

SNUS KOMMISSIONEN

RELATIVE HEALTH RISKS OF TOBACCO AND NICOTINE PRODUCTS

A shadow report from Sweden's Snus Commission



The Snus Commission's sixth report

October 2022

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WHAT IS THE SNUS COMMISSION?

The Snus Commission is an independent commission that produces reports on matters related to Swedish snus. The Commission is financed by the Swedish Association of Snus Manufacturers – a coalition of companies in Sweden that manufacture, market and sell snus. The Commission's reports, analyses and conclusions are independent of its financiers, however, and those financiers have not been able to read the report in advance or provide any views on its content. They therefore have no responsibility for the end-product. The Snus Commission released its first report *The health effects of snus* in May 2016. The report surveyed current research on the alleged health effects of snus and found that the use of snus did not increase the risk of cancer or cardiovascular diseases. In the report the Snus Commission also made a number of recommendations to politicians.

A second report was released in December 2016, *Statens problem med snuset – sambandet mellan information och hälsa* (available in Swedish only; the title translates as *The State's issue with snus – the link*

between information and health).

This report described the political proposals to restrict commercial freedom of expression, such as display bans and neutral tobacco packaging, and how these proposals might adversely affect the consumer's ability to obtain accurate information.

In 2017 a third report *Snus saves lives* was released, indicating differences in tobacco-related mortality rates in EU Member States. This report illustrated the reduction in the number of tobacco-related deaths that would occur if all EU countries were to switch from cigarette consumption to snus. Had the other EU countries matched Sweden's consumption of snus rather than cigarettes then 355,000 fewer people would have died each year as a result of tobacco-related diseases.

The Commission's fourth report *The Betrayal of Smokers* (2017) discusses how Swedish government agencies have hampered efforts to reduce levels of smoking.

A fifth report, so far issued only in Swedish under the title *En dosa snusförnuft* (2019) – which translates as 'A can of common snus' – looked at the matter from an EU perspective.



SNUS COMMISSION MEMBERS

Photos: Jan Vana, Stockholm



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Milton is a physician whose former roles include president and chair of the Swedish Medical Association, chair of SACO 1993–2001 and chair of the Swedish Red Cross 2002–2005. Milton has also served as a government investigator on various matters.

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Among other roles, chair of IF Metall 1993–2005, former member of the Social Democratic Party's Executive Committee and board member at Volvo AB. Chair of the Swedish national broadcast corporation SVT 2011–2014.

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Karl Olov Fagerström

Associate Professor, researcher on tobacco and nicotine. Fagerström has been recognised by the WHO for his anti-tobacco efforts. He also founded a company that sells smoking cessation products and has held various positions at Pharmacia.

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CONTENTS

What is the Snus Commission?	2
Snus Commission members	3
Purpose & synopsis	6
Background	8
Introduction	9
Approach	9
Results	11
Conclusions	20
References	22
Other reports in brief	24

List of tables and figures in the report

Table 1. Lifetime cancer risk of 13 nicotine products	11
Figure 1. Lifetime cancer risk relative to nicotine replacement therapy (NRT)	12
Figure 2. Relative cancer risk of 13 nicotine products	13
Figure 3. Nicotine products ordered by their overall harm scores	16

PURPOSE & SYNOPSIS



The Snus Commission's overview of the current science on nicotine and tobacco use has shown that both traditional Swedish snus (which contains tobacco) and the more recent product nicotine pouches (tobacco-free) are to be recommended for those who want to stop smoking cigarettes but are not managing to do so using any of the measures recommended by the healthcare sector. The latest research shows no statistically significant link between using snus and cancer or other life-threatening diseases. Snus has been the subject of research for more than 30 years, while for understandable reasons the knowledge base for nicotine pouches is not

as extensive. No reasonable scientifically based hypothesis suggesting that tobacco-free nicotine pouches could pose an increased risk when compared with traditional snus has been presented, however.

The Snus Commission has always stressed that snus is not a health product. There are recent studies indicating that the health risks of snus may include elevated blood pressure, higher cholesterol levels and possibly insulin resistance. Moreover, it is recommended that snus is not used during pregnancy due to an increased risk of harm to the unborn child. Whatever the reliability of these studies, they must not be ignored.

What we are looking at is the relative health risk. If you might die from smoking cigarettes but live when using snus, why should you not be recommended, as a nicotine consumer, to choose the less harmful product? As we have asserted previously, including in the report *The health effects of snus*, based on the WHO's own figures concerning tobacco-related ill-health it is therefore the wrong route to go down if the government rejects the principle of minimising harm and instead equates the use of snus with smoking cigarettes. This despite the fact that cigarettes are estimated to be around 450 times more dangerous than traditional snus and kill around half of their users. Consuming snus, on the other hand, is not something that people die from, according to a broad knowledge overview in the medical journal *The Lancet* (Luo J et al., 2007).

