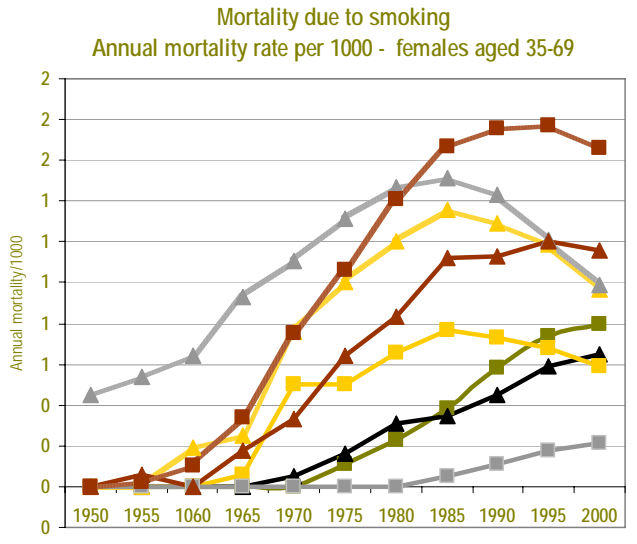
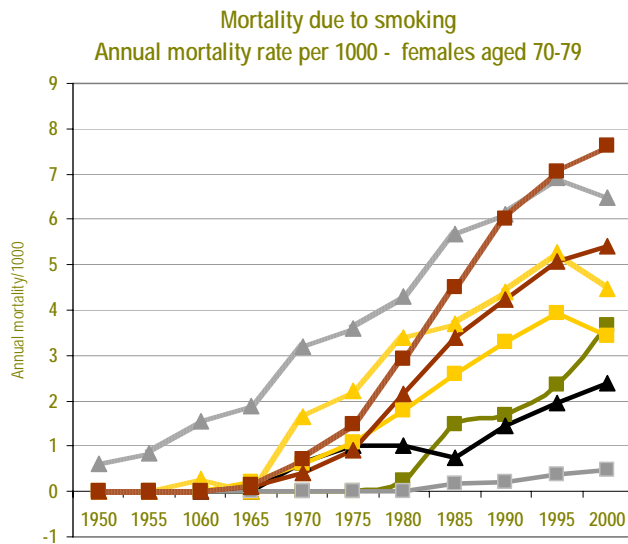
**Even though rates of decline are slower in Sweden than in Canada, mortality is still higher in Canada. Canada is still paying for its past mistakes, while Sweden is benefitting from its past policy perspicacity.**

# Figures 3.1 a-d Mortality from all causes

a



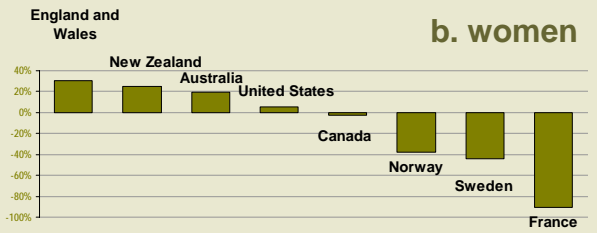
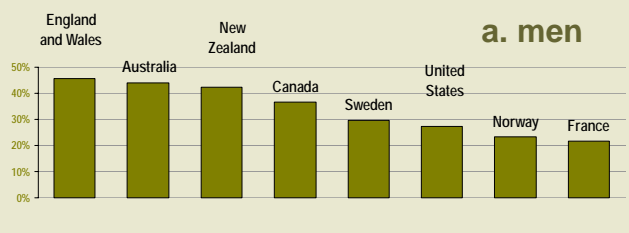
c



d

Norway
  Sweden
  England and Wales
  France
  Australia
  New Zealand
  Canada
  United States

**Figure 3.2 a-b Reduction in smoking-related mortality, 1980 to 2000, men and women aged 35-69**



# Trends in tobacco-related mortality, 8 countries

**Table 3.1: Mortality from all causes attributable to smoking (mortality rate /1000)**  
*From Peto et al. "Mortality from Smoking in Developed Countries, 1950—2000"*

	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000
<b>Male Aged 35-69</b>											
Norway		0.60	1.12	1.34	1.86	1.97	2.04	2.27	2.06	2.01	1.58
Sweden		0.82	1.15	1.23	1.36	1.63	1.65	1.68	1.38	1.19	0.97
Australia	1.92	2.48	3.27	4.07	4.79	4.47	3.93	3.39	2.68	2.13	1.50
New Zealand	1.96	3.16	3.17	4.05	5.02	4.61	4.09	3.63	2.83	2.37	1.63
England and Wales	5.43	6.49	6.83	7.20	6.98	6.11	5.39	4.63	3.66	2.76	1.99
France	1.55	2.31	2.86	3.45	3.50	3.93	4.05	3.81	3.55	3.28	2.78
Canada	1.73	2.24	2.70	3.36	3.79	3.89	3.90	3.64	3.26	2.68	2.07
United States	2.36	3.05	3.86	4.46	4.95	4.73	4.54	4.24	3.89	3.44	2.83
<b>Male Aged 70-79</b>											
Norway		0.06	1.11	2.21	4.12	5.73	6.89	8.74	8.82	8.94	7.99
Sweden		1.52	2.41	3.93	5.41	7.41	7.53	6.04	5.94	5.57	5.04
Australia	1.64	5.89	7.63	11.50	16.60	17.00	17.00	15.50	12.40	11.40	9.32
New Zealand	2.70	6.00	8.62	14.90	15.70	18.30	19.40	15.50	13.60	11.70	9.34
England and Wales	7.82	13.80	18.00	21.70	25.90	26.30	24.50	22.40	18.60	15.30	12.30
France	0.88	2.96	4.44	6.65	8.42	10.80	9.97	10.70	9.28	8.28	7.49
Canada	1.46	3.41	5.67	7.81	11.00	13.10	14.00	14.40	14.10	13.00	11.10
United States	2.23	3.91	6.21	8.66	11.30	13.30	14.30	14.30	13.40	12.60	11.70
<b>Female Aged 35-69</b>											
Norway		0.00	0.00	0.00	0.00	0.11	0.23	0.38	0.58	0.74	0.80
Sweden		0.00	0.00	0.00	0.05	0.16	0.31	0.35	0.45	0.59	0.65
Australia	0.00	0.00	0.00	0.06	0.50	0.50	0.66	0.77	0.73	0.68	0.59
New Zealand	0.00	0.00	0.19	0.25	0.76	1.00	1.20	1.36	1.29	1.19	0.97
England and Wales	0.45	0.54	0.64	0.93	1.11	1.31	1.47	1.51	1.43	1.21	0.99
France	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.18	0.21
Canada	0.00	0.06	0.00	0.18	0.33	0.64	0.83	1.12	1.13	1.20	1.16
United States	0.00	0.02	0.10	0.34	0.75	1.06	1.41	1.67	1.76	1.77	1.66
<b>Female Aged 70-79</b>											
Norway		0.00	0.00	0.00	0.00	0.00	0.25	1.49	1.67	2.35	3.68
Sweden		0.00	0.00	0.00	0.66	1.01	1.00	0.75	1.45	1.95	2.40
Australia	0.00	0.00	0.00	0.22	0.61	1.08	1.77	2.58	3.29	3.93	3.42
New Zealand	0.00	0.00	0.27	0.00	1.64	2.23	3.40	3.69	4.39	5.26	4.48
England and Wales	0.60	0.86	1.54	1.89	3.20	3.59	4.30	5.68	6.12	6.92	6.50
France	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.20	0.36	0.46
Canada	0.00	0.00	0.00	0.11	0.42	0.91	2.17	3.40	4.25	5.06	5.42
United States	0.00	0.00	0.00	0.14	0.70	1.49	2.91	4.49	6.00	7.05	7.64

## Country Rankings— Smoking Attributable Mortality in 2000

<i>Male 35-69</i>	<i>rate</i>	<i>Female 35-69</i>	<i>rate</i>	<i>Male 70-79</i>	<i>rate</i>	<i>Female 70-79</i>	<i>rate</i>
Sweden	0.97	France	0.21	Sweden	5.04	France	0.46
Australia	1.50	Australia	0.59	France	7.49	Sweden	2.40
Norway	1.58	Sweden	0.65	Norway	7.99	Australia	3.42
New Zealand	1.63	Norway	0.80	Australia	9.32	Norway	3.68
England and Wales	1.99	New Zealand	0.97	New Zealand	9.34	New Zealand	4.48
Canada	2.07	England and Wales	0.99	Canada	11.1	Canada	5.42
France	2.78	Canada	1.16	United States	11.7	England and Wales	6.50
United States	2.83	United States	1.66	England and Wales	12.3	United States	7.64

# 4.1 The cigarette epidemic

The course of the cigarette epidemic in developed countries has been described as one where:

- Male smoking prevalence peaks at about 60% prevalence
- Male smoking prevalence grows and peaks about 20 years before female smoking prevalence peaks and falls
- Male smoking prevalence falls at the same rate it grows
- Female smoking prevalence falls more slowly than it grows.

