

How many deaths could conceivably have been averted in the EU if there had not been a ban on snus?

Lars M. Ramström, *Institute for Tobacco Studies, Täby, Sweden*
 Email: lars.ramstrom@tobaccostudies.com

BACKGROUND AND AIM

The EU Commission has stated that almost 700.000 premature deaths in the EU every year are attributable to tobacco. This represents an overall tobacco-related death rate in men more than double that in Sweden. Specific analyses have shown that this difference is largely due to the dominant use of snus (the Swedish kind of low-toxicity oral snuff banned in the EU except Sweden) instead of cigarettes among Swedish men. This study aims at estimating how many premature deaths attributable to tobacco that could conceivably have been averted in the EU if Swedish tobacco use patterns had prevailed. This could have been the case if there had not been a ban on snus while strong truthful public education had encouraged uptake of Swedish tobacco use patterns.

METHODS

The *WHO Global Report Mortality Attributable to Tobacco* (WHO, Geneva, 2012) presents detailed data on tobacco-related death rates in the year 2004 for all countries of the world. Based on this report the current study has estimated, for each EU Member State and for the EU as whole and for the non-EU Member State Norway, the number of deaths attributable to tobacco in two scenarios. One scenario represents the number of tobacco-related deaths "According to the national conditions" based on the actual age- and disease-specific death rates presented in the WHO report for each country. In the other scenario, "If Swedish conditions had prevailed", Swedish age- and disease-specific death rates have been applied to the corresponding age-specific population-size data in the different EU countries. Estimates are presented for 'All cardiovascular diseases'; 'Cancers in lung bronchus trachea'; 'All cancers'; 'All causes of death'.



The current analysis aims specifically at elucidating how premature deaths can be averted if there is large scale substitution of snus for cigarettes. This has been a strong development among men in Sweden but not among women, and, in ages below 30 the tobacco-related deaths are rare. Therefore the analysis is limited to men 30 years and older.

RESULTS

The table shows the numerical data for each country and for the EU as a whole.

For each category of cause of death there are columns indicating the number of premature deaths attributable to tobacco according to the two different scenarios. The difference between those numbers can be seen as the conceivable number of deaths that could have been averted if Swedish tobacco use patterns had prevailed. For 'All causes of death' this difference is shown in two separate columns, one showing the number, the other showing the percentage of deaths averted. The number of deaths must be seen in relation to the size of the population and therefore population data for each country are shown in a separate column. This makes it possible to calculate country-specific death rates for the different categories of cause of death. For the category 'All causes of death' these death rates are shown in a separate column. These rates can be seen as an indication of the burden of tobacco-related disease in the different EU countries.

Country		Number of deaths attributable to tobacco, men in the EU, 30 years and older										
Name	Population (in 100,000s)	All cardiovascular diseases		Cancers in lung bronchus trachea		All cancers		All causes of death				
		According to the national conditions	If Swedish conditions had prevailed	According to the national conditions	If Swedish conditions had prevailed	According to the national conditions	If Swedish conditions had prevailed	According to the national conditions	If Swedish conditions had prevailed	Conceivable number of deaths averted	Percentage of deaths averted	Death rate per 100,000
Austria	25.97	1,584	929	2,078	1,104	3,350	1,644	6,415	3,319	-3,096	-48%	247
Belgium	31.96	3,739	1,238	5,465	1,493	7,734	2,226	15,660	4,511	-11,149	-71%	490
Bulgaria	23.71	7,729	959	2,442	1,139	3,770	1,693	12,566	3,406	-9,160	-73%	530
Croatia	13.49	2,779	526	2,077	601	3,292	891	7,150	1,781	-5,369	-75%	530
Cyprus	2.21	183	79	122	93	170	140	422	284	-138	-67%	191
Czech Republic	30.25	5,566	1,100	4,084	1,245	6,443	1,854	13,492	3,738	-9,754	-72%	446
Denmark	16.74	1,841	623	1,841	743	2,829	1,110	6,180	2,254	-3,906	-63%	368
Estonia	3.58	1,178	132	494	150	816	283	2,277	445	-1,832	-80%	636
Finland	15.89	1,255	608	1,224	699	1,764	1,041	3,766	2,105	-1,661	-44%	237
France	178.96	12,527	6,834	22,012	8,299	38,118	12,421	59,057	25,364	-33,693	-57%	330
Germany	268.58	24,441	10,378	26,589	12,312	41,361	18,225	80,843	36,370	-44,473	-55%	301
Greece	34.84	4,564	1,411	4,947	1,738	7,107	2,586	13,483	5,223	-8,260	-61%	387
Hungary	28.78	8,576	1,060	5,555	1,215	9,181	1,810	20,117	3,654	-16,463	-82%	699
Ireland	10.92	863	369	928	427	1,441	638	3,286	1,292	-1,994	-61%	301
Italy	190.80	15,264	7,549	24,232	9,366	37,015	13,958	65,444	28,284	-37,160	-57%	343
Latvia	6.24	2,346	228	842	260	1,404	385	4,100	767	-3,333	-81%	657
Lithuania	9.16	2,574	322	1,099	372	1,878	551	5,249	1,105	-4,144	-79%	573
Luxembourg	1.38	120	48	141	55	218	82	428	164	-264	-62%	310
Malta	1.16	89	42	106	47	150	71	339	144	-195	-58%	292
Netherlands	50.50	4,293	1,773	6,313	2,056	9,343	3,068	18,180	6,219	-11,961	-66%	360
Poland	104.30	25,658	3,673	16,792	4,073	26,075	6,079	59,034	12,304	-46,730	-79%	566
Portugal	31.07	2,392	1,209	2,454	1,467	4,319	2,184	8,948	4,410	-4,538	-51%	288
Romania	61.40	15,780	2,296	6,447	2,651	10,991	3,934	31,314	7,882	-23,432	-75%	510
Slovakia	14.59	3,137	479	1,576	529	2,889	790	6,843	1,600	-5,243	-77%	469
Slovenia	6.09	834	220	816	246	1,285	366	2,625	734	-1,891	-72%	431
Spain	132.60	9,574	4,966	16,045	6,152	25,194	9,181	47,736	18,655	-29,081	-61%	360
Sweden	28.07	1,122	1,122	1,404	1,404	2,077	2,077	4,267	4,267	0	0%	152
United Kingdom	179.39	14,531	6,833	18,298	8,370	29,241	12,502	61,890	25,438	-36,452	-59%	345
EU 28	1,502.63	174,539	57,006	176,423	65,674	279,455	101,790	561,091	205,719	-355,372	-63%	373
Norway	13.86	790	503	1,137	611	1,677	917	3,396	1,880	-1,516	-45%	245