In March 2022 the then Swedish government tasked three Swedish government agencies – the Public Health Agency of Sweden (Folkhälsomyndigheten), Sweden's National Board of Health and Welfare (Socialstyrelsen) and the Swedish Agency for Health Technology Assessment and Assessment of Social Services (Statens beredning för medicinsk och social utvärdering – SBU) with producing an overview of current knowledge concerning the relative risks of different tobacco and nicotine products. This followed the rejection in the Riksdag, the Swedish parliament, of the government bill on Sweden's strategy

for alcohol, narcotics, doping, tobacco and gaming (ANDTG) – partly because the proposal was not considered to provide a sufficiently clear basis for our policy in the area. At the July cabinet meeting (directive 2022:111) a further investigation was subsequently established that would take place in parallel with the earlier one. The purpose of the new investigation is to review tobacco policy and analyse the consequences of amending the ANDTG policy based on the varying degrees of harm caused by different tobacco and nicotine products. The investigation will review the marketing of alcohol and tobacco, among other things, and investigator Inga-Lill Askersjö will in addition assess how a change in the ANDTG policy would be compatible with the WHO Framework Convention and EU law. The starting point for the investigation remains the Swedish government's work on public health policy, one of the aims of which is stricter regulation of non-tobacco nicotine products. The Snus Commission hopes that our overview of current knowledge will clarify where scientific research stands as regards the relative risk picture of tobacco and nicotine consumption. However, as the then government's directive could be misinterpreted as steering towards a particular desired outcome – i.e. the status quo – the Snus Commission presents here its own shadow report, or overview, which aims to broaden the government's knowledge base by making reference to reputable review articles.

BACKGROUND

In 2022 the Swedish government asked the Public Health Agency of Sweden, Sweden's National Board of Health and Welfare and the Swedish Agency for Health Technology Assessment and Assessment of Social Services to produce an overview of research bringing together the knowledge that exists concerning the harmful effects of tobacco and nicotine products. The agencies are to report by 30 June 2023 and were given the task following the rejection by the Riksdag of the government bill *En förnyad strategi för politiken avseende alkohol, narkotika, doping, tobak och nikotin samt spel om pengar 2021-2025* [A new strategy for policy on alcohol, narcotics, doping, tobacco, nicotine and gaming 2021-2025] (prop. 2021/22:132) on 15 June 2021. In rejecting the bill the Riksdag stated that greater clarity was needed as regards the government's priorities and that the government needed to take into consideration the varying harmful effects of different tobacco and nicotine products (Regeringsbeslut S2022/01825, pp. 1-2). This is precisely what was sought in the government's 2022 communication: a clearer preparatory document relating to current knowledge concerning various nicotine and tobacco products.

The government decision of 23 March 2022 states that the overview of current knowledge is to be based on the report produced in June 2020 by the Swedish Agency for Health Technology Assessment and Assessment of Social Services concerning the links between snus, electronic cigarettes and tobacco smoking. Also emphasised is that the review of current knowledge is to address the WHO

Framework Convention on Tobacco Control (ibid., p. 3). One of the external researchers commissioned by the Public Health Agency of Sweden to review that report prior to publication, Professor Karl Erik Lund of the Norwegian Institute of Public Health (Norges Folkhelseinstitutt), has sharply criticised the SBU report. Lund has stated that he believes that the Agency selected studies that provided the desired result and used asymmetrical evidence requirements to find studies agreeing with the result sought (Nettavisen, 2020).



IN VIEW OF THE HIGHLY CONTESTED INVESTIGATION, THE SNUS COMMISSION FEARS THERE IS NOW A RISK THAT THE GOVERNMENT'S DIRECTIVE WILL LEAD TO THE SAME MISTAKES BEING REPEATED.

In view of the highly contested investigation, the Snus Commission fears there is now a risk that the government's directive will lead to the same mistakes being repeated. Research that is not in line with the predetermined conclusions is sifted out. The Snus Commission has therefore decided to produce its own overview of current knowledge in which we present data from peer-reviewed research reports – mostly overview articles – on the harmful effects of tobacco and nicotine products.

This report has a clear purpose: to present the latest scientific view of the risks of using tobacco and nicotine in the form of snus.

INTRODUCTION

Cigarettes remain the most common form of tobacco consumption globally. Consumption of combustible tobacco tops the list of the main causes of preventable diseases and is estimated to cause around 700,000 deaths in Europe each year (European Commission, 2022). The main health risks associated with tobacco smoking come from the 250 confirmed harmful chemicals that are released when the cigarette burns, of which 69 have been shown to be directly carcinogenic (Murkett et al., 2020). In contrast to the plethora of scientific literature that has been produced regarding smoking and snus, there are few studies looking at how alternative nicotine products such as nicotine pouches, e-cigarettes, nicotine replacement therapy and heat-not-burn products affect people's health. Until recently there was no clarity concerning the risks of new non-tobacco nicotine products, but the scientific literature in this area has now begun to grow.

APPROACH

This knowledge overview is based on recently published scientific overview articles concerning the harmful effects of nicotine and tobacco products.

