

Key References Regarding e-Cigarettes
SFATA
April 2016

e-Cigarettes are a Gateway Away from Cigarettes

1. Results from PATH Study

Harm Reduction Associated with Switching From Cigarettes to Non-Combustion Tobacco Products

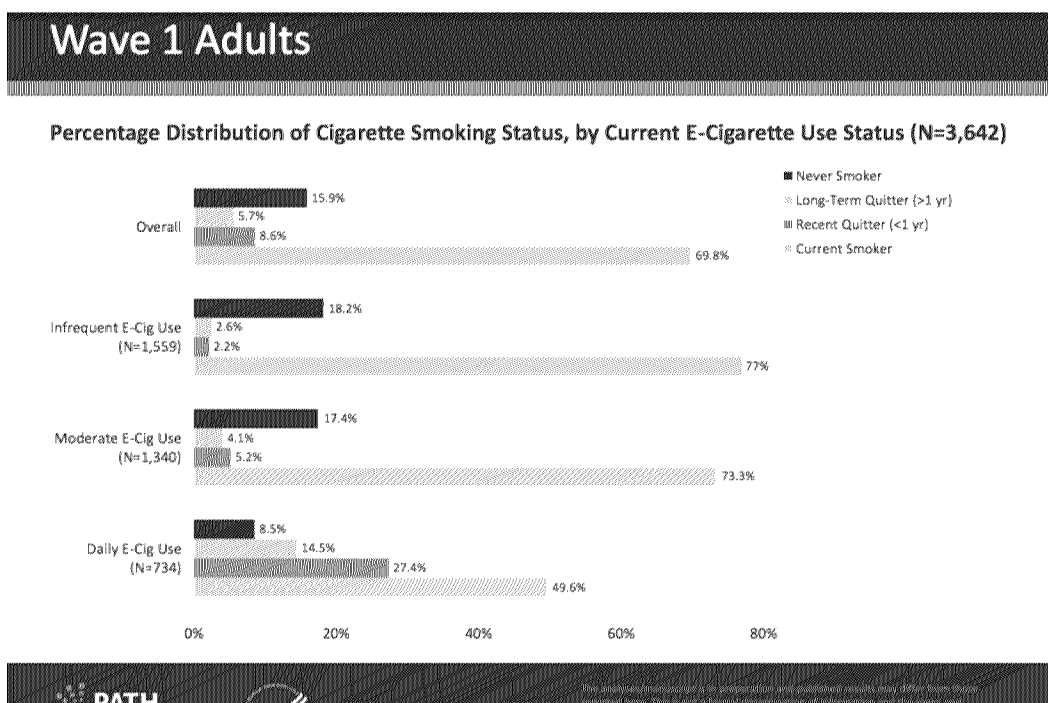
2. Reduction in asthma in smokers who have switched to electronic cigarettes – Polosa Study
3. Correlation in Sweden between smokeless tobacco use (SNUS) and reduced mortality – Ramstrom Study
4. Correlation between smokeless tobacco use and reduced mortality – Altria study

Higher Taxes May Cause an Increase in Illicit Trade.

5. US Illicit Trade - Tobacco report: \$3B - \$7B estimated loss to US states in tax revenue each year
6. Minnesota Case Study: “MN Tobacco Tax Crippling Retailers” (CSP News)

e-Cigarettes are a Gateway Away from Cigarettes

1. Results from PATH study



Over 90% of adults who consume e-cigs on a daily basis are current or previous smokers. Of the previous smokers, 2/3 had stopped consuming cigarettes less than one year before, consistent with switching from cigarettes to e-cigs.

Harm Reduction Associated with Switching From Cigarettes to Non-Combustion Tobacco Products

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Persisting long term benefits of smoking abstinence and reduction in asthmatic smokers who have switched to electronic cigarettes.