This model of tobacco use (depicted in Figure 5.1a) does not necessarily imply a 'natural history' to tobacco use, nor an inherent trajectory of the disease. Nor does it necessarily end — as the model depicts—with male smoking prevalence stuck at 30%

## An alternative explanation

The "Swedish" experience could also be described as:

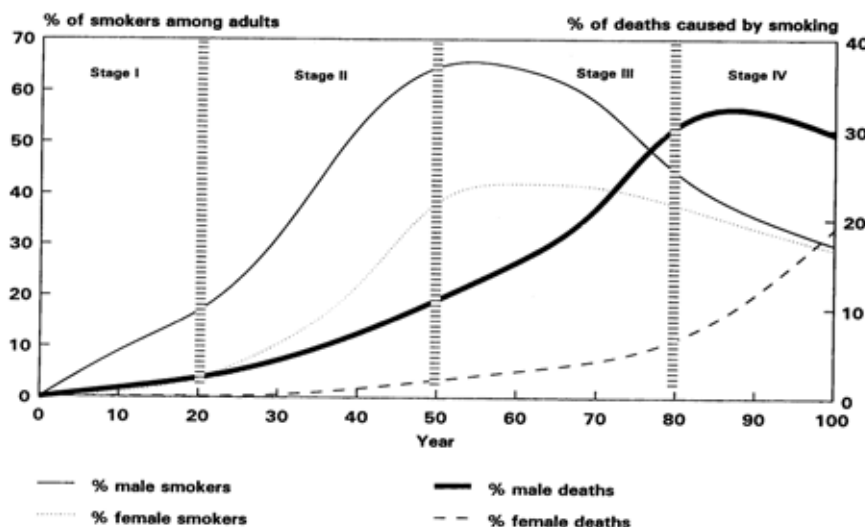
- a slower and compressed growth of smoking among men relative to Canada
- A similar growth of smoking among women
- A slower decline in smoking among men
- A slower decline in smoking among women

## Future Scenarios:

Just as Sweden's experience in Stage II and III of the disease differs from Canada's (with suppressed growth and slower declines among men), so too can Stage IV be predicted to differ.

If Canada and Sweden continue to reduce smoking at current rates, smoking rates among men will be close to 0 within 20 years in Canada, but 12% in Sweden.

Lopez, Collishaw, Piha



A.D. Lopez, N. E. Collishaw and T. Piha

A descriptive model of the cigarette epidemic in developed countries  
Tobacco Control, 1994

Lopez, Collishaw, Piha

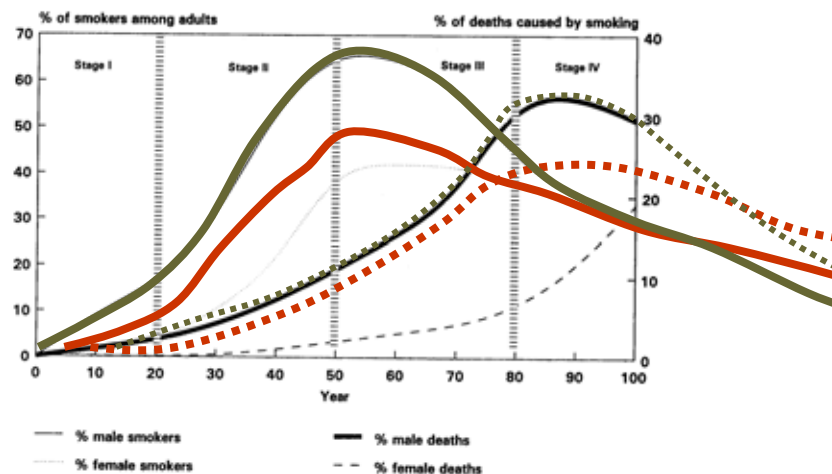


Figure A model of the cigarette epidemic

## Variable futures:

The red lines show the compressed Swedish growth of male smoking prevalence (relative to model above), and the delayed decline. Projections are made based on past 10 years' experience.

The green line depicts the experience of Canada (consistent with model above). Smoking decline is projected based on past 10 years experience.