Main source material

Only a limited number of scientific studies have been published that systematically rank nicotine products by risk level. A 2020 report by FLOOD Research entitled *Nicotine products relative risk assessment: a systematic review and meta-analysis* by the researchers Rachel Murkett, Megyn Rugh and Belinda Ding is the most extensive risk assessment of nicotine and tobacco products that has been carried out and is based on around 4,000 scientific publications that have been condensed down into an overall risk hierarchy (Murkett et al., 2020, p. 3). Another broad overview of the research was published in the medical journal *The Lancet* in 2016. The study *Global burden of disease due to smokeless tobacco consumption in adults: an updated analysis of data from 127 countries* shows, among other things, that there is no link between snus use and cancer, based on current research and empirical data (GBD 2016 Risk Factors Collaborators, 2016, p. 1405). The research was funded by The Bill & Melinda Gates Foundation and Bloomberg Philanthropies.

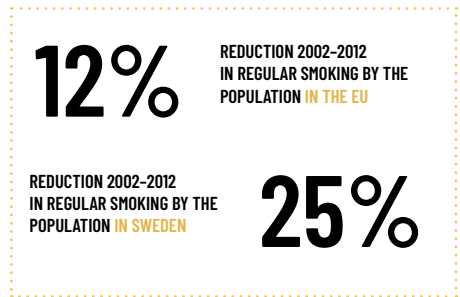
Reports from the Snus Commission

As mentioned in the section *What is the Snus Commission?*, the Commission has produced a number of research-based reports to disseminate knowledge surrounding Swedish snus. The 2016 report *The health effects of snus* and its updated version from 2020 show how the incidence of cancer and cardiovascular diseases cannot be linked to the consumption of snus (Snus Commission, 2020). Moreover, the report establishes that the US Food

and Drug Administration (FDA) has classed Swedish snus as a modified risk tobacco product (MRTP) – the first product to be given this designation. In its assessment the FDA refers to the fact that Swedish snus significantly reduces the negative effects of consuming tobacco – effects that would be found with cigarette smoking and similar products (ibid). The report also highlights the role of Swedish snus as a potential harm-minimising product on the European market. According to the report, public health in Europe would be noticeably improved if all smokers were to switch to using snus (ibid).

The Snus Commission's 2017 report *Snus saves lives* was based on WHO data on tobacco-related mortality globally. The report shows that Sweden has the lowest tobacco-related mortality in the whole of Europe. Within the EU regular smoking among the population decreased by 12 percent between 2002 and 2012, while in Sweden the figure decreased by a full 25 percent over the same period. The WHO data was based on men over 30 years old in each individual country and their tobacco habits. The Snus Commission argues that European tobacco-related mortality would have been significantly lower had snus use been permitted in the rest of Europe. The difference in health effects would correspond to hundreds of thousands fewer deaths as a result of tobacco-related diseases that did not occur (such as tracheal, bronchial and lung cancers, chronic obstructive pulmonary disease (COPD)

and cardiovascular diseases). It has been alleged that using snus increases the risk of pancreatic cancer but that has not been seen in later studies. Furthermore, Sweden has the second lowest incidence of pancreatic cancer in the EU, which suggests there is no such link (Snus Commission, 2017).



Other reports such as *En dosa snusförnuft* ('A can of common snus', available in Swedish only), *Statens problem med snuset* ('The State's issue with snus', also only in Swedish) and *The Betrayal of Smokers* return to the above conclusions: that Swedish snus – both traditional snus containing tobacco and tobacco-free nicotine pouches – is a very effective smoking cessation and harm minimisation product which has considerably fewer negative consequences than other types of tobacco and nicotine consumption.

RESULTS

In Murkett's study a special method was developed for assessing the relative risks of 13 different nicotine products based on a systematic literature analysis combined with meta-analysis of epidemiological data. The report results in a combined risk score for the products' possible cancer risk, biomarkers of exposure to harmful substances as well as the risks of other types of disease (Murkett et al., 2020, p. 3).

No statistically significant link between snus and cancer

In the case of snus the study presents only two marginal increases in the risk of developing any disease. These two risk increases concern the pancreas and the rectum but the risk for increased pancreatic cancer has not been seen in other studies. Based on this report, no statistically significant link can be seen between traditional snus and oral cancer, oesophageal cancer, lung cancer or stomach cancer (Murkett et al., 2020, p. 15). In contrast, the increased risk of cigarette smoking for all types of cancer can be statistically established with a very high level of certainty (ibid).

Table 1 on the right shows that combustible tobacco products such as cigarettes and cigars are considerably more harmful to health than snus (both traditional snus and tobacco-free nicotine pouches). Cigarette consumption is estimated to cause around 3,490 additional cases of cancer per 100,000 population, while the corresponding figure for traditional snus is 8.7 and for nicotine pouches 7.8 (the link between snus and cancer is not statistically significant).

