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SNUS

The Swedish Smokeless Tobacco

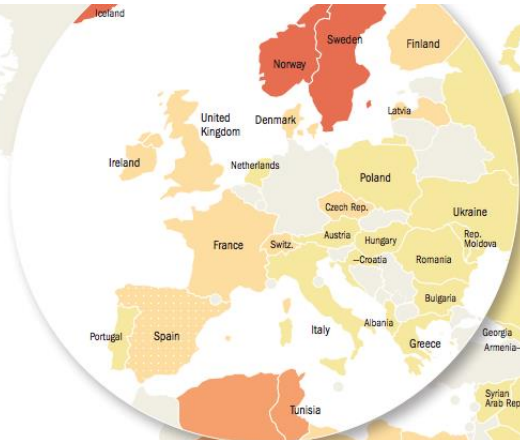
Hans Gilljam

Prof. em.

ENS



OVER 50% OF ORAL CANCERS IN SUDANESE MEN are caused by the use of smokeless tobacco products.



***70 countries have never collected smokeless tobacco use data, leaving them with an incomplete picture of tobacco use in their country. Such information needs to be collected in future tobacco surveillance efforts.**

Over 300 million people around the world, the vast majority of whom live in South Asia, use smokeless tobacco products **in YOUTH USE**. In over a dozen countries, more women than men use smokeless tobacco, reflective of the differing norms in each culture of smokeless use. Smokeless tobacco use definitively causes cancers of the head and neck. More than 40 types of smokeless

dissolvable products failed in the United States, and snus brand extensions were commercial failures in Canada and South Africa. By contrast, in 2012, the Indian Supreme Court disrupted the world's largest smokeless tobacco market when it ruled that gutkha and pan masala were dangerous food products, the sale of which could be temporarily banned under Indian food safety laws.

Prevalence of smokeless tobacco use in 2013 or most recent year

LESS THAN 2.0%

2.0% - 5.0%

5.0% - 10.0%

10.0% AND ABOVE

20.0% AND ABOVE

20.0% AND ABOVE

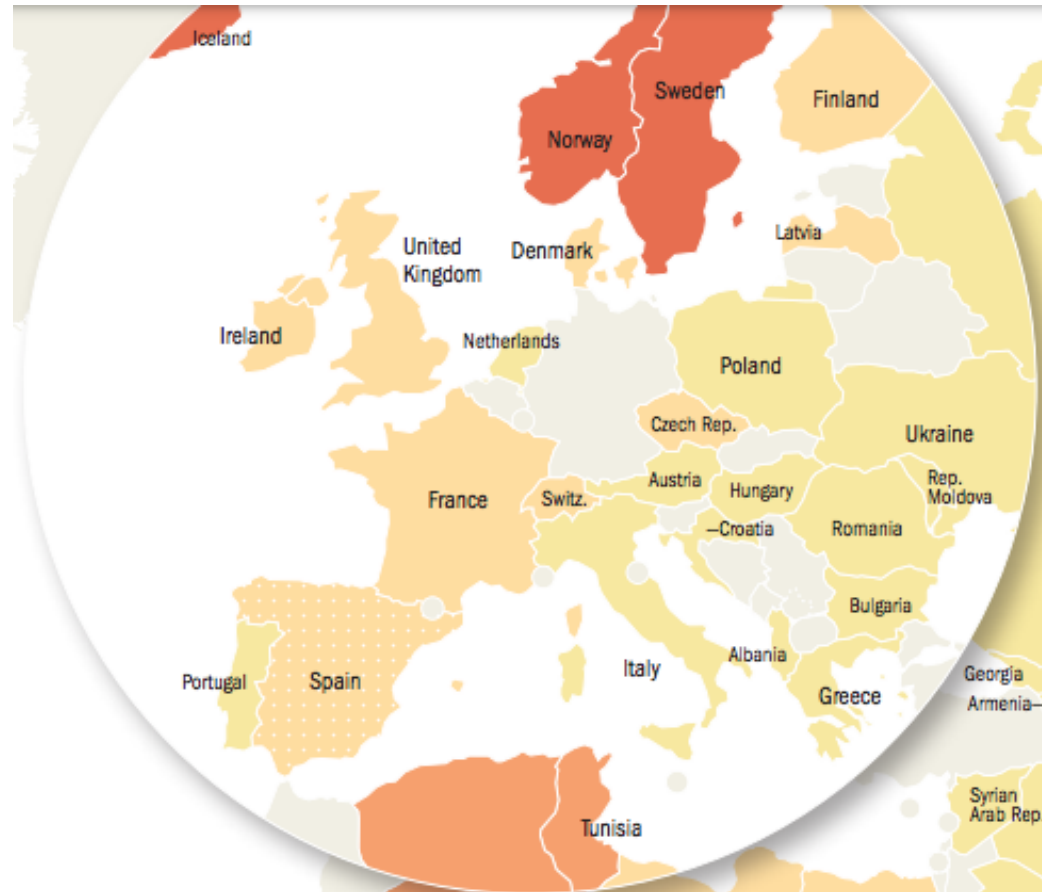
FEMALE MAJORITY

Countries where female prevalence is higher than male prevalence

Fed. States of Micronesia

Smokeless tobacco

Smokeless tobacco in Europe



PROCESSING IMPACTS CARCINOGENS

Effect of processing on a key group of carcinogens in smokeless tobacco products from around the world: Tobacco-Specific Nitrosamines (TSNAs) in ng/g

PASTEURIZATION
SWEDEN



MIN
601

5,850
MAX

FACTORY
FERMENTATION
USA



MIN
1,520

20,500
MAX

COMPOST PILE
FERMENTATION
SUDAN



MIN
295,000

992,000
MAX

Tobacco leaves, when processed differently, can create products with vastly different carcinogens levels. The levels of TSNAs (a major group of carcinogens) vary dramatically as a consequence of manufacturing processes that increase microbial production of nitrite, which reacts to form TSNAs.

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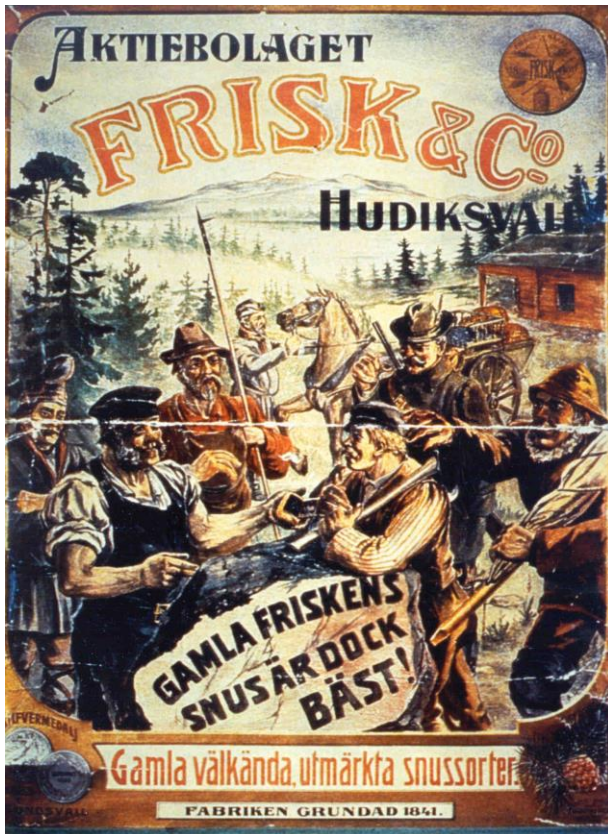
Indian "Hole in the Wall" products



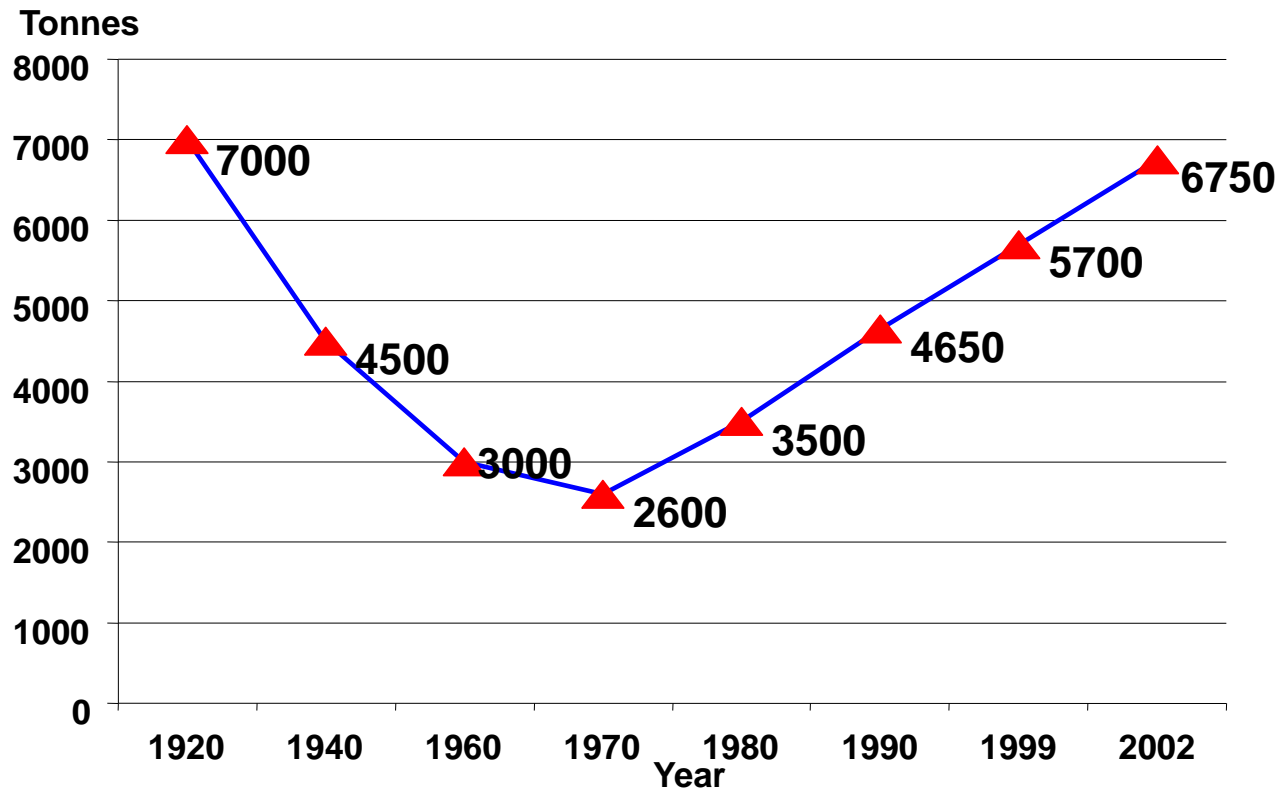
Ljunglöf och Berzelius



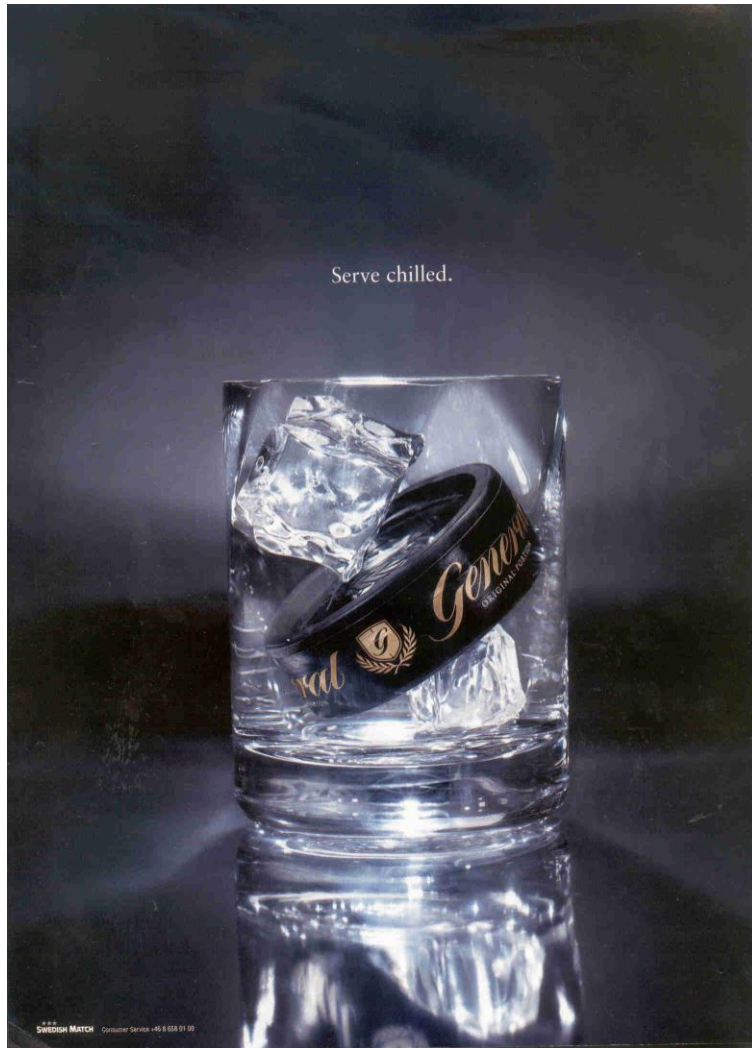
From lumber jacks to sports heroes Reinventing through marketing



Snus sales 1920 – 2002 (Swedish Match)



SAS Flight Magazine










- **Tobak**
 1. Nikotin 0,8 – 0,9%
 2. Nitrosaminer (5 carcinogena)
 3. Polycykliska aromatiska kolväten
 4. Antimutagener och anticarcinogena ämnen
- **Salter**
- **Fuktbevarande ämnen**
- **Aromtillsatser**
- **50% vatten**
- **Steril**
- **Värmebehandling**



Förvaras i kylskåp i butikerna

Snus- always the same?

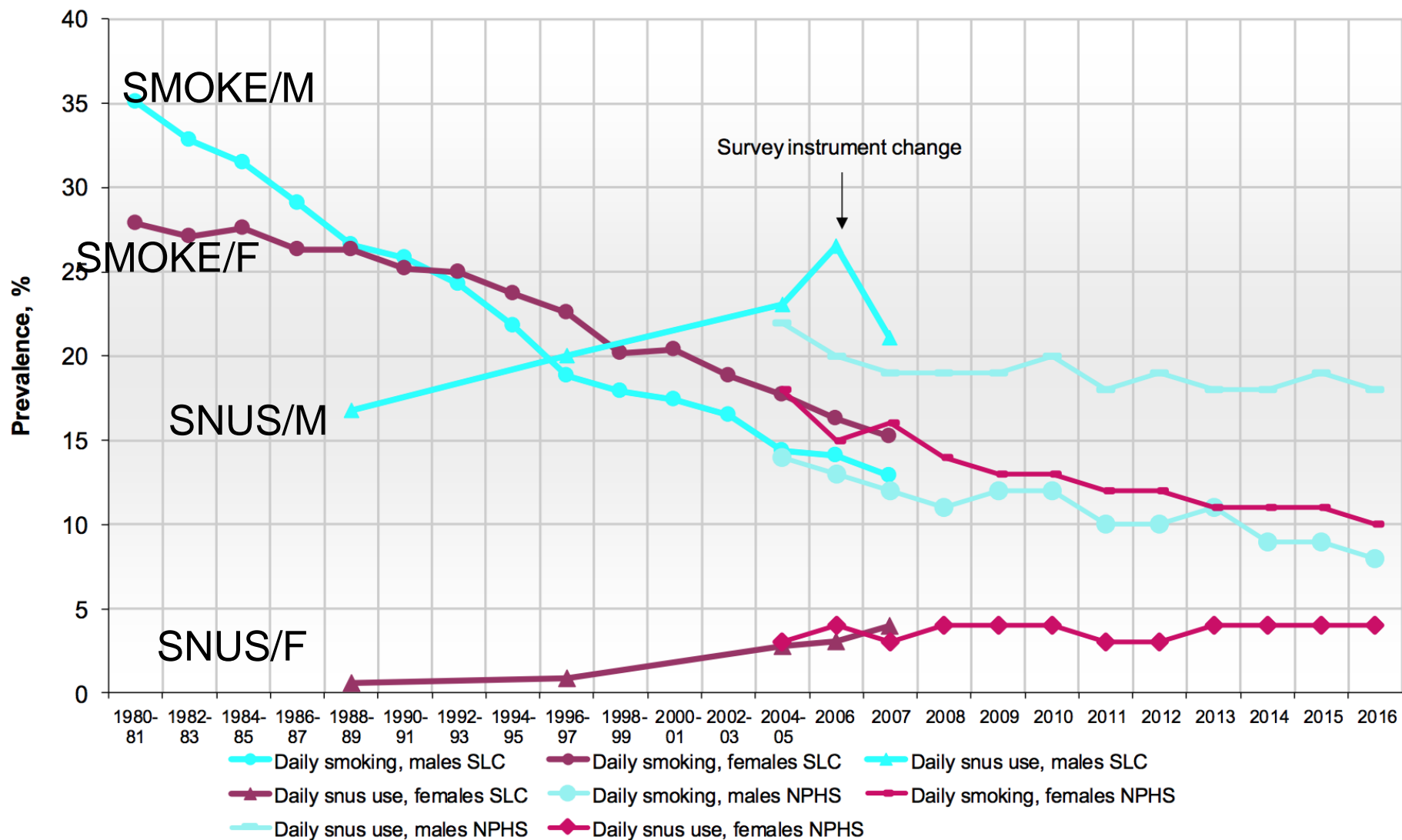
	Brand	Portion *	Nicotine/portion*	Moisture *	pH**
	Grovsnus loose	1g	8 mg	52 %	8.6
	Grovsnus portion	1g	8 mg	50 %	8.3
	Catch licorice portion mini	0.5g	4 mg	50 %	8.0
	Catch dry lychee portion mini	0.3g	4 mg	25 %	7.0

* Källa: GothiaTek/Swedish Match

** Opublicerade data

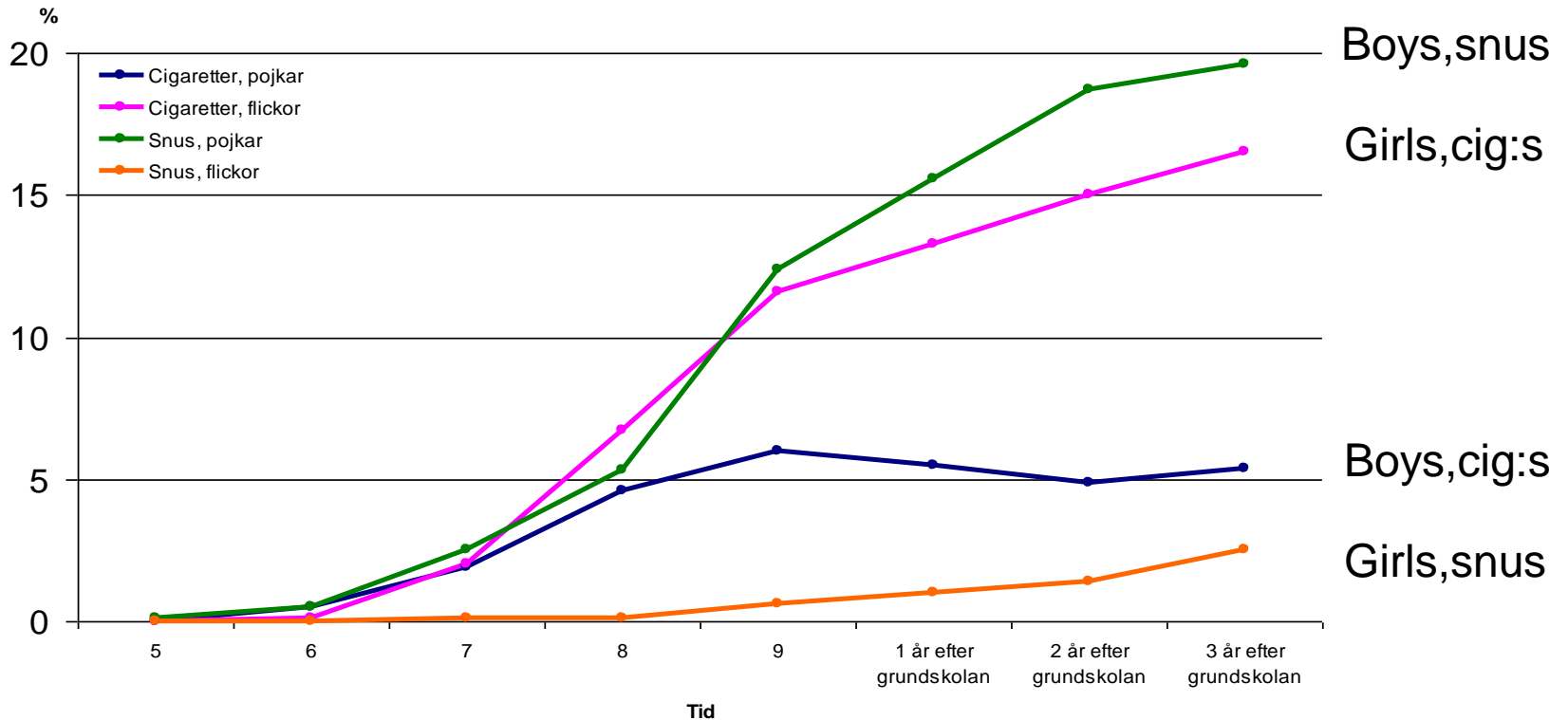
Tobaksbruk i Sverige, 1980-2016

Källa: ULF (SLC), Nationella folkhälsoenkäten (NPHS)



Tobacco uptake (daily) BROMS-study

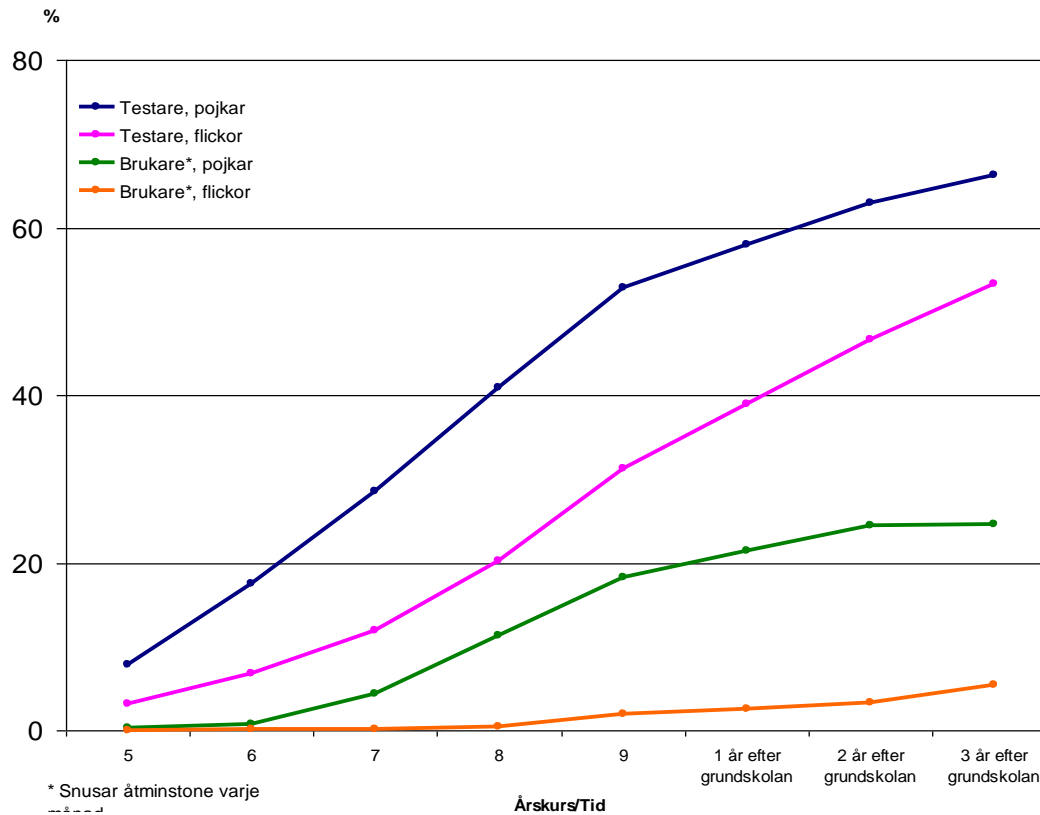
Percent



Age 11-19

Snus uptake

Percent



Boys tested

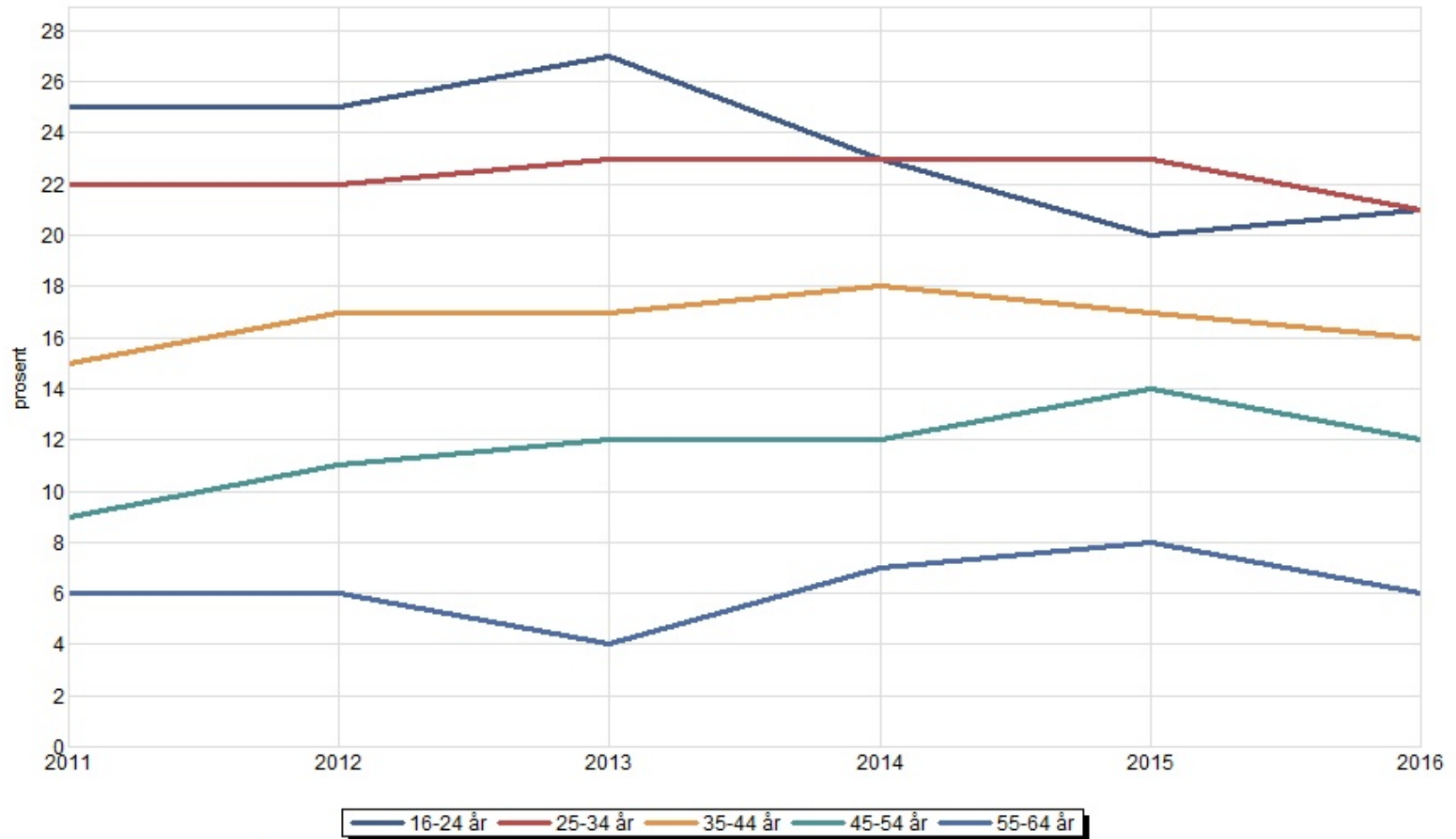
Girls, tested

Boys, users

Girls, users

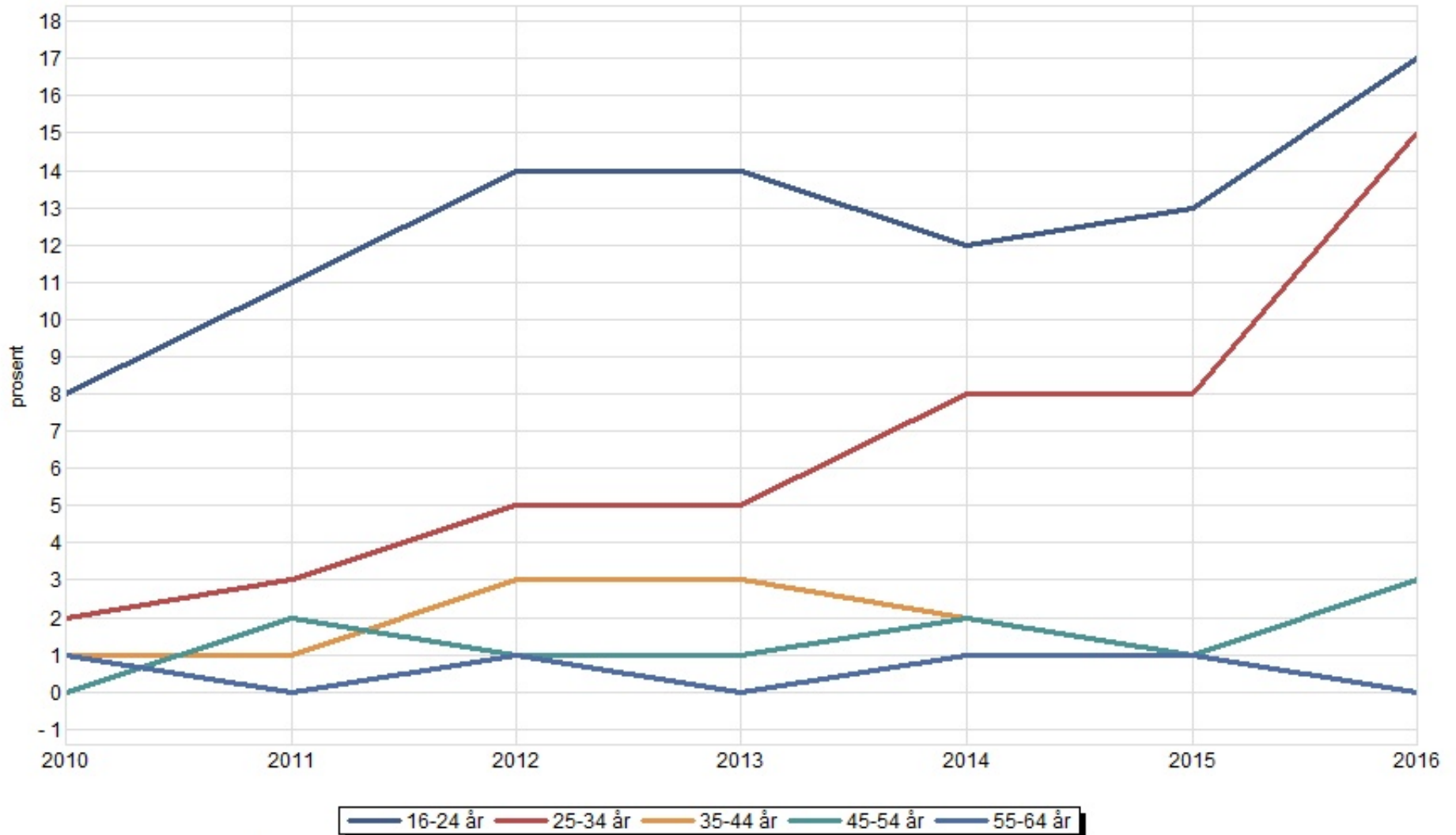
Age 11-19

Daglig snusbrukere og av-og-til-snusbrukere (prosent),
etter alder og tid.
Bruker snus daglig - prosent, Menn.



Kilde: Statistisk sentralbyrå

Daglig snusbrukere og av-og-til-snusbrukere (prosent),
etter alder og tid.
Bruker snus daglig - prosent, Kvinner.



Kilde: Statistisk sentralbyrå

Snus och hjärt- kärlsjukdom

- Inget samband med risk att insjukna i...
- ...men viss evidens för måttligt ökad risk att dö tidigt efter *hjärtinfarkt*¹ och *stroke*²
 - (oddskvot 1,3 [95% KI 1,0-1,7] respektive 1,4 [1,0-2,0])
- Snusstopp halverad risk att dö efter hjärtinfarkt³
- Ökad risk för hjärtsvikt⁴

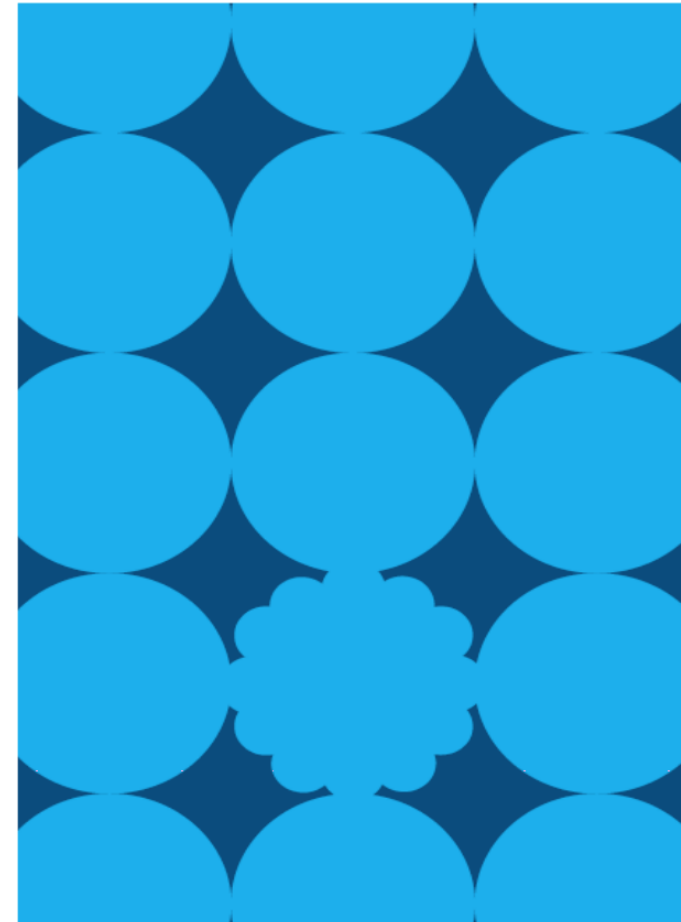
¹Hansson et al. Eur J Epi 2012; ²Hansson et al. Int J Med 2012; ³Arefalk et al. Circulation 2014; ⁴Arefalk et al. Eur J Card Prev 2011



Snus och cancer

- Inget samband med cancer i **bukspottskörteln**¹
- Inget samband med cancer i **munhålan**, **lungan** eller **tjocktarmen**^{2,3}
- Måttligt ökad risk för cancer i **matstrupen**
→ (oddskvot 1,6 [95% KI 1,1-2,4])²
- Svagt ökad risk för cancer i **ändtarmen**
→ (1,4 [1,1-1,8])³
- Inget samband med risk att insjukna i...
- ...men svagt ökad risk att dö efter cancer i **prostata**⁴
→ (1,2 [1,0-1,4])

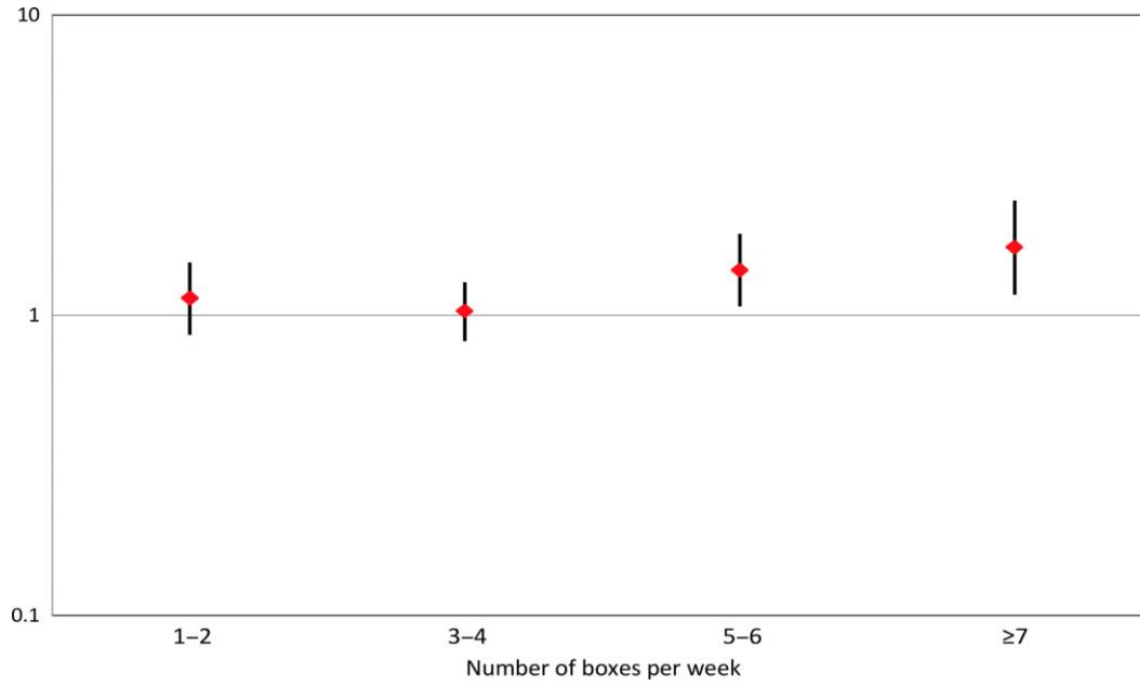
¹Araghi et al. Int J Cancer 2017; ²Bofetta et al. Lancet Oncol 2008; ³Araghi et al. In press, 2017; ⁴Wilsson et al. Int J Cancer 2016



Oral Fibrosis and Oral Cancer (30% of all cancers in India)



Snus och typ 2 diabetes



- Måttligt ökad risk hos högkonsumenter
→ oddskvot 1,7 [95% KI 1,2-2,4] ≥ 7 dosor/v v.s. ingen tobak
- Snusbruket förklarade 13% av alla fall av typ 2 diabetes bland snusare

Carlsson et al. Smokeless tobacco (snus) is associated with an increased risk of type 2 diabetes: results from five pooled cohorts. J Internal Med, 2017.



Snus och obstetriska komplikationer

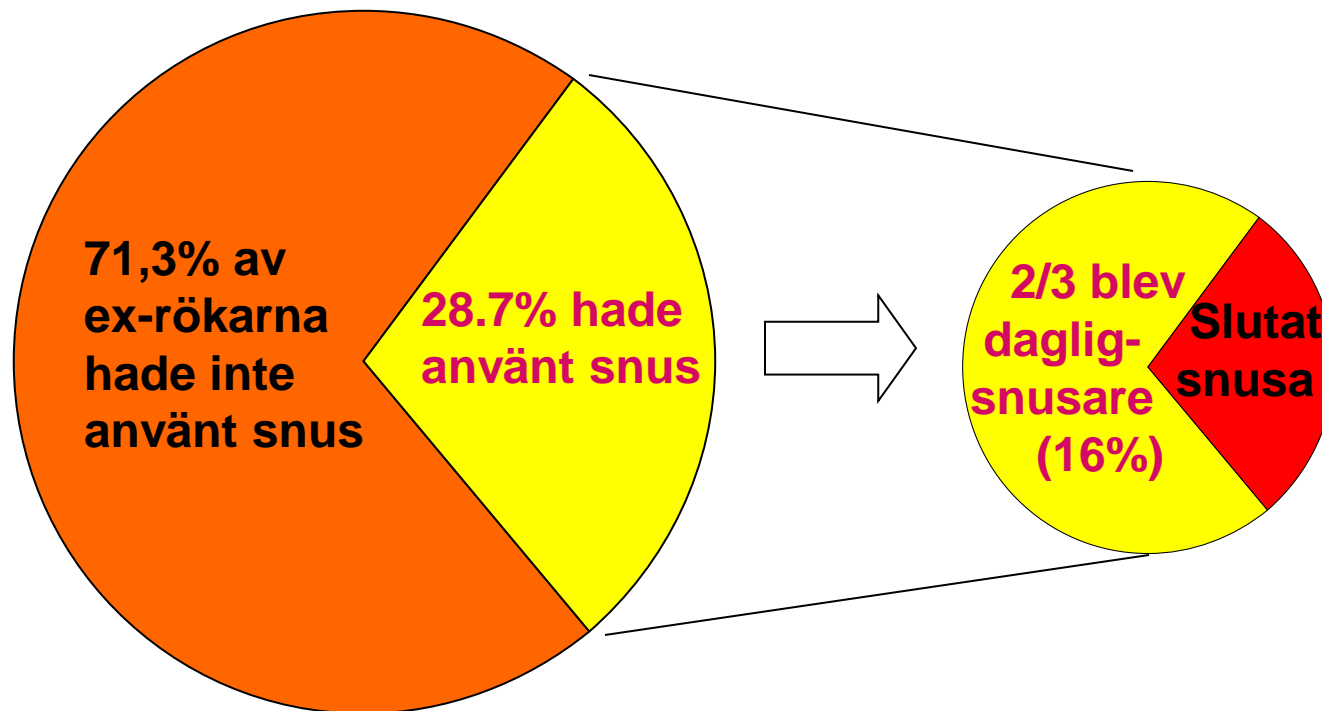
- Snusbruk under graviditet ökar risken för
 - Prematur födsel (<28 veckor)¹
 - Oddsquot 1,6 (95% KI 1,1–2,2)
 - Intrauterin dödföddhet²
 - 1,4 (1,0-2,0)
 - Intrauterin tillväxthämning³
 - 1,4 (1,0-1,9)
 - Neonatal apné¹
 - 2,0 (1,3-3,0)
 - Läpp-käk-gomspalt¹
 - 1,4 (1,0-2,2)

- Inga riskökningar vid snusstopp i tidig graviditet



¹Gunnerbeck, A. "Prenatal nicotine exposure and effects on the health of the newborn." Diss. 2017, Karolinska Institutet. ²Baba S et al. Nicotine Tob Res, 2014. ³Baba S et al. BJOG, 2013.

Snus som rökavvänjningsmetod (män)



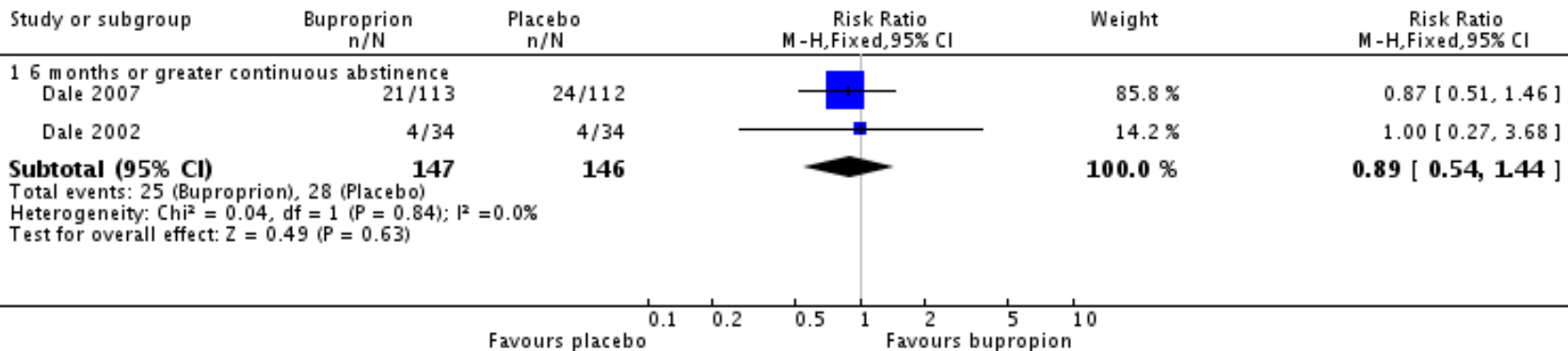
Gilljam H, Galanti MR. Addiction 2003.

Ebbert JO, Elrashidi MY, Stead LF Interventions for smokeless tobacco use cessation Cochrane 2015

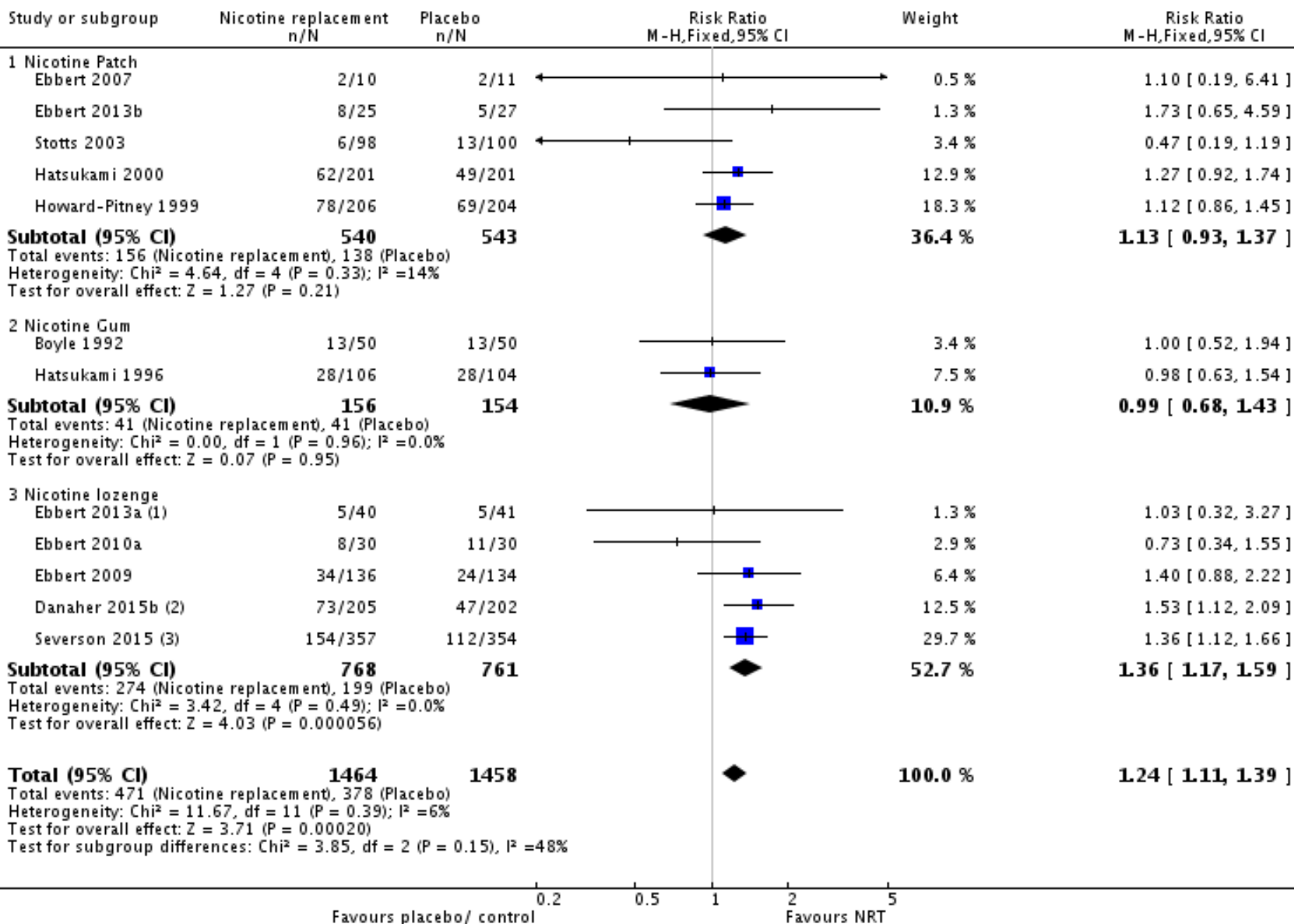


Results – Cochrane Review

Review: Interventions for smokeless tobacco use cessation
 Comparison: 1 Pharmacotherapy: Bupropion versus placebo
 Outcome: 1 All tobacco abstinence at longest follow-up



Review: Interventions for smokeless tobacco use cessation
 Comparison: 2 Pharmacotherapy: NRT versus placebo/no placebo/control
 Outcome: 1 6 months or greater abstinence, strictest criteria



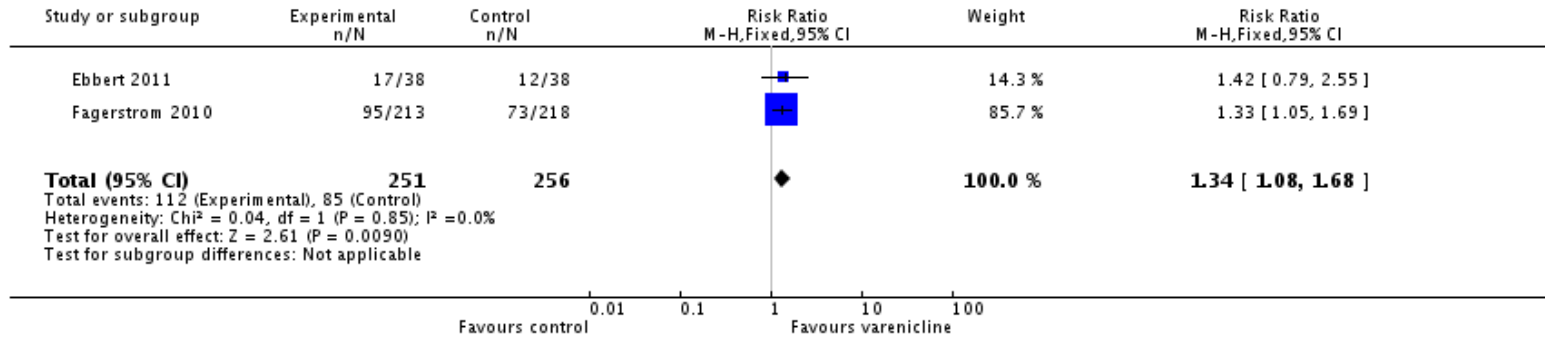
(1) Motivated to reduce. No placebo, control was tobacco free snuff

(2) No placebo. Lozenge as adjunct to web

(3) No placebo. Lozenge & telephone calls vs calls only

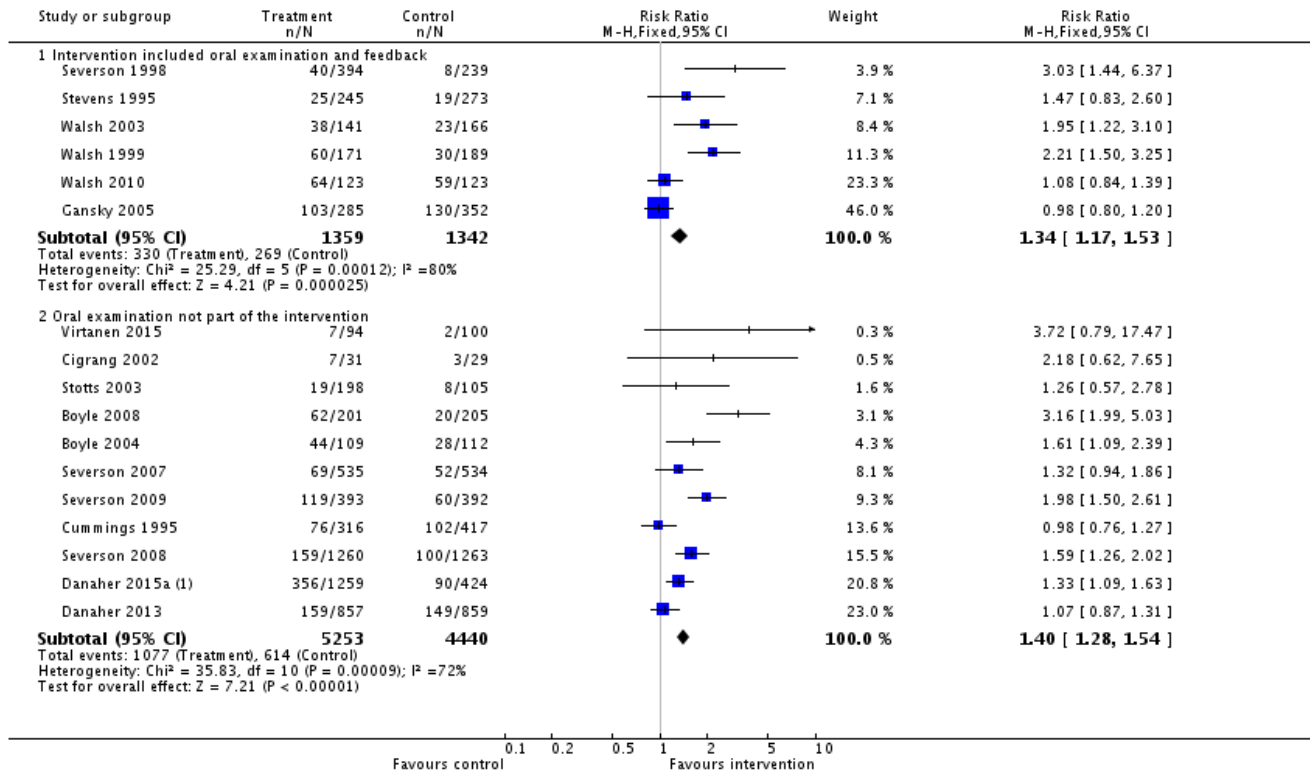
Interventions for smokeless tobacco use cessation

Review: Interventions for smokeless tobacco use cessation
 Comparison: 3 Pharmacotherapy: Varenicline versus placebo
 Outcome: 1 All tobacco abstinence at 6 months



Interventions for smokeless tobacco use cessation

Review: Interventions for smokeless tobacco use cessation
 Comparison: 4 Behavioural interventions
 Outcome: 3 Subgroup analysis: Use of oral examination and feedback



(1) Combining 3 intervention arms

Ebbert JO, Elrashidi MY, Stead LF

Interventions for smokeless tobacco use cessation Cochrane 2015

- Authors' conclusions
- Varenicline, nicotine lozenges and behavioural interventions may help ST users to quit. Confidence in results for nicotine lozenges is limited. Confidence in the size of effect from behavioural interventions is limited because the components of behavioural interventions that contribute to their impact are not clear.

Final comments

- Snus is a small product compared to other oral tobacco products
- Snus cessation is under-investigated
- Snus (other oral products?) is less addictive than cigarettes
- Snus users seldom seek help
- Snus as a harm reduction product



Tack för uppmärksamheten!