Under this scenario, Canada is worse off than Sweden in Stages II and III of the disease, but better off in Stage IV.

## 4.2 Earlier 'Swedish Experiences'

The exemplary tobacco control policies that were put in place in the 1970s in Sweden helped prevent of a tobacco epidemic on the scale that it was experienced in Canada from the 1950s to the 1980s.

### Policy leadership

Sweden was one of the first countries to adopt comprehensive tobacco control measures; well before many other developed countries had made any regulatory efforts to control tobacco.

Sweden effectively prevented tobacco-related mortality from ever reaching the high levels experienced in Canada and other countries. Since then, however, Sweden has experienced some policy reversals. Notably the size of the health warnings on packages was reduced as a condition of joining the European Union.

Tobacco control policy reversal and stagnation, together with the effect of widespread snuff use, plausibly account for slower progress against tobacco mortality in Sweden in recent years.

### Early advertising restrictions

During the 1960s and 1970s, Swedes were not exposed to cigarette advertising on television or radio, as most Swedish broadcasts did not have any commercial advertising.

Although tobacco marketing was reduced as a result of legal action after 1971, it was legally banned in many venues in 1979. In addition to prohibitions on tobacco advertising in cinemas and outdoor advertising, sponsorships were also banned, and print advertising was restricted (i.e.

none allowed in sports magazines or on sports pages of newspapers or the back pages of magazines).

Cigarette advertising on radio and television was not ended in Canada until the early 1970s. Outdoor advertising bans did not come into effect in Canada until 2000.

### Early health warnings

By 1987 (when a single voluntary Canadian warning still advised smokers to 'avoid inhaling'), Swedish cigarette packages displayed 1 of 13 rotating health warning messages. Five of these messages were about second hand smoke:

*"Don't expose your work colleagues to smoke. It is hazardous and irritating;"*

*"If one person smokes, then everybody ends up smoking. Most tobacco smoke enters the air everyone breathes. Your smoking can afflict other people;"*

*"Tobacco smoke contains many carcinogenic substances. The largest amounts occur in side-stream smoke, which afflicts people in the vicinity;"*

*"Your smoking can be harmful to others. Don't subject people around you to smoke;"*

*"Don't smoke when children are around. Smoke can damage their respiratory passages."*

### Policy set-backs

#### Harmonizing down to EU standards.

When Sweden joined the European Union in 1995, it harmonized many of its domestic measures to EU standards. In the case of tobacco control, this meant weakening some measures, such as adopting the EU health warning messages. (in 2004, Sweden's health minister rejected the EU proposed picture based health warnings).

### Losing control of tobacco companies

Swedish efforts to implement tobacco control measures arguably faced less industry resistance because the Swedish government owned and controlled the largest tobacco company until the early 1990s. Swedish Match is now fully privatized.



A typical Swedish cigarette package, ca 1986.

### References

Tobacco Documentation Centre:  
Smoking Issues Status Book

Swedish National Smoking and Health Association, Smoking Control in Sweden, 1983, 1987

[www.swedishmatch.com](http://www.swedishmatch.com)

# Additional information

## European Network for Smoking Prevention

### ENSP Status Report on Oral Tobacco

<http://homepage.univie.ac.at/manfred.neuberger/oraltob.pdf>

## ASH Scotland

### Should the EU ban on Snus be Lifted?

<http://www.ashscotland.org.uk/ash/files/SnuspositionpaperJuly%202007.doc>

## Sara Sanchez et al.

INWAT newsletter March 2007—August 2007

### Smokeless Tobacco Use Among Women in Sweden. Not a definition of equality

[http://www.inwat.org/pdf/THE\\_NET\\_nr\\_2-07.pdf](http://www.inwat.org/pdf/THE_NET_nr_2-07.pdf)

European Commission Health and Consumer Protection Directorate General,

### Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR)

### Health Effects of Smokeless Tobacco Products. Preliminary Report. June 2007.

[http://ec.europa.eu/health/ph\\_risk/committees/04\\_scenihhr/docs/](http://ec.europa.eu/health/ph_risk/committees/04_scenihhr/docs/)

## Statistics Sweden

### Alkohol och tobaksbruk Levnadsförhållanden Rapport 114

[http://www.scb.se/statistik/\\_publikationer/LE0101\\_2004I05\\_BR\\_LE114SA0701.pdf](http://www.scb.se/statistik/_publikationer/LE0101_2004I05_BR_LE114SA0701.pdf)



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