TABLE 1. LIFETIME CANCER RISK OF 13 NICOTINE PRODUCTS

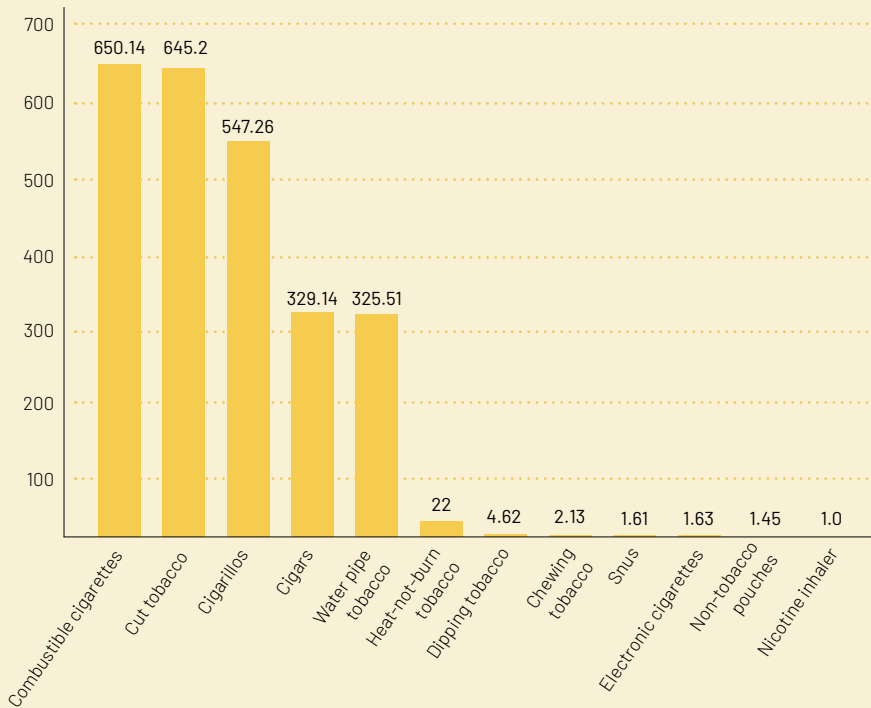
Nicotine product	Assumed consumption	Excess cancer cases per 100,000
Combustible cigarettes	15 sticks/day	3,490
Cut tobacco	15 sticks/day	3,464
Cigarillos	5 cigarillos/day	2,938
Cigars	4 cigars/day	1,767
Water pipe tobacco	3 sessions/week	1,748
Heat-not-burn tobacco	15 sticks/day	118
Dipping tobacco	12 g/day	25
Chewing tobacco	12 g/day	11
Snus	12 g/day	8.7
Electronic cigarettes	163 puffs/day	8.2
Non-tobacco pouches	12 g/day	7.8
Nicotine inhaler	6 cartridges/day	5.4

Source: Murkett et al. (2020). *Nicotine products relative risk assessment: a systematic review and meta-analysis*, p. 8.

Figures 1 and 2 illustrate how much greater the cancer risk is among smokers compared with snus users. Smokers are estimated to run a 400 to 450 times greater risk of developing cancer compared with those who consume traditional snus or nicotine pouches.

Neither are there any statistically significant causes of developing cancer through snus consumption.

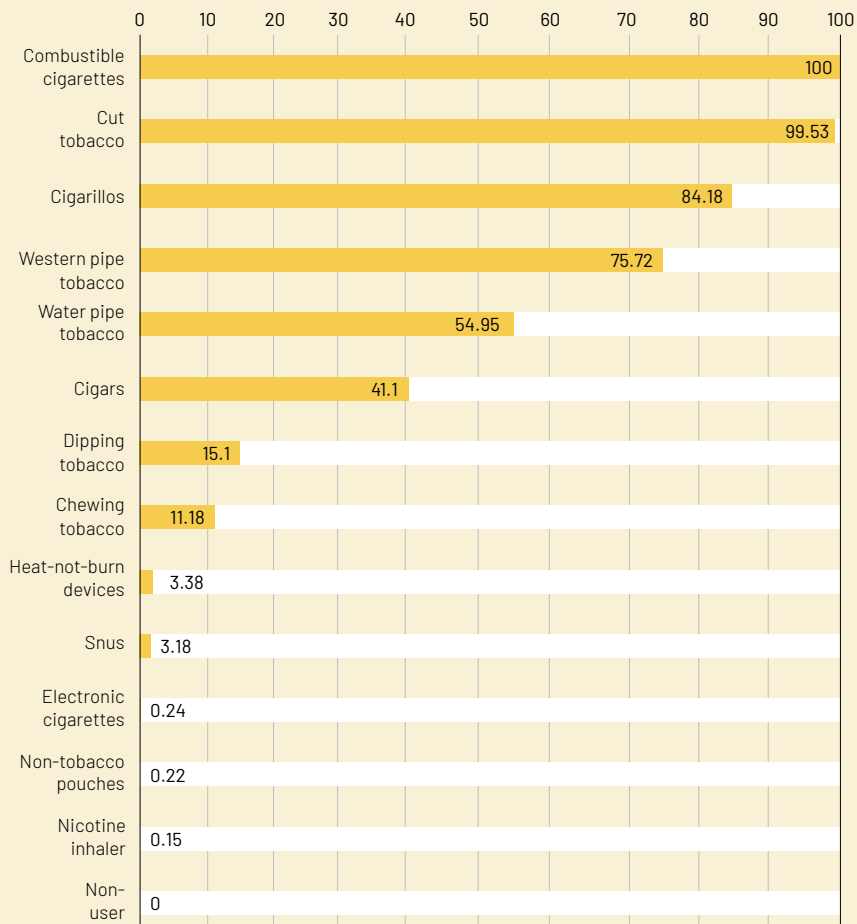
FIGURE 1. LIFETIME CANCER RISK RELATIVE TO NICOTINE REPLACEMENT THERAPY (NRT)



Source: Murkett et al. (2020). *Nicotine products relative risk assessment: a systematic review and meta-analysis*, p. 8.