DISCUSSION

The burden of tobacco-related disease in the EU

The table indicates that in 2004 there were in the whole of EU 561,091 premature deaths attributable to tobacco use among men 30 years and older. If Swedish conditions had prevailed, the number would have been 205,719. Thus, it is conceivable that 355,372 deaths, i.e. 63% of the tobacco-related deaths could have been averted if truthful public education about snus had been strong enough to bring about Swedish tobacco use patterns, while the 1992 snus ban in the EU had not been introduced.

In most EU countries (21 of 28) the number of tobacco-related cancer deaths is larger than the number of tobacco-related cardiovascular deaths. At the same time comparisons between the two scenarios indicate that the percentage of averted deaths is usually larger for the cardiovascular deaths. The tobacco-related deaths from cancer in lung, bronchus and trachea constitute a large proportion of all tobacco-related cancer deaths, usually 60% – 70%

The burden of tobacco-related disease differs dramatically across the EU. The figure below lists the EU countries (and Norway) sorted according to death rate attributable to tobacco (all causes). It shows that Sweden has an outlier position at the low end with a death rate less than a fourth of the top rate and less than half of the EU average. This is well consistent with Sweden's position as the country with Europe's lowest prevalence of cigarette smoking. Prevalence of total tobacco use, smoking plus snus use, is higher in Sweden than in many other EU countries, but that does not preclude Sweden from keeping the position with lowest death rate. There is a clear difference between Eastern and Western EU countries. Virtually all Eastern countries exhibit death rates above EU average, while virtually all those with lower than EU average death rate are Western countries

Opportunities for the future

The above analysis demonstrates that many deaths in the EU could conceivably have been averted by uptake of Swedish tobacco use patterns up to 2004. It follows that corresponding prevention of tobacco-related deaths in the future would be possible if Swedish tobacco use habits can be established across the EU during a period to come, for example from 2018 to 2030.

When trying to estimate the number of tobacco-related deaths that could be prevented this way it will be necessary to take into account that the baseline 2018 is different from the situation in 2004. The best data available for such an update are provided by the *Global Burden of Disease Study 2015* (published by The Lancet Online April 5, 2017 [http://dx.doi.org/10.1016/S0140-6736\(17\)30819-X](http://dx.doi.org/10.1016/S0140-6736(17)30819-X)). In the *Supplementary Appendix* we find estimates of number of deaths attributable to tobacco for men 30 years and older in 2015. These 2015 numbers are lower than the corresponding 2004 numbers in some, but higher in other EU countries. For the EU as a whole the estimated number of tobacco-related deaths in men 30 years and older in 2015 is 538,145 i.e. 96% of the 2004 estimate. Since there is no sharp change over time, it would be reasonable to assume that the percentage of deaths averted 2004, with a corresponding 96% reduction, could be taken as a conceivable percentage of deaths to be preventable when moving forward.

Based on the above assumptions it can be estimated that uptake in the current EU countries of the Swedish pattern of substitution of snus for cigarettes has a potential to prevent around 320,000 premature deaths per year.

CONCLUSIONS

**IF snus is made available by lifting of the current ban in the EU,
AND,
truthful public education encourages substitution of snus for cigarettes so as in
Sweden,**

around 320,000 premature deaths per year can conceivably be prevented among men 30 years and older in the current EU countries.

Death rate per 100,000 attributable to tobacco, all causes of death, men 30 years and older