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Abstract

BACKGROUND: Improvements in asthma outcomes have been recently reported in asthmatic smokers who have substantially reduced their tobacco consumption by switching to ECs. Confirmation of these preliminary findings is necessary to reassure patients, healthcare professionals and policy makers. Here, we present findings from long term prospective assessment of objective and subjective asthma outcomes as well as safety and tolerability in this group of EC users with asthma.

METHODS: We prospectively re-evaluated respiratory symptoms, lung function, airway hyperresponsiveness, asthma control, asthma exacerbations and tobacco consumption in adult daily ECs users with asthma who were previously studied in a retrospective study. Measurements recorded at baseline prior to switching were compared with those at the follow-up visits at 6, 12, and 24 months.

RESULTS: Eighteen ECs users with mild to moderate asthma were followed up prospectively. Complete data was obtained from sixteen EC users and two relapsers. Significant and stable improvements in respiratory symptoms, lung function, AHR, ACQ, and tobacco consumption were observed in the 16 ECs users with asthma, but no significant changes in exacerbation rates were reported. Similar findings were found in the dual users.

CONCLUSION: This prospective study confirms that EC use ameliorates objective and subjective asthma outcomes and shows that these beneficial effects may persist in the long term. EC use can reverse harm from tobacco smoking in asthma patients who smoke. The evidence-based notion that substitution of conventional cigarettes with EC is unlikely to raise significant respiratory concerns, can improve counseling between physicians and their asthmatic patients who are using or intend to use ECs.



SHORT REPORT

Open Access

Mortality attributable to tobacco among men in Sweden and other European countries: an analysis of data in a WHO report

Lars Ramström^{1*} and Tom Wikmans²

Abstract

Background: It is well known that Swedish men have lower tobacco-related mortality than men in other European countries, but there are questions that need further investigation to what extent this is related to the specific patterns of tobacco use in Sweden, where use of snus, the Swedish low-nitrosamine oral tobacco, dominates over smoking in men but not in women. The recent *WHO Global Report: Mortality Attributable to Tobacco* provides a unique set of estimates of the health burden of tobacco in all countries of the world in the year 2004, and these data can help elucidating the above-mentioned questions.

Methods: For Sweden and all other European Union Member States mortality data for a number of tobacco-related causes of death were extracted from the WHO Report. The size of the mortality advantage for selected causes of death in different age groups of Swedish men compared to men of the same age in Europe as a whole was calculated in terms of ratios of death rates attributable to tobacco. Differences between age groups with respect to tobacco-related mortality were analyzed with respect to differences in terms of development and status of smoking and snus use. The analyses also paid attention to differences between countries regarding tobacco control regulations.

Findings: Among men in the European Union Member States the lowest level of mortality attributable to tobacco was consistently found in Sweden, while Swedish women showed levels similar to European average. A strong co-variation was found between the mortality advantage and the degree of dominance of snus use in the different age groups of Swedish men. Among Swedish women there are no age groups with dominant use of snus, and similar observations were therefore not possible for women.

Conclusion: The above findings support the assumption that the widespread use of snus instead of cigarettes among Swedish men may be a major part of the explanation behind their position with Europe's lowest mortality attributable to tobacco.

Keywords: Mortality, Snus, Smoking, Sweden, Europe

Table 1 Death rates (per 100,000) attributable to tobacco

	Sweden	European Union Member States other than Sweden		
		Min	Median	Max
MEN				
Lung cancer	87	91	220	399
Other cancer	36	41	105	217
All cardiovascular	72	107	170	618
All causes	222	378	550	1388
WOMEN				
Lung cancer	61	5	39	127
Other cancer	17	1	10	39
All cardiovascular	63	5	50	222
All causes	173	14	115	690

Men and women age 60-69.

Table 2 Ratios of death rates attributable to tobacco

Age group	Cause of death		
	All causes	Lung cancer	All cardiovascular
45-59	0.15	0.24	0.13
60-69	0.27	0.38	0.19
70-79	0.42	0.49	0.33

Men in Sweden vs. men in Europe as a whole 2004.

Table 3 Tobacco use changes among men in Sweden

Age group	Prevalence of			
	Daily smoking		Daily snus use	
	1988/89	2004/05	1988/89	2004/05
35-44	33%	13%	19%	31%
45-54	32%	21%	11%	24%
55-64	28%	21%	9%	18%

Health Risks Associated with the Use of Smokeless Tobacco Products: Analysis of a Nationally Representative Linked Mortality Data Set

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Society for Research on Nicotine and Tobacco, 22nd Annual Meeting, March 2-5, 2016, Chicago, IL

INTRODUCTION

Over six million U.S. adults reportedly use smokeless tobacco products (ST).¹ However, few studies have systematically evaluated the relationship between ST use and a broad array of mortality outcomes. Some of these studies are limited by sample size and others were conducted decades in the past.² Since ST remains a significant source of tobacco exposure in the USA, a current assessment of the possible mortality risks associated with ST use is needed. We have conducted an analysis of the mortality hazards associated with ST use using mortality data available through the National Death Index (NDI) linked to respondents from several years of national public health surveys.

MATERIALS AND METHODS

Data Sources

We used the National Health Interview Surveys (NHIS) for 1987, 1991-1992, 1998, 2000, and 2005 to determine survey respondents' ST use and cigarette smoking status, pipe and cigar use, and other demographic information. These surveys were chosen because they include survey items required to determine respondents' relevant tobacco use status and contain sufficient numbers of respondents linkable to mortality data. We downloaded the public use 2011 update to the NDI data linkable to these survey years from the National Center for Health Statistics (NCHS) and merged these data onto the NHIS survey data using the merge key specified by NCHS. We merged survey years to provide a larger pooled dataset following NHIS guidelines.³

The data set comprised 151,539 total observations with 29,093 mortality events, including 3,049 current ST users with 659 mortality events and 36,990 current cigarette smokers with 7,655 mortality events. We conducted similar analyses using mortality linkages for National Health and Nutrition Examination Survey (NHANES) III and Continuous NHANES.

Variables

We defined current ST users and cigarette smokers as those respondents who indicated they used either product category at the time of the survey. ST users included both "snuff" and "chewing tobacco" users. The NHIS survey instrument skip pattern first ascertains whether respondents have met lifetime use criteria (smoked at least 100 cigarettes or used snuff/chewing tobacco at least 20 times) so respondents defined as current users met lifetime criteria. Former ST users and cigarette smokers were defined as those respondents who met lifetime criteria but indicated not using the product(s) at the time of the survey.

Analyses

We estimated mortality hazard ratios (HR) using Cox proportional hazards models. The models included gender, race/ethnicity, age, body mass index (BMI), educational status, income, self-assessed health status, and tobacco use variables.⁴ We defined gender (male or female), race/ethnicity (white or nonwhite), family income (at least \$20,000 or less than \$20,000), educational status (no more than high school or more than high school), and self-assessed health status at the time the survey was administered (at least good health or less than good health) as dichotomous variables. Age and BMI were used as continuous variables.

RESULTS

Figure 1. Mortality hazard ratios for various tobacco use groups compared to never tobacco users.

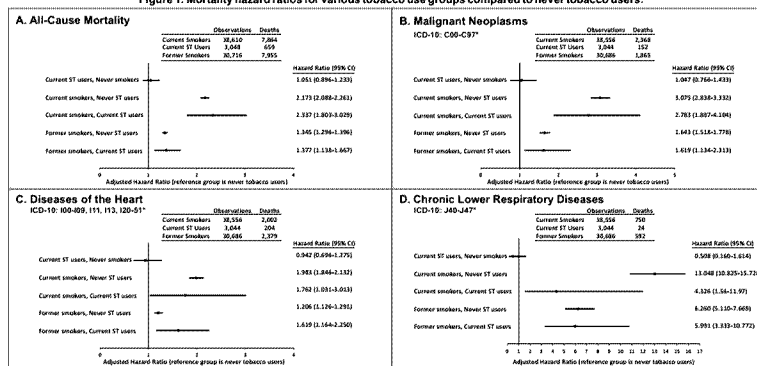
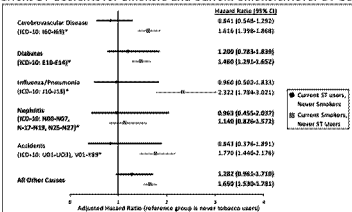


Figure 2. Mortality hazard ratios for Current ST Users/Never Smokers and Current Smokers/Never ST Users compared to never tobacco users.



*ICD-10: International Statistical Classification of Diseases and Related Health Problems, 10th Revision

CONCLUSIONS

- HR for current ST users who reported never smoking cigarettes were not significantly different from those for never tobacco users for any of the outcomes assessed.
- In contrast, HR for current smokers who reported never using ST were significantly elevated compared to never tobacco users for all cause mortality, malignant neoplasms, diseases of the heart, chronic lower respiratory diseases, cerebrovascular disease, diabetes, influenza/pneumonia, and other (residual) causes of mortality. Our findings related to the health risks associated with cigarette smoking are generally similar to those reported in the published literature.
- HR were not different for current smokers who also reported use of ST (dual users) relative to current smokers who never used ST.
- In addition, HR for former smokers who reported current ST use were not different compared to former cigarette smokers who reported never using ST.
- The strengths of this study are its large size, prospective nature, and that respondents are drawn from a nationally representative probability sample. A limitation of this study is that exposure was assessed at baseline only and people may change their tobacco use behavior over time.⁵

REFERENCES

- Nguyen K, Marshall L, Hu S, Neff L. 2015. State-specific prevalence of current cigarette smoking and smokeless tobacco use among adults aged ≥18 years - United States, 2011-2013. *MMWR Morbidity and Mortality Weekly Report* 64:532-536.
- Henley SJ, Thun MJ, Connell C, Calle EE. 2005. Two large prospective studies of mortality among men who use snuff or chewing tobacco (United States). *Cancer Causes & Control* 16:347-358.
- CDC. 2009. Variance Estimation and Other Analytic Issues in the 1997-2005 NHIS. Available at <http://www.cdc.gov/nchs/data/nhis/9705var.pdf>
- Rostron B. 2012. Alcohol consumption and mortality risks in the USA. *Alcohol and Alcoholism* 47:334-339.
- Tam J, Day HR, Rostron BL, Apelberg BJ. 2015. A systematic review of transitions between cigarette and smokeless tobacco product use in the United States. *BMC Public Health* 15:258.

This study was funded by Altria Client Services LLC. This poster may be accessed at www.altria.com/ALCS-Science.

<http://www.altria.com/ALCS-Science/ConferenceDocumentLibrary/Fisher->

[Health%20Risks%20Associated%20with%20the%20Use%20of%20Smokeless%20Tobacco%20Products%2020160226.pdf](http://www.altria.com/ALCS-Science/ConferenceDocumentLibrary/Fisher-Health%20Risks%20Associated%20with%20the%20Use%20of%20Smokeless%20Tobacco%20Products%2020160226.pdf)

HEALTH RISKS ASSOCIATED WITH THE USE OF SMOKELESS TOBACCO PRODUCTS:
ANALYSIS OF A NATIONALLY REPRESENTATIVE LINKED MORTALITY DATA SET

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BACKGROUND: Available literature suggests US smokeless tobacco products (SLT) are less hazardous than conventional lit-end cigarettes. We have added to the current body of evidence on the health risks of SLT by assessing mortality data linked to respondents from several years of national public health surveys.

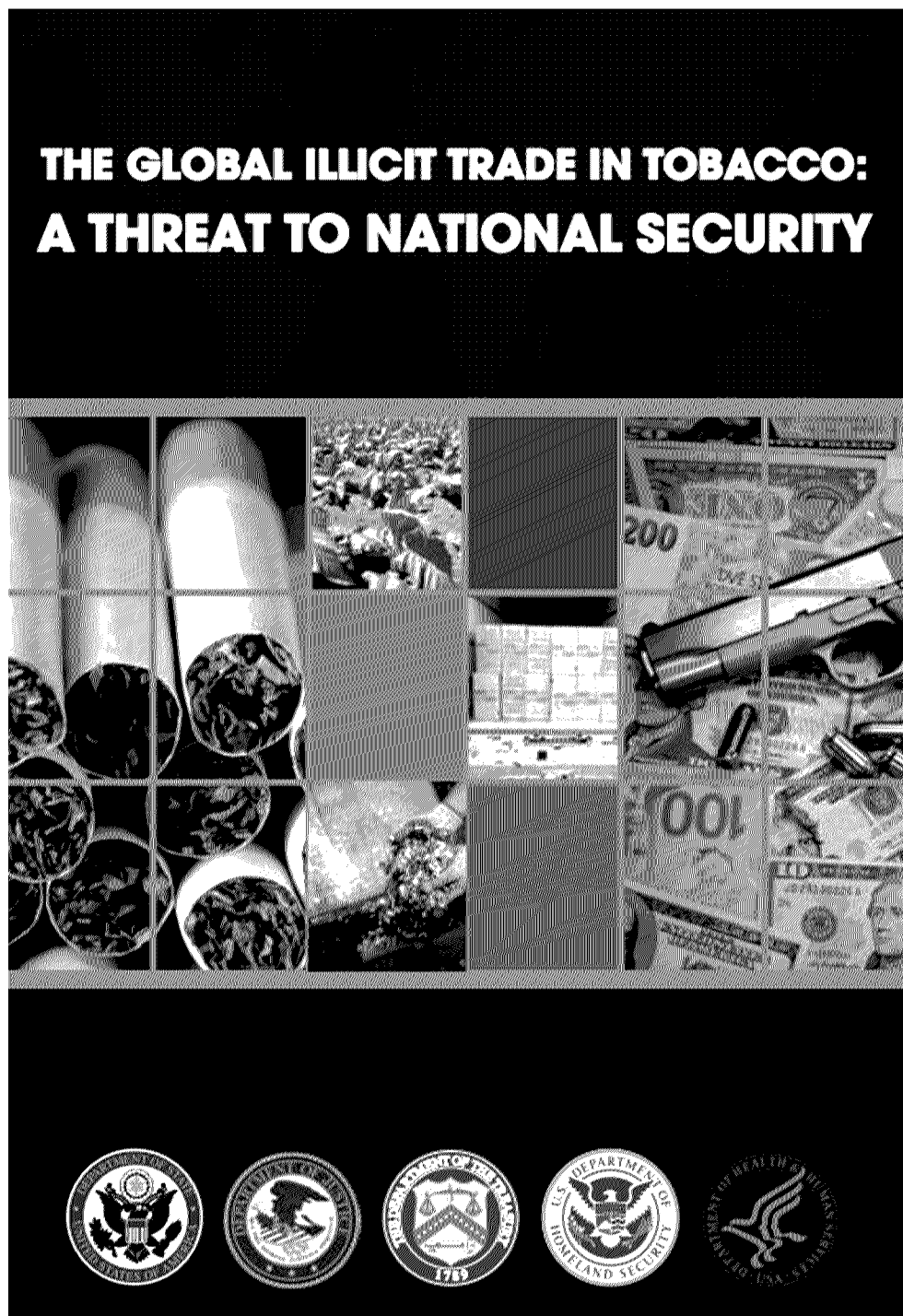
METHODS: We examined mortality associated with SLT and cigarettes based on mortality data from the National Death Index (NDI) records of survey respondents to the National Health Interview Survey (NHIS) (1987, 1991, 1992, 1998, 2000 and 2005). Mortality follow-up was available through 2011. This data set comprises 151,539 total observations with 29,093 mortality events, including 3,048 current SLT users with 659 mortality events and 36,990 current cigarette smokers with 7,605 mortality events. We conducted similar analyses using mortality linkages for NHANES III and Continuous NHANES. **RESULTS:** The adjusted all-cause mortality hazard ratio (95% CI) for all current SLT users in NHIS compared to never tobacco users was 1.045 (0.928-1.178). When the analysis was limited to males or females, the adjusted all-cause mortality hazard ratio was 1.104 (0.957-1.275) and 0.940 (0.787-1.122) respectively. In contrast, the adjusted all-cause mortality hazard ratio for all current cigarette smokers was 2.180 (2.095-2.267), for males was 2.213 (2.063-2.374) and for females was 2.151 (2.051-2.256). While these results are consistent with the well-known relationship between cigarette smoking and premature mortality, these data suggest that, within this sample, the all-cause mortality hazard for SLT users is significantly lower than that for cigarettes. Analyses of NHANES III and Continuous NHANES yielded similar results.

CONCLUSIONS: This study of the most recent mortality follow-up of SLT users from nationally representative US surveys over 24 years is one of the largest and most comprehensive assessments of mortality hazards associated with SLT use. Overall, this analysis supports current literature indicating lower risk of SLT use compared to cigarette smoking.

Higher Taxes May Cause an Increase in Illicit Trade.

5. US Illicit Trade - Tobacco report: \$3B - \$7B estimated loss to US states in tax revenue each year

6. Minnesota Case Study: "MN Tobacco Tax Crippling Retailers" (CSP News)



Common Forms of Illicit Tobacco

Contraband: Under U.S. criminal law, refers to large quantities of cigarettes that do not bear required state or local tax stamps.

Counterfeit: Under U.S. criminal and health laws, refers to tobacco products with unauthorized trademarks or trade names.

Cheap Whites: Also known as "illicit whites," these are cigarettes legally produced in one jurisdiction for the sole purpose of being exported and illegally sold in a jurisdiction where they have no legitimate market. These cigarettes may not meet the health and manufacturing regulations of the destination country, or any applicable duties and taxes have been evaded.

Gray Market: Tobacco products are produced by a legitimate manufacturer for consumption in one jurisdiction, but along the supply chain the product has been diverted to another jurisdiction. Diversions frequently occur in Free Trade Zones (FTZ) with the tobacco manufacturer often unaware that its product has been diverted.

Loose Tobacco: A term applied to tobacco that is often used for cigarettes. Loose tobacco may be used to illegally manufacture cigarettes or other tobacco products, such as roll-your-own tobacco, without payment of tax. Illicit loose tobacco can be misbranded or adulterated and may not meet regulatory standards.

Criminals will use any means possible to smuggle cigarettes, with traffickers hiding illicit tobacco in vehicles, hollowed out logs, luggage, boats, tires, etc. Bootlegging, a common term for this type of smuggling scheme, is the purchase of cigarettes and their transport from a low-tax or no-tax jurisdiction for resale in a higher tax jurisdiction without the appropriate taxes being paid. These schemes can be simplistic and involve cartons of cigarettes or complex operations with warehouses full of illicit tobacco products.

Large-scale smuggling operations are common and involve commercial size consignments of tobacco products. The cigarettes tend to be moved by 40-foot shipping containers and may or may not include a cover load, such as household materials, toys, furniture, textiles, charcoal, timber, and even legal cigarettes. FTZ can facilitate large-scale smuggling operations with cigarettes entering the FTZ and repacked and/or given duplicate container numbers to hide the illegal nature of the shipment.

For decades, cigarette smuggling has been a sizeable and dependable revenue stream for organized crime. Estimates for the annual state and local U.S. tax loss caused by the illicit trade in tobacco products range from \$2.95 to \$6.92 billion.³ For the European Union, proceeds from the illicit trade in tobacco products range from €7.8 and €10.5 billion annually.⁴ The most recent estimate of the global tax lost, conducted in 2006, estimates the tax loss due to the black market between \$40-50 billion annually, with illicit actors often the beneficiary.⁵

<http://www.state.gov/documents/organization/250513.pdf>

October 27, 2014

MN Tobacco Tax Crippling Retailers: Association

Sales decline 50% at stores along the border since 2013 fee increase

Published in *CSP Daily News*

MINNEAPOLIS -- Today a coalition of Minnesota's retailers, service stations, wholesales, grocers and convenience stores released a new study showing the devastating effects the state's 2013 tobacco tax has had on Minnesota retailers and their employees.

In 2013 the Minnesota Legislature passed a 130% increase in the cigarette excise tax and also increased the tax on other tobacco products from 70% of the wholesale price to 95% of the wholesale price. Retailers had braced for some hardship, but they did not predict just how dramatic the impacts would be.

"We knew, once the legislature made our tax the highest in the region, there would be some job losses and maybe a few stores closing," said Bruce Nustad, president of the Minnesota Retailers Association. "But this study shows just how devastating the massive tobacco tax has been across Minnesota, for adult consumers, retail businesses and their employees."

Some of the study highlights include:

- 1,100 jobs are estimated to have been lost or eliminated.
- 50% tobacco sales decline in Minnesota stores along the border.
- Dramatic sales increases of tobacco products in all four bordering states.
- \$38 million of lost sales of nontobacco products.
- Nearly a quarter of all cigarettes consumed in Minnesota are now estimated to be purchased in other states.
- Automatic tax increases on tobacco products will continue starting in 2015.

Retailers on the borders of Minnesota are seeing the worst impacts. "Cigarette sales dropped 75%. We used to do 300 cartons a week, now we buy 70 to 80 a week," said Rodney Helming, owner, Oasis Convenience Stores in Moorehead, Minn. The study shows a corresponding increase in tobacco sales in communities just across the Minnesota.

"As tobacco retailers in Minnesota, we have achieved the highest compliance rates in preventing youth access," said Jamie Pfuhl, president of the Minnesota Grocers Association. "Policies that drive sales to other states or other sources are a major concern."

An even bigger problem is looming. Retailers point to law-makers putting the tobacco tax on "auto-pilot," creating an even larger disparity between the costs of tobacco in Minnesota and neighboring states. Currently Minnesota is the only state to automatically adjust the tobacco tax.

Numbers released this week by the Minnesota Department of Revenue show that the state sales tax and new annual automatic inflation adjustment tax on cigarettes in 2015 will be a total of 8.4 cents per pack or 84 cents per carton. This includes the state cigarette sales tax increase of 1.4 cents or 14 cents per carton and a new automatic inflation adjustment tax increase of 7 cents or 70 cents per carton.

That number could be as high as 10 cent per pack or \$1 per carton in 2017, which could raise the total state tax on cigarettes to \$3.12 per pack or over \$30 per carton. That would be over \$26 dollars higher per carton tax than just across the border in North Dakota and over \$15 dollars per carton more than South Dakota and over \$17 more per carton in Iowa, according to the association.

"The automatic escalator takes a problem and makes it even worse," said Lance Klatt, director of the Minnesota Service Station and Convenience Store Association. "Retail locations near neighboring borders such as Mike's General Store in Taylors Falls, Minn., are victims of the increased tobacco tax and the problem is getting worse."

Klatt pointed to second-generation owner/operator Nichole Deconcini of Mike's General, who was forced to sell her location when cigarette and tobacco sales diminished by 800%, robbing her and her family of sales of gasoline and other in-store sales, Klatt said. "This tax is hurting real people and unfortunately causing businesses to fail even when they have done everything right," he said.

The study was completed by the firm Orzechowski & Walker and funded by the Minnesota Wholesale Marketers Association, Holiday Stationstores Inc., Kwik Trip Inc., Farner-Bocken Co., Core-Mark International, Altria Client Services Inc. (on behalf of Philip Morris USA, U.S. Smokeless Tobacco Company and John Middleton), RAI Services Co. and Lorillard Tobacco Co., and supported by the Minnesota Retailers Association, the Minnesota Petroleum Marketers Association and the Minnesota Grocers Association.

<http://www.cspnet.com/category-news/tobacco/articles/mn-tobacco-tax-crippling-retailers-association>