FIGURE 2. RELATIVE CANCER RISK OF 13 NICOTINE PRODUCTS

100 = most harmful. Cigarettes topped the risk hierarchy for the harmful effects of tobacco consumption.



Source: Murkett et al. (2020). *Nicotine products relative risk assessment: a systematic review and meta-analysis*, p. 17.

Smokeless tobacco products and cardiovascular disease

The link between smoking and cardiovascular disease has been known for a long time. The possible link between these diseases and smokeless tobacco products has been studied to a considerably lesser extent. A recently published study (Nahhas, 2022) compared the incidence of cardiovascular disease among men: 1) who had never smoked but had used smokeless tobacco products and 2) who smoke but do not use/had not used smokeless tobacco products. The study was based on the Population Assessment of Tobacco and Health carried out in the USA as a prospective study in four waves between 2013 and 2017. In this study, 4,703 men aged from 18 to 40 years were analysed. A user of smokeless tobacco products was defined as a person with daily or almost daily use, while non-users were defined as those who had not consumed the products in the past 12 months (Nahhas, 2022).

According to Nahhas, the decrease in the number of smokers should over time lead to fewer cardiovascular diseases. The clear link between smoking and this type of disease does not exist to anywhere near the same extent in the case of smokeless tobacco. The authors of the report make it clear that it is difficult to demonstrate causality between the use of smokeless tobacco products and cardiovascular disease since the disease may instead be due to other factors as a result of unhealthy living conditions. According to the research report, however, when smokeless tobacco products are used it is possible to demonstrate a somewhat increased risk of

elevated blood pressure, higher cholesterol levels and certain insulin resistance (Nahhas, 2022, p. 2).

Use of cigarettes and tobacco in Sweden

In a Swedish context the percentage of adults who smoked daily decreased between 2006 and 2021 from 14 percent to 6 percent (Folkhälsomyndigheten – Public Health Agency of Sweden, 2022). At the same time, the percentage of adults using snus daily has remained relatively constant since 2004 at 11 percent. If tobacco-free nicotine pouches are included, a certain increase can be seen from 2018 to 2021 to a total of around 14 percent overall (Folkhälsomyndigheten – Public Health Agency of Sweden, 2021). The Public Health Agency of Sweden believes that the decrease in smoking and increase in the use of snus may be partly due to the ban on smoking in outdoor hospitality areas and the fact that more smokeless nicotine products came onto the market (ibid). The fact that 43 percent of the girls in grade nine and 46 percent of the girls in the second year of upper secondary school who had tried nicotine pouches had previously smoked cigarettes suggests that nicotine pouches may have come to serve as a replacement product for the cigarettes (Swedish Council for Information on Alcohol and Other Drugs (CAN), 2022). If this is the case, this trend is good news for public health. The further fact that the remaining increase in nicotine consumption can be traced back to nicotine pouches and not to cigarettes is also positive from a public health perspective. We know from the Novus survey *Attityder kring rökning och snus* ('Attitudes to smoking and snus') from 2021 that the transition from other

tobacco and nicotine products to cigarette smoking is very marginal. A full 94 percent of the smokers started straight away on cigarettes (Novus, 2021).

Harmful effects of nicotine products

In 2014 a paper which risk-assessed various nicotine products was produced by David J. Nutt, a researcher at Imperial College London, together with an expert panel of 11 other researchers. Using 14 different assessment criteria taken from the UK Advisory Council on the Misuse of Drugs – including mortality, dependence and economic cost – they presented an overview of the risks inherent in using nicotine products. Like the previous article by Murkett et al., Nutt and his expert panel concluded that cigarettes are the form of tobacco and nicotine product that causes the most harm for all the risk assessment criteria (Nutt et al., 2014, p. 218). As in the report by Murkett et al., Nutt’s panel of experts graded the harmful effects of the nicotine products on a scale from 0 to 100. Cigarettes were scored at 100 on the scale (greatest harm), while traditional snus was assessed as having a score of 5 and e-cigarettes a score of 4; see Figure 3.

