



# ZYN<sup>®</sup>: THE FUTURE OF NICOTINE; TOBACCO FREE NICOTINE PODS

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# THE EVOLUTION OF NICOTINE

## Cigarettes



Nicotine of choice for decades

Health warnings emerged in 1960's

Smoking restrictions introduced in 1970's

Smokers begin looking for more discrete alternatives to smoking that still satisfy.

## Smokeless



No smoke = more discrete than smoking

Provided consumers with an option as smoking restrictions expanded

Many smokers didn't like the mouth feel or spitting associated with STP

STP oral health warnings issued in 1980's

## Pouches



More convenient and easier to use appealed to more smokers

More discrete than loose smokeless tobacco

## Snus



More discrete than moist snuff/pouches

No spitting required

General snus was first product approved for Pre-Market Tobacco Product Application (PMTA) by FDA

## E-cig/Vape



First non-tobacco nicotine products emerge

Inhaled nicotine vapor, not tobacco

Vapor clouds still identify user as a smoker, less discrete than snus

Vape restrictions first appear in 2010's

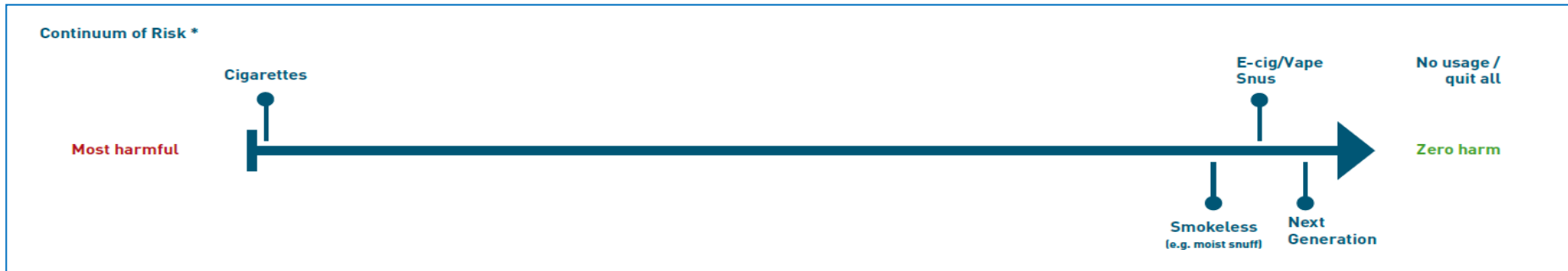
## Next Gen



Next gen products for consumers must be:

- Smokeless
- Spitless
- Discrete
- Convenient
- Tobacco Free
- Recreational

Most importantly, next gen products must satisfy and meet a wide variety of consumer preferences



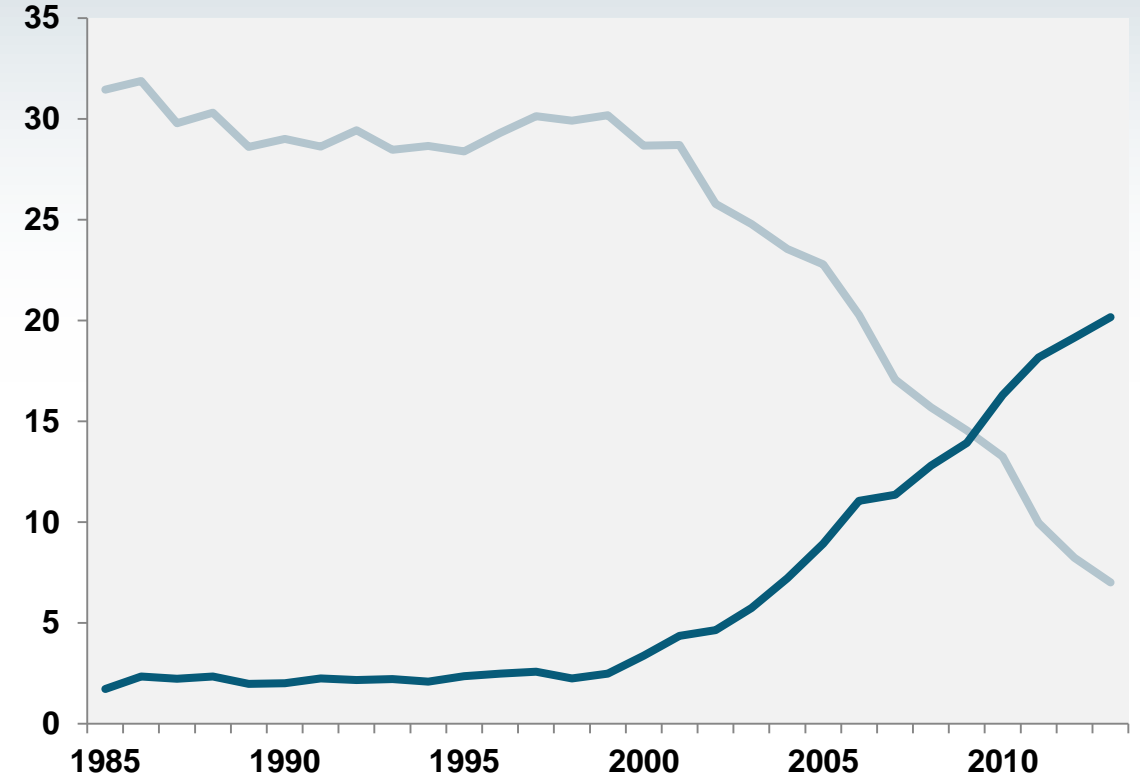
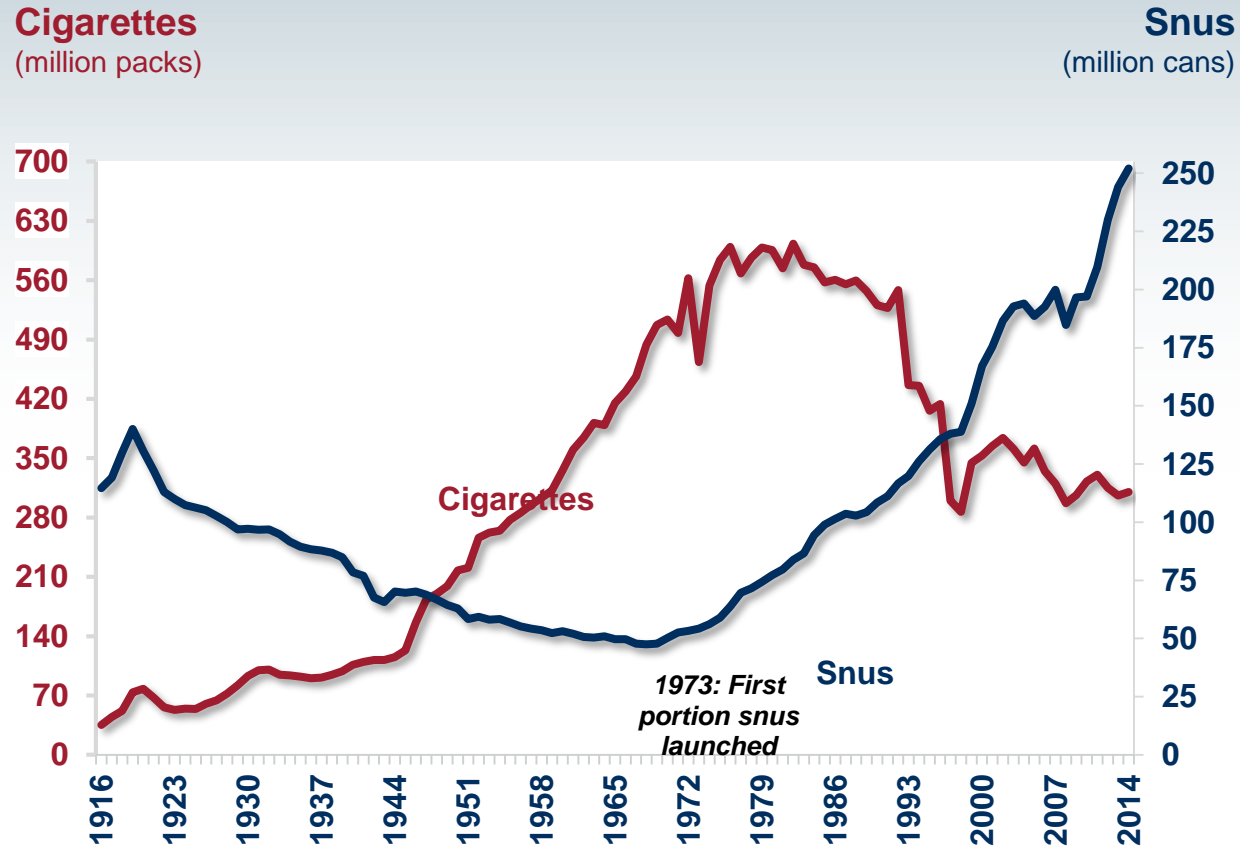
# VOLUME DEVELOPMENT FOR CIGARETTES AND SNUS IN SWEDEN AND NORWAY

## Sweden

## Norway

Share of population (%)

— Cigarette smokers — Snus users

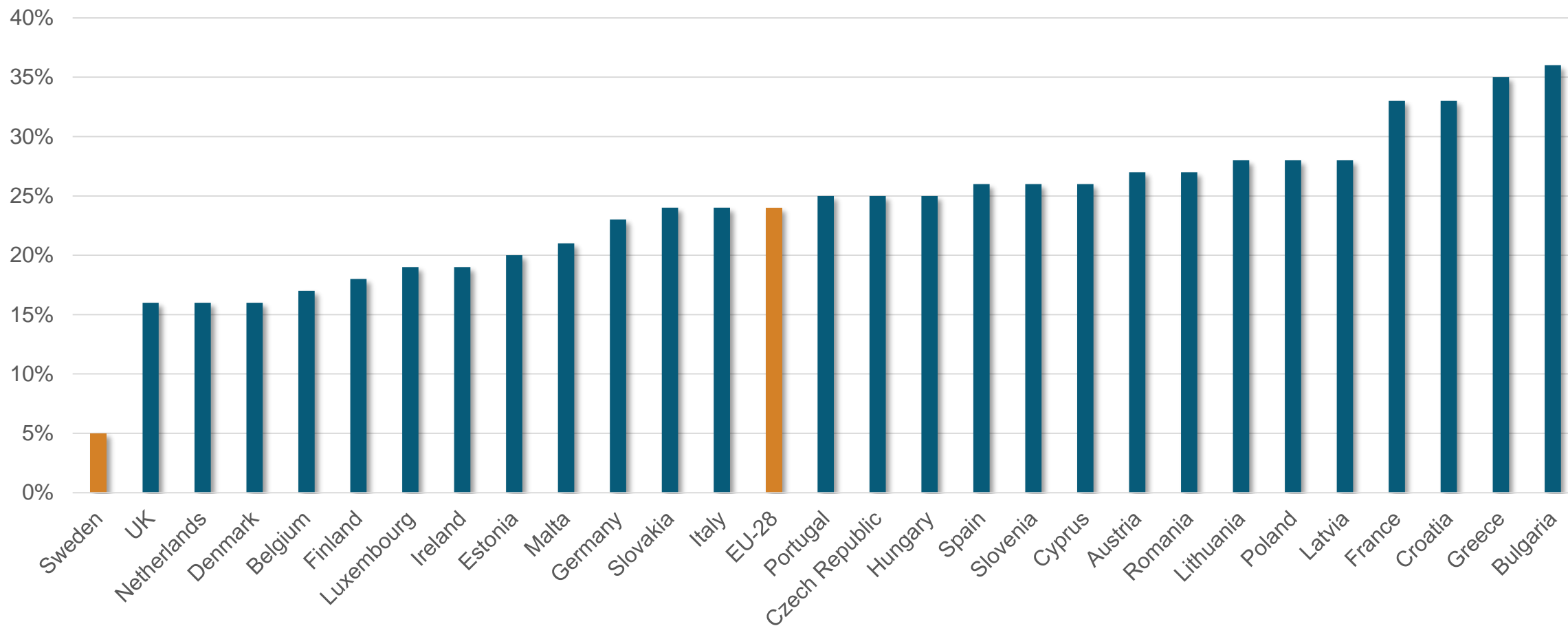


SNUS IS OUTPERFORMING CIGARETTES IN SWEDEN AND NORWAY



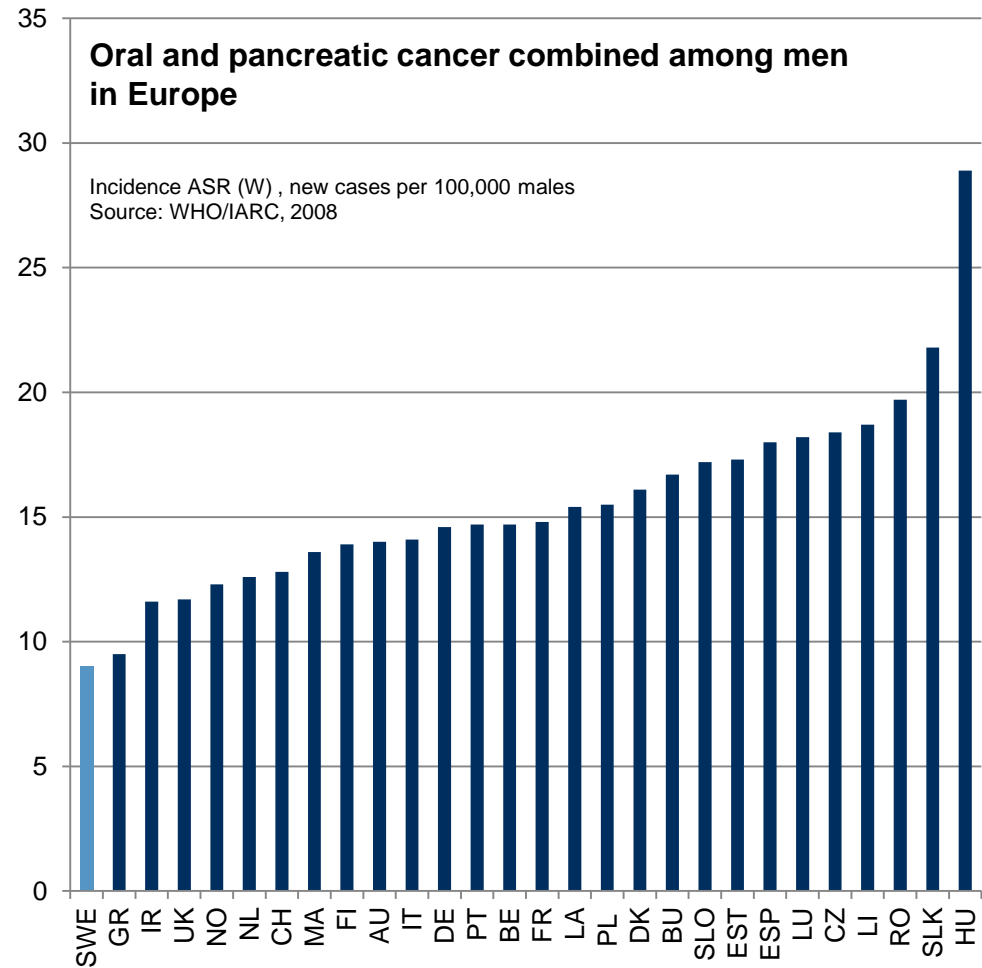
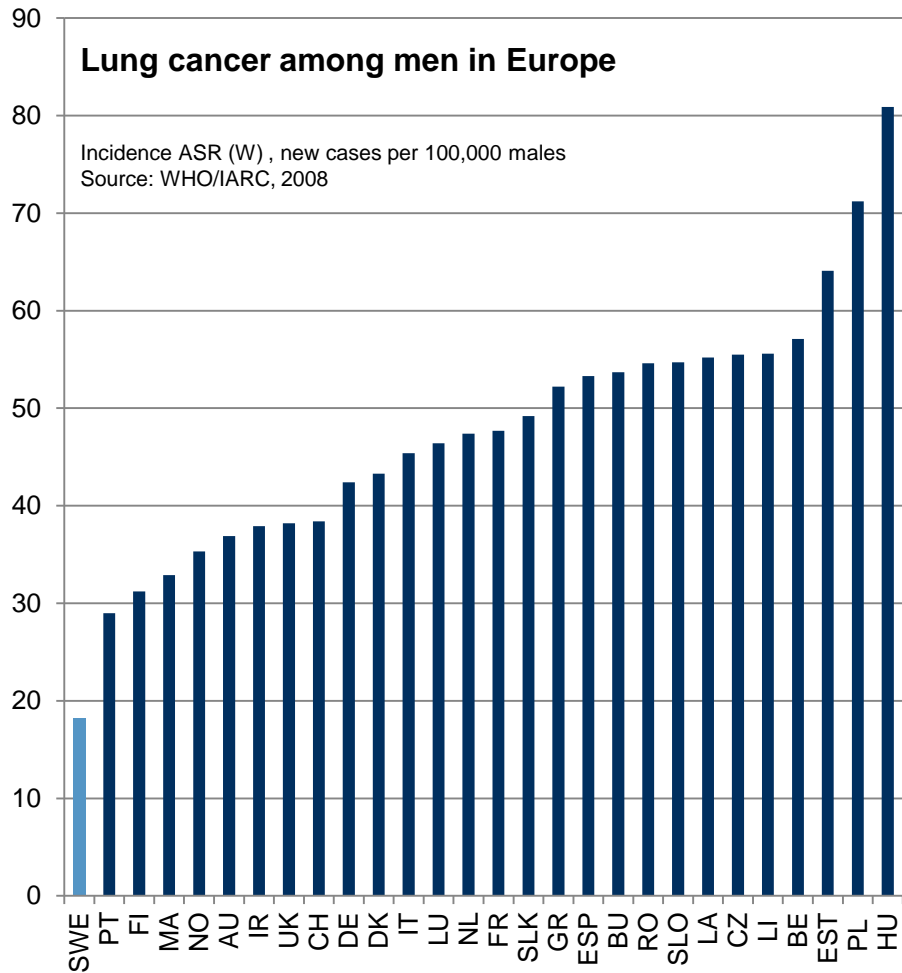
# RECORD LOW PREVALENCE OF SMOKING IN SWEDEN

## Proportion of daily cigarette smokers (percentage of population aged 15 and over)



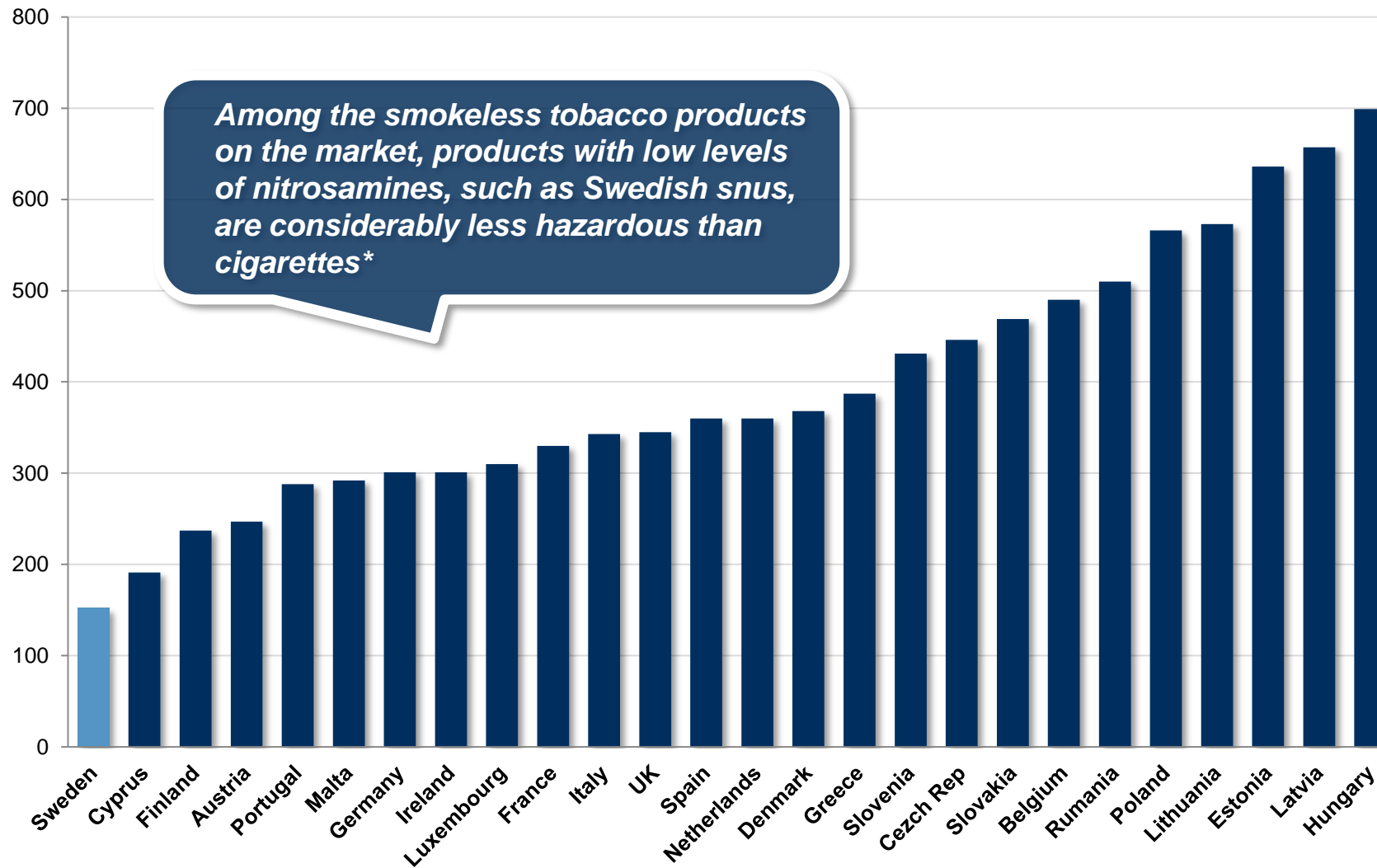
Source: Special Eurobarometer 458, European Commission

# ...IS MIRRORED IN THE PUBLIC HEALTH STATISTICS- ...LOWEST INCIDENCE OF TOBACCO RELATED CANCER



# SNUS HAS CONTRIBUTED SIGNIFICANTLY TO IMPROVED PUBLIC HEALTH

Mortality Attributable to Tobacco, Men per 100 000, \*WHO 2012



# GOTHIATEK® - SWEDISH MATCH QUALITY STANDARD FOR SNUS

## The “Swedish Experience” – A “real world illustration” of tobacco harm reduction

- One component of the public health success of snus is that it is manufactured according to the GOTHIATEK® standard

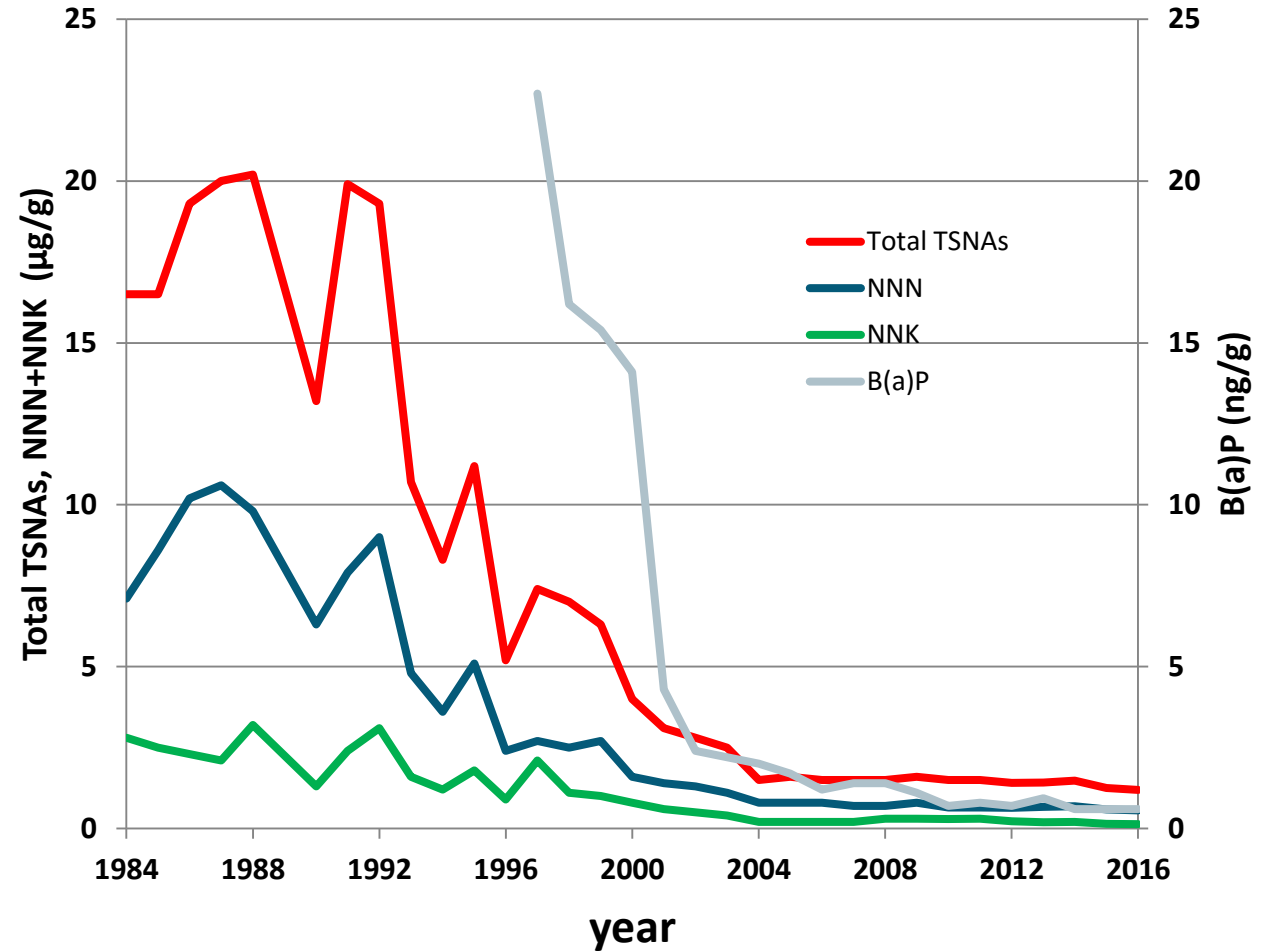
## GOTHIATEK® - the world’s strictest product standard for any tobacco product

- The standard was introduced in the year 2000
  - Based on decades of research and development with consumer protection, product safety and openness as key targets
- Applicable to all Swedish Match Snus products
- The basis for Swedish Match ambition to
  - Produce the best snus products
  - Use the best manufacturing practices
  - Continue to improve the products
  - Maintain the lowest possible levels of undesirable constituents in snus
- Dynamic - continuous development
  - Techniques and processes are improved
  - New scientific data is made available



# GOTHIATEK® STANDARD – MAXIMUM LEVELS FOR SELECTED CONSTITUENTS

- **GOTHIATEK®** requires that finished products shall not exceed the maximum allowable levels of certain harmful and potential harmful constituents. These constituents originate from the environment or from the tobacco plant
- The standard has over the years been amended at several occasions: the range of compounds has been expanded and the maximum levels lowered



All values based on dry weight



# GOTHIATEK® STANDARD – MAXIMUM LEVELS FOR SELECTED CONSTITUENTS

Component	GOTHIATEK®	Swedish Food Act	WHO TobReg	FDA HPHC list
NNN+NNK (ppm)	0.95	1.0	1.0	Yes
NDMA (ppb)	2.5			Yes
Nitrate (ppm)	3.5			
B(a)P (ppb)	1.25	1.5	2.5	Yes
Arsenic (ppm)	0.25			Yes
Lead (ppm)	1.0	3		Yes
Cadmium (ppm)	0.5			Yes
Chromium (ppm)	1.5			Yes
Mercury (ppm)	0.02			Yes
Nickel (ppm)	2.25			Yes
Aflatoxin (ppb) (B1+B2+G1+G2)	2.5	5		Yes (B1)
Ochratoxin A (ppb)	10			-
Formaldehyde(ppm)	7.5			Yes
Acetaldehyde (ppm)	25			Yes
Crotonaldehyde (ppm)	0.75			Yes
Agrochemicals	According to Swedish Match internal quality system for agrochemicals **			

ppm: parts per million (corresponding to ug/g)

ppb: parts per billion (corresponding to ng/g)

\*\*Comparable to the CORESTA Guide N° 1 for Agrochemicals GRLs in tobacco

All values based on 50% moisture water or wet basis

# FROM SNUS TO TOBACCO FREE NICOTINE PODS

Swedish Match has continued our product development work to offer a even less harmful, discreet, recreational nicotine pods product for tobacco users not attracted by snus

- Oral recreational nicotine pods product without tobacco
- No association with the traditional, negative connotations of tobacco including increased cancer risk
- Attractive taste profiles – no tobacco taste
- Socially accepted by smokers, other tobacco users and non-tobacco users



# WHAT IS ZYN?

## ZYN – Tobacco free nicotine pods

- Small, white, dry, tobacco free, nicotine pods
- Contains filler, pH-adjuster, tobacco derived nicotine, flavors, stabilizer, sweetener and pouch paper
- Manufactured using similar control systems as in snus production
- Nicotine content: 3 and 6 mg/pods (tobacco derived nicotine)
- Comes in a variety of flavors
- Packaged in a plastic can
- pH similar to General snus
- Very low or non-detectable levels of HPHCs
- A recreational nicotine product, used in the same way as snus (i.e. under the upper lip)
- Recently launched in Scandinavia and US



# ANALYTES INCLUDED IN SWEDISH MATCH CHEMICAL CONTROL PROGRAM

## Nicotine related

- Anabasine
- 4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK)
- Nicotine
- N-nitrosodiethanolamine (NDELA)\*
- N-nitrosodimethylamine (NDMA)
- N-Nitrosomorpholine (NMOR)\*
- N-Nitrosornicotine (NNN)\*
- N-Nitrosopiperidine (NPIP)\*
- N-Nitrosopyrrolidine (NPYR)\*
- N-nitrososarcosine (NSAR)\*
- Nornicotine
- N-nitrosoanabasine (NAB)
- N-nitrosoanatabine (NAT)
- Anabatine

## PAHs

- Benz[a]anthracene
- Benzo[b]fluoranthrene
- Benzo[k]fluoranthrene
- Benzo[a]pyrene
- Chrysene
- Dibenz[a,h]anthracene
- Indeno(1,2,3,-cd)pyrene
- Naphthalene

## Elements

- Arsenic
- Beryllium
- Cadmium
- Chromium
- Lead
- Mercury
- Nickel
- Polonium-210\*
- Selenium
- Uranium-235
- Uranium-238

## “Other”

- Acetaldehyde
- Aflatoxin B1
- Ammonia
- Coumarin
- Crotonaldehyde
- Ethyl carbamate
- Formaldehyde

## “Other”

- Acrylamide
- Bacteria
- Ethanol
- Propylene Glycol
- Glycerol
- Aflatoxin B2
- Aflatoxin G1
- Aflatoxin G2
- Ochratoxin A
- Chloride
- Nitrate
- Nitrite
- pH
- Sugars
- Starch
- Water activity
- Dry Matter

Blue: Draft Initial List of Harmful/Potentially Harmful Constituents in Smokeless Tobacco Products and included in Swedish Match Chemical Control Program

\* Tested on selected products, 3 times / year, 1 replicate

Black: Additional Constituents included in Swedish Match Chemical Control program

# ZYN "SIDE BY SIDE" COMPARISON WITH MOIST SNUFF AND GENERAL SNUS



# NICOTINE AND PH: ZYN VS MOIST SNUFF AND GENERAL SNUF

Product		Moist snuff CRP2	General Snuf (Portion) (PMTA) N=26	ZYN 3 mg N=33	ZYN 6 mg N=35
		-	5 SKU	16 SKU	16 SKU
<b>Nicotine</b>	mg/unit of use	10.3	4.3 – 9.2	2.89	5.93
<b>Free nicotine</b>	mg/unit of use	3.5	0.9 – 7.4	2.12	4.50
<b>pH</b>		7.74	7.17 – 8.99	8.49	8.55

CRP: Coresta Reference Product

N: the number of tested products

PMTA: Premarket Tobacco Product Application

# NITROSAMINES: ZYN VS MOIST SNUFF AND GENERAL SNUF

	Moist Snuff CRP2.1	SNUS Chemical control (PMTA) 2016-2017			ZYN Chemical control 2016 - 2017			Limits
Compound	Mean	N	Max	Median	N	Max	Median	GOTHIA- TEK®
TSNA-NAB (µg/g)	0.5	26	0.03	0.02	68	<0.004	<0.004	
TSNA-NAT (µg/g)	8.7	26	0.45	0.36	68	<0.15	<0.15	
TSNA-NNN (µg/g)	7.0	26	0.62	0.53	68	<0.15	<0.15	
TSNA-NNK (µg/g)	4.2	26	0.25	0.12	68	<0.15	<0.15	
TSNA NNN+NNK (µg/g)	11.2	26	0.83	0.68	68	<0.03	<0.03	1.9
TSNA tot (µg/g)	20.5	26	1.3	1.10	68	<0.05	<0.05	

CRP: Coresta Reference Product

All results are on product dry weight basis

N: the number of tested products

PMTA: Premarket Tobacco Product Application

# BENZO[a]PYRENE, B[a]P: ZYN VS MOIST SNUFF AND GENERAL SNUS

	Moist snuff CRP2	SNUS Chemical control (PMTA), 2016-2017			ZYN Chemical control 2016 -2017			Limits
Compound	Mean	N	Max	Median	n	Max	Median	GOTHIA- TEK®
B[a]P (ng/g)	296	26	1.2	<0.6	68	<0.6	<0.6	2.5

CRP: Coresta Reference Product

All results are on product dry weight basis

N: the number of tested products

PMTA: Premarket Tobacco Product Application



# CONSUMER DEMOGRAPHIC

- The US ZYN consumer is very diverse
- Tobacco consumers looking for a discreet alternative
- Broad (legal) age spectrum
- Smokers, moist snuff users, snus users and vapers all have shown interest
- Higher level of acceptance among female consumers versus other oral options
- Both urban and rural consumers



# CONCLUSION

ZYN is very similar, though superior to General snus

- Both are pouched recreational products, used in the same manner (i.e. under the upper lip)
- Nicotine and pH levels are in the same ranges
- Manufactured by the same company in the same facility
- Similar quality control programs for ZYN as for GOTHIA TEK® Snus
- No levels of TSNAs detected in ZYN
- No levels of B(a)P detected in ZYN
- No or low levels of other HPHCs in ZYN
- A product standard similar to the GOTHIA TEK® standard will be developed



# CONCLUSION - WHY ZYN?

## THE FULL NICOTINE EXPERIENCE BUT WITHOUT TOBACCO

- Spit-free, smoke-free and tobacco free
- Discrete – small
- Clean – dry and white
- Instant nicotine delivery, gives nicotine satisfaