

## Smokeless Tobacco Products and their Future in a Regulated Market

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## FDA Regulation of Tobacco Products

- Expand existing non-product interventions: price, access, ad restrictions, warnings, treatment
- Approve and allow claims for modified risk products to reduce harm (MRP)
- Regulate conventional tobacco products to primarily reduce appeal and addiction/use (menthol, candy, nicotine)

## Modified Risks Products

- Reduces Risk to the Individual
- Benefits the Health of the Population
- Appropriate to Promoting the Public Health (?)
- The Claim is Limited to Explicit or Implicit Reductions in Toxins or Exposure
- Existing (Non Epi) Evidence Demonstrates an Effect
- Presents Less Risk of Disease than one or more existing Products

## However Substantially Equivalent Products Exempt

- Any product that is substantially equivalent to a product in the market 2/15/07 is exempt from classification as a MRP
- Snuss (Exalt), Dissolvable (Revel)
- Definition of Substantially Equivalent is key to FDA regulation
- Ending Product Innovation is the basis of product regulation

## Smokeless Tobacco as a Modified Risk Product

- Data suggests Swedish Males have lower levels of lung cancer where use rates of snus are high and smoking rates low
- Swedish “health” standards exist for toxins in Snus far lower than concentrations of toxins in moist snuff
- For hard core adult smokers who can't quit Snus not NRT may be the only solution. Smokers have a right to know and choose risks based on accurate science
- A continuum of risk among tobacco products exists with cigarettes highest, MS middle and Snus, lowest.

Sweden and Snuff and Smoking

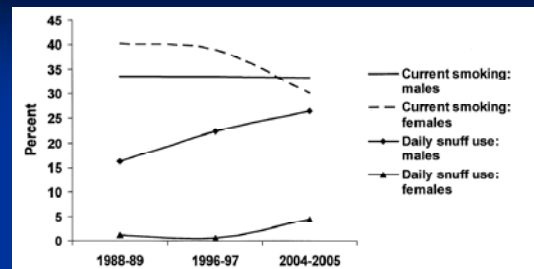


Figure 1. Trends in proportion of persons age 16-24 who used snuff daily or currently smoked (daily or occasionally), by sex, Sweden, 1988-1989 to 2004-2005. Data from Statistics Sweden ULF Surveys.

## Sweden

- 28% of Swedish adults nicotine dependent
- Among adolescents reporting current use of oral snuff, 71% also smoked
- 20% of male current smokers also used moist snuff
- Overall rate of smoking in Sweden is 25%
  - higher than Canada or US
  - has fallen by less over the last decade

Swedish Tobacco Control 2006. Progress & Challenges- both are greater than ever. Swedish Network for Tobacco Prevention  
 WHO IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Vol.89:Smokeless Tobacco and Some Tobacco-specific N-Nitrosamines. 2007. IARC Monographs Vol. 89. ISBN 978 92 832 1289 0 (Glantz)

## Norway

- Males 16-24
- Prevalence of daily or occasional snuff use
  - 1985: 9%
  - 2004/5: 33%
- Prevalence of daily smoking
  - 1983: 28%
  - 2001: 32%
- Increase in snuff not accompanied by less smoking

WHO IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Vol.89:Smokeless Tobacco and Some Tobacco-specific N-Nitrosamines. 2007. IARC Monographs Vol. 89. ISBN 978 92 832 1289 0 (Glantz)

### Interpretation of evidence from the 2 Swedish studies

- **Lewin et al. (1998)** - Among subjects with no history of smoking (9 cases, 10 controls ever used snuff):
  - Ever used snus: RR=4.7 (95% CI: 1.6-13.8)
- Using former smokers as referent group (24 cases, 46 controls ever used snuff):
  - Ever used snuff: RR=1.1 (95% CI: 0.6-1.9)
- **Schildt's et al. (1998)** study had 57% deceased subjects (proxy info).
- Multivariate analysis:  
 Snuff use: OR = 0.8 (0.5 -1.3)  
 Smoking: OR = 1.1 (0.7 - 1.6)  
 Liquor: OR = 1.5 (0.9 -2.3)

### IARC and SCENIHR

- “There is sufficient evidence in humans for the carcinogenicity of smokeless tobacco. Smokeless tobacco causes cancer of the oral cavity and pancreas.”
  - “Some scientists have suggested smokeless tobacco be used for smoking cessation...and attribute decline in smoking in Sweden to snus...  
 These claims are not supported by the available evidence.”
- “The effectiveness of STP as a smoking cessation aid is insufficient.”

### Smokeless and Cancer

- “There is sufficient evidence for carcinogenicity for NNK, NNN principal constituents in moist snuff”
- (IARC 08)
- “There is sufficient evidence in humans for the carcinogenicity of smokeless tobacco. Smokeless tobacco causes cancer of the oral cavity and pancreas.”

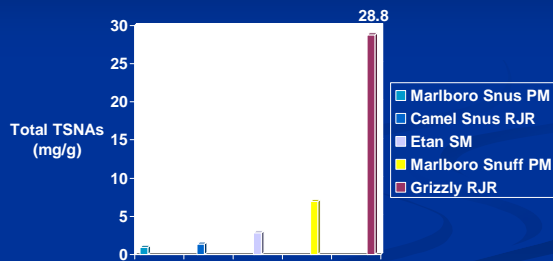
(IARC, Vol.89) 1/08  
(SCENIHR)

Calculated cancer risk for selected ST constituents meeting GothiaTek standards compared to US EPA 'significant risk' benchmark of  $\leq 10^{-6}$  for regulatory action

Compound	GothiaTek limit (ng/g dry weight)	Compound TD <sub>50</sub> (mg/kg body wt/day)	Cancer Unit Risk Factor (1mg/kg body wt/day) <sup>1</sup>	Cancer risk Estimate (100% bioavailable)	Cancer risk Estimate (36% bioavailable)
TSNA*	10000	0.0999	10.1	6.2 x 10E-3	2.2 x 10E-3
Cadmium	1000	0.0217	46.1	2.8 x 10E-3	1.0 x 10E-3
BaP	20	0.956	1.1	1.3 x 10E-6	4.9 x 10E-7
Lead	2000	46.6	0.02	2.5 x 10E-6	8.8 x 10E-7
Nitrite	7000	167	0.006	2.6 x 10E-6	9.3 x 10E-7
Chromium	3000	No comparable Cancer Potency Data Base (CPDB)			
Arsenic	500	No comparable CPDB data			
Overall product risk estimate				3.2 x 10E-3	

\*We used the rat TD<sub>50</sub> for NNK & NNN as a conservative estimate of risk for composite of TSNAs and assumed 17% bioavailability each (Hecht et al., 2008) and a daily consumption of 20g of product or equivalent 10g dry weight.

### Why Aren't Toxins in Smokeless Tobacco Reduced for All Products?



Source: HSPH/Labstat

### SLT: Population Harm

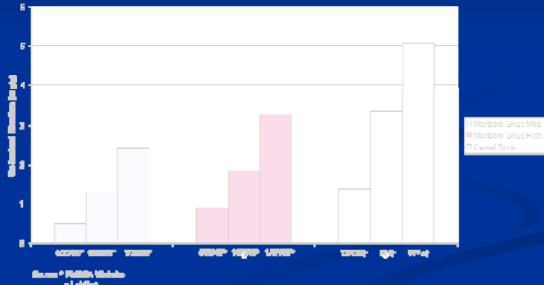
- Graduation strategy to promote addiction among non using youth
- Industry is actively promoting Snuss as a way to arrest the decline in cigarette sales through dual use
- Dual standards of toxicity exist in the same brands (TSNA level are 6 times greater from Camel snuss versus snuff)
- Only cohort that has had a significantly increased use in recent years, male adolescents

### Dual Users are a Big Driver of Current MST Growth

- “Based on our research, we believe the bulk of smoker migration into MST is coming from dual users (consumers that dip and smoke). We estimate that about 30% of dippers also smoke. The proliferation of smoking bans has effectively increased the number of dipping occasions.

Source: UBS Research, 2007, Nat'l Tobacco Incidence Study [UST]

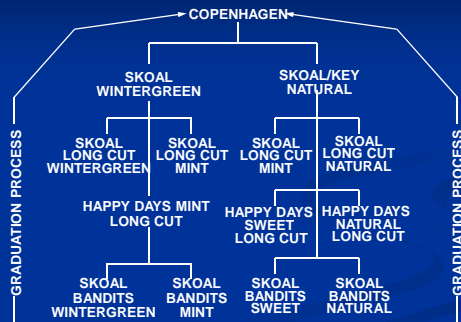
### Changes in Free Nicotine in Marlboro Snus and Camel Snus, 2007-2009



### Impact on Use Among Young Males

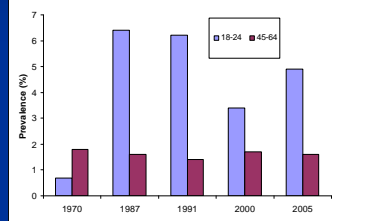
- Current Moist Snuff use rose 6%/year among males ages 12-17. No other group achieved a significant increase.
- Per capita consumption of snuff increased 15% over the past 6 years while adolescent per capita rose 25% in the past 4 years.

### US Tobacco's Dose-Controlled "Graduation Strategy"



Source: Marsee vs. UST, UST Document No. 12017104, Court Exhibit No. 100.

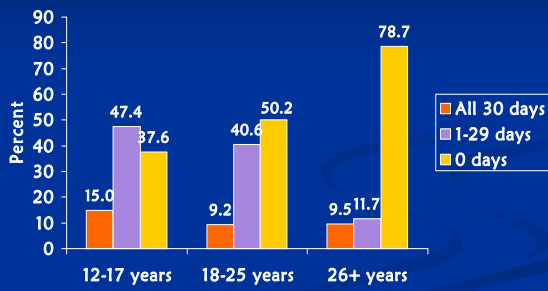
Prevalence by Age Group of Adult Male Snuff Users in the USA (1970-2005)



'70 USR launched youth marketing of snuff

Source: Nation Health Interview Survey. The figures represent current users of snuff who used snuff 20 times or more in their lifetime.

**Cigarette smoking in past 30 days among male daily snuff users, by age group**  
**National Survey on Drug Use and Health, 2006**



facebook



- Popular social-networking websites, Facebook -8<sup>th</sup> most visited website on the internet and You Tube 3<sup>rd</sup> most visited site.
- Facebook - Over 200 Groups promoting Skoal with over 16,000 combined total members. One group promoting Skoal has 7,649 members.
- YouTube-1000's of videos depicting smokeless tobacco usage. Top 20 relevant search results for "Skoal" (sorted by view count) have been viewed over 920,000 times.

1. "Alexa Top 500 Sites" Alexa Internet. Retrieved on Feb 19, 2009.

**Minors Using Smokeless Tobacco on YouTube**



**Facebook**

**Does Baking Soda Give You a Buzz?**

- "Baking Soda is basic and it opens up the pores in ur lip and gum allowing for more nicotine if u want a buzz tha's an easy way."

**Does one cut the webbing in their foot so you can still get the satisfaction during school?**

- "All u gotta do is cut urself between your big and second toe, then pack it like u would ur lip, throw a sock on and u have descreat enjoyable dippin."



Snus & NRT Annual Dollar Sales (2003-2007)

	2003	2004	2005	2006	2007
FDA-Approved NRT	\$437,482,997	\$444,561,898	\$477,086,467	\$496,640,220	\$501,806,178
Snus	\$0	\$15,239	\$14,300	\$34,349	\$32,773

Source: AC Nielsen ScanTrak, including sales in US food stores with at least \$2 million in annual sales, US drug stores with at least \$1 million in annual sales and all US mass merchandisers, with the exception of WalMart.

## Smokeless Tobacco is a Very Serious Public Health Problem

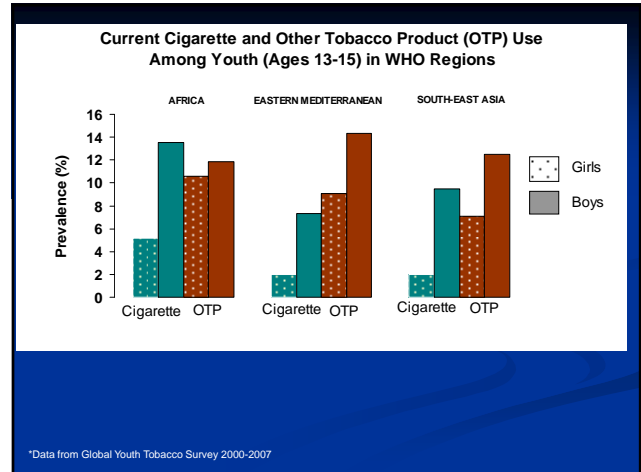
### Smokeless Tobacco Causes

- Periodontal disease
- Oral Mucosal lesions
- Oral and pancreatic cancer
- Low birth weight
- CHD
- Addiction
- Extremely high levels of heavy metals may contribute to unknown systemic diseases

- What message are we sending to the developing world about smokeless tobacco?

800,000 Daily Swedish Users

250,000,000 Daily Users (India, Pakistan, Sudan, Bangladesh)



## Reality

- No science exists to support the concept “hardening” of the target at the population level
- Risks for tobacco toxins are marginally different when compared to regulated products such as NRT, drugs, air, and food
- Standard measures for risk assessment and weight of the evidence cluster all tobacco products at one end spectrum and nicotine replacement therapy and quitting at the other
- Snus sells poorly when compared to NRT

## The Bottom Line for Health or Public Health Professionals

“To recommend use of a cancer causing, addictive product in lieu of smoking while safe approved cessation medications exist raises professional, ethical and liability questions and may violate the oath to do no harm.”



## Interesting FDA Reporting Requirements

- Serious un expected adverse experiences
- Other significant adverse tobacco products experiences
- PM holds electronic data bases On 30 million smokers. Should PM not the FDA be required as the drug companies are to monitor health effects?

## A Message to the FDA

- First, turn Marlboros into Lard through restrictions on appeal and nicotine and then approve an Oleo-like Camel when the science demonstrates that on a population level it is safer

## Approaches

- Substantially Equivalent: The Substantive characteristics of the brand are equal to that of the brand in 2/15/2007
- All products not substantially equal must meet the definition of MRP
- Use regulations to first reduce appeal such as removal of menthol, candy flavors, additives with a chemo sensory effect and then nicotine. Precedent with regulation of active ingredients and opium and cocaine
- Reverse Engineer Camel until it resemble the first Came of 1917.

## Conclusion

- Tobacco products cause considerable harm and reducing selected toxins by 50% still give us levels 2,000 to 3,000 times greater than allowed in regulated substances
- No evidence exists that an MRP exists and is safe for use for populations
- Reducing use through lowering appeal and addiction of and not harm is the basis of sound public health regulatory practices dating back to regulation of adulterated foods in 1906.