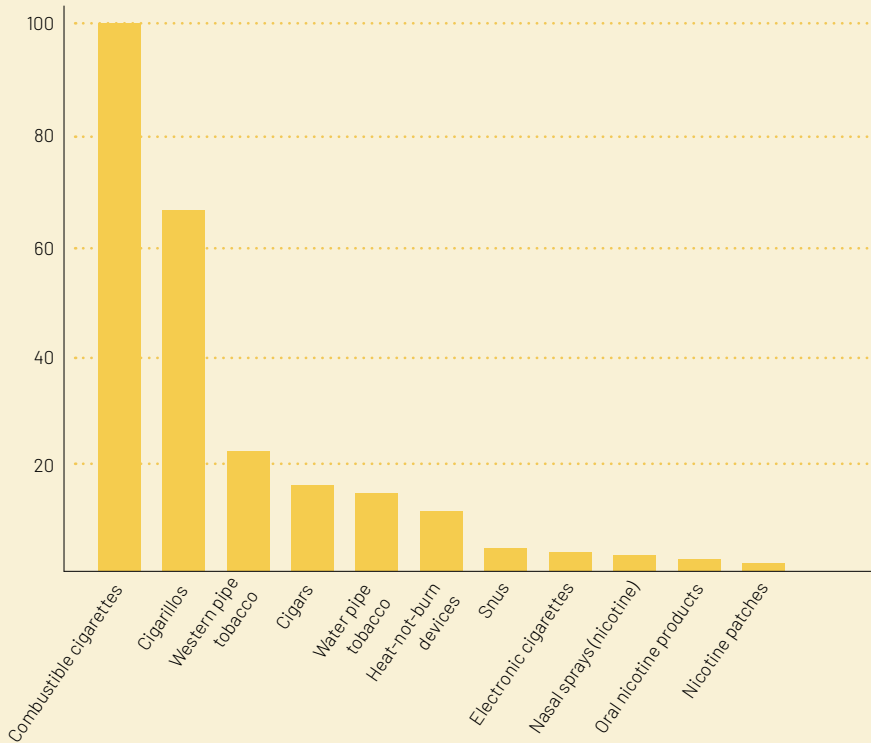
Nutt’s report recommends that all smokers switch to smokeless tobacco products and nicotine products since these present significantly fewer health risks (ibid). The Royal College of Physicians in the UK arrived at the same conclusion in its latest report on smoking entitled ‘Smoking and health 2021’. It recommends that health authorities highlight tobacco-free nicotine as a considerably less harmful alternative

to smoking (Royal College of Physicians, 2021, p. 3). In a meta-analysis of reports studying the health effects of snus which was published in the scientific journal *Regulatory Toxicology and Pharmacology*, the author Peter Lee showed that smokers who switch to traditional snus have a considerably lower risk of developing both cancer and cardiovascular disease (Lee, 2013). In this meta-study he notes that the cancer risk among traditional snus users is significantly lower than among smokers – as has been repeatedly demonstrated through statistically significant links (ibid).



NUTT’S REPORT RECOMMENDS THAT ALL SMOKERS SWITCH TO SMOKELESS TOBACCO PRODUCTS AND NICOTINE PRODUCTS SINCE THESE PRESENT SIGNIFICANTLY FEWER HEALTH RISKS.

It should be noted that the ingredients of nicotine pouches are largely the same as those in nicotine replacement therapy products, except that the amount of nicotine may be somewhat higher. When the extraction of potentially harmful substances was analysed no differences were found between nicotine replacement therapy products and nicotine pouches (Azzopardi et al., 2021, p. 3).

FIGURE 3. NICOTINE PRODUCTS ORDERED BY THEIR OVERALL HARM SCORES

Source: Nutt et al. (2014). *Estimating the Harms of Nicotine-Containing Products Using the MCDA Approach*, p. 223.

Figure 3 shows the dramatic difference between the harmful effect of combustible tobacco products compared with traditional snus. Cigars are less harmful because they are not smoked as frequently as cigarettes and because nicotine can be absorbed without inhalation. There is

accepted evidence that nicotine in particular may have negative consequences for the unborn child when consumed during pregnancy, but that the risks for other consumers are very small (ibid, p. 219). The expert panel refers to the fact that the main harmful effects of nicotine products

for the population in general (other than during pregnancy) comes not from the nicotine itself, but from the combustion of tobacco-containing products that release substances such as aromatic hydrocarbons, carbon monoxide and nitric oxide. In view of this, the authors of the report conclude that it is important for leading political decision-makers to become better informed concerning the relative harmful effects of different nicotine-containing products (ibid, pp. 219–220). They believe that laws designed on the basis of current scientific knowledge should be based on minimising harm and nothing else (ibid).

The global impact of smokeless tobacco products

Another reputable research report that analysed the effects of smokeless tobacco was published in 2020. The study *Global burden of disease due to smokeless tobacco consumption in adults: an updated analysis of data from 127 countries*, based on a similar report from 2017, was carried out by Kamran Siddiqi and five other researchers from the Department of Health Sciences at the University of York in the UK. The study looked at 14 different smokeless tobacco products including snus, chewing tobacco, snuff, the African variant called toombak and the South American variant chimó, the content and toxicity of which varies significantly across the globe (Siddiqi et al., 2020, p. 20).

The study estimated that at a global level around 340,000 people die each year as a direct consequence of smokeless tobacco use, with more than eight million people's lives being shortened as a consequence

of their consumption (ibid, p. 1). It is important to note that Swedish snus is not considered to contribute to this figure. The 2017 edition of the research project found that: "there is sufficient evidence that chewing tobacco and other products of similar toxicity cause excess risk of oral and oesophageal cancer while, at this time, existing evidence does not support attributing burden to snus or similar smokeless tobacco products" (GBD 2016 Risk Factors Collaborators, 2016, p. 1405).

How the products are produced, distributed and sold in the global market also varies significantly, resulting in regulatory challenges (Siddiqi et al., 2020, p. 20). The authors of the report highlight Sweden as setting an example in how the potentially harmful effects of smokeless tobacco can be fended off precisely through the use of snus rather than other smokeless tobacco products (ibid). Other smokeless tobacco such as chewing tobacco is commonest in South and Southeast Asia, where the market and its use are largely unregulated, as can also be seen in the incidence of diseases (ibid, p. 5).

The various smokeless tobacco products are differentiated by, among other things, the amount of tobacco and the presence of carcinogenic substances. For example, a gram of Swedish traditional snus contains no more than 723 ng of nitrosamines – which are carcinogenic in high doses – in contrast to the African variant called toombak, which contains up to 992,000 ng per gram (ibid, p. 3). Similarly, the South American product chimó, the Australian product pituri and the

Central Asian product nasvay contain significantly greater quantities of carcinogenic substances compared with Swedish traditional snus (ibid). The report shows that the use of smokeless tobacco products presents great health risks globally and that these risks are due to very different products to Swedish snus – products with considerably higher levels of harmful substances (ibid, p. 1).

Swedish snus in the USA

The former head of the Center for Tobacco Products at the US Food and Drug Administration (FDA), Mitch Zeller, summed up the scientific situation concerning nicotine use in a 2016 address to the FDA. In his presentation Zeller asserts that nicotine is the active component that creates dependence, but that nicotine users do not die from the nicotine itself. Rather, as mentioned in other studies, it is other carcinogenic substances ingested in combination with the nicotine that are harmful. In other words, Zeller says, it's not the nicotine itself but the way it is consumed in combination with tobacco. The US Food and Drug Administration therefore risk-assesses the health effects of nicotine products completely differently to the Public Health Agency of Sweden. In a letter to the FDA, written as a contribution by Sweden's National Board of Health and Welfare on the Agency's letterhead, the then director-general Lars-Erik Holm advises the US administration against classifying Swedish snus as a modified risk tobacco product (MRTP). Sweden's National Board of Health and Welfare, which at that time was responsible for tobacco policy – a role now held by the Public Health Agency of Sweden

– was of the opinion that “snus doesn't save lives; stopping smoking saves lives”. What incentive does such a statement give to those who want to stop smoking but who need help? The FDA chose to disregard the clear distancing by Sweden's National Board of Health and Welfare from a Swedish product where in normal circumstances the Swedish government agency should have been in a very strong position. The US administration quite simply rejected the conclusions of its Swedish counterpart, despite that fact that in an international perspective Sweden's National Board of Health and Welfare ought to have had the most knowledge about this particular product. The FDA's choosing not to listen to the Swedish government agency demonstrates a low level of confidence in the objectivity of the Swedish assessment. It was interpreted as politics, not science. It would therefore be interesting to gain clarity concerning whether today's Public Health Agency of Sweden and its current director-general Karin Tegmark Wisell share Holm's assessment from 2015. If the Public Health Agency of Sweden believes the FDA's assessment to be incorrect, why is it silent on the matter?

In 2019 the FDA granted modified risk status to eight brands of snus produced by Swedish Match, permitting these to be sold on the US market as modified risk tobacco products. This status indicates that traditional snus has some health risks, but that these are considerably fewer and lesser compared with smoking (FDA, 2019). In 2019 FDA researchers said that the status would be revoked as soon as scientific

evidence was presented that traditional snus contributed to poorer health among its consumers. Three years on, the FDA has not changed its decision (ibid).

Groups that should not consume snus

The US administration has pointed out that there are groups that should not consume nicotine at all. Nicotine products should not be used during pregnancy but the substance is of low risk to the population in general, according to the FDA (FDA, 2016, pp. 14–15). Other studies have shown that using traditional snus during pregnancy increases the risk of premature birth and miscarriage (Kreyberg et al., 2019). To what extent this risk is affected by the nicotine and the tobacco respectively has not yet been fully clarified, but current research advises against using any type of snus during pregnancy (ibid). In respect of another

target group, young people, the FDA recommends that nicotine products are not to be marketed or packaged so as to appeal to younger people – for example, by marketing them on social media. This is based on the fact that nicotine, as contained in pouches, creates addiction (FDA, 2016, pp. 14–15). In the UK the All-Party Parliamentary Group (APPG) for Vaping, made up of members of the British parliament, makes the same recommendation. It believes that nicotine pouches that are regulated in a responsible way as regards nicotine content, marketing and packaging can complement other smoking cessation products such as e-cigarettes and nicotine patches. According to the APPG for Vaping, the goal of the UK government should therefore be to encourage a “smoke-free – not nicotine-free or tobacco-free” society (APPG, 2021, p. 13).



CONCLUSIONS

It is a matter of urgency that the task given by the former Swedish government to three Swedish agencies, i.e. to produce an overview of current knowledge concerning the relative risks of various tobacco and nicotine products, is completed.

However, Sweden's new government should issue a supplementary directive releasing the Public Health Agency of Sweden, Sweden's National Board of Health and Welfare and the Swedish Agency for Health Technology Assessment and Assessment of Social Services from certain distorting premises.

The new directive should emphasise that the overview of current knowledge must be independent of the heavily criticised review published by the Swedish Agency for Health Technology Assessment and Assessment of Social Services in 2020 concerning the link between snus, electronic cigarettes and tobacco smoking. This report has even been questioned by one of the investigation's own external reviewers, who found the conclusions to be based on asymmetrical evidence requirements. In plain terms, this means that the authors of the report selected the studies that suited their own purpose and disregarded others. Such action is usually described in more everyday terms as fraudulent research. It is astonishing that the current directive explicitly refers to the importance of this study.

Another important distinction that should be added in the directive is that the com-

parisons with snus are to apply to Swedish snus, which is produced in a completely different way to other similar products. As we show in this report, there is a big difference in health impact between Swedish snus and several international variants. The risk is that the current directive's explicit reference to the WHO's globally effective recommendations in this area will weaken this perspective, with a detrimental effect on the validity and reliability of the knowledge overview.

Another reason for the Snus Commission publishing this compilation is that the bias in the directive that has been pointed out above makes it difficult for the agencies to provide an objective analysis. Through this report we hope to present where the science is at as regards the relative risks of different kinds of tobacco and/or nicotine use.

A broad overview of the research was published in the medical journal *The Lancet* in 2016, showing – among other things – that based on current research and empirical evidence there is no link between using snus and cancer.

A follow-up systematic ranking of nicotine products according to their level of risk was presented in 2020 by FLOOD Research. This is the most extensive study that has been carried out in this area. The results confirm what was stated in *The Lancet*'s study: there is no definite link between using snus and cancer. Smokers run a 400 to 450 times greater risk of having their

life shortened as a result of their tobacco consumption.

The bulk of the existing research results in the area have also marginalised the alarm previously often raised concerning snus and cancer. Instead, as a result of this and new products on the market, a different discussion has come to the fore: the harmful effects of nicotine products.

The relative risks of different nicotine products have also been studied. Among such reports is a research report from Imperial College London in which, based on risk assessment, 12 researchers recommended that all smokers switch to smokeless tobacco products for health reasons. The Royal College of Physicians in the UK arrived at the same conclusion in its latest report 'Smoking and Health 2021'. It recommends that UK health authorities highlight tobacco-free nicotine as a considerably less harmful alternative to smoking. In the report we highlight further studies that come to the same conclusion: switching from cigarettes to snus or nicotine pouches saves lives.

This is also why in 2019 the US Food and Drug Administration (FDA) – the country's counterpart to the Public Health Agency of Sweden – granted Swedish snus modified risk status on the US market. The FDA concluded that the health risks of Swedish snus were considerably lower than for cigarettes and that this must be clear in its health declarations.

Two things can be noted here:

- 1) The US administration made this decision despite Sweden's National Board of Health and Welfare having actively advised it against doing so. The recommendation by Sweden's government agency was clearly seen as more politically than scientifically motivated.
- 2) The FDA expressly stated that the decision would be changed if scientific evidence was presented which showed that there was a risk of snus contributing to poorer health among the general public. Three years on, the FDA has not changed its decision.

Our recommendation to Sweden's new government – particularly to Jakob Forssmed, Minister for Social Affairs and Public Health – and its investigating agencies in this area is therefore to embrace the principle of minimising harm. Tell it how it is: it is better for public health if citizens use snus rather than smoke. The relative risk is significantly lower. The science is clear about this. It is time that our government and its agencies started to show the same honesty towards Sweden's population as its counterpart in the USA does towards American citizens. This is also what the Royal College of Physicians in the UK is now recommending to the UK's government agencies. Why? Well, because it is the way to reduce tobacco-related mortality.

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OTHER REPORTS IN BRIEF:

This is the sixth report produced by the Snus Commission. Other reports:

EN DOSA SNUSFÖRNUFT (SWEDISH ONLY)

MAY 2019

The report *En dosa snusförnuft*, which translates as 'A can of common snus', describes how Sweden's permanent exemption from the EU ban on snus came about, what it means and what the future might look like for Swedish snus.

SNUS SAVES LIVES

JUNE 2017

This report demonstrates differences between current levels of tobacco-related mortality in the EU and the level that would have been achieved had all other EU countries adopted the same tobacco consumption patterns as in Sweden.

THE HEALTH EFFECTS OF SNUS

MAY 2016 (UPDATED JAN 2020)

The report *The health effects of snus* reviews relevant research relating to Swedish snus and its possible links to major and common diseases among snus consumers.

THE BETRAYAL OF SMOKERS

DECEMBER 2017

The Betrayal of Smokers shows how Swedish government agencies and publicly funded organisations are hampering work to reduce levels of smoking, including by exaggerating the health risks of snus.

STATENS PROBLEM MED SNUSET (SWEDISH ONLY)

DECEMBER 2016

In *Statens problem med snuset*, which translates as 'The State's issue with snus', we discuss the proposals made in the debate around snus and commercial freedom of expression. The report highlights rules on display and packaging.

The reports can be read in full at www.snuskommissionen.se/en

SNUS KOMMISSIONEN

The Snus Commission's sixth report, October 2022

Read more at snuskommissionen.se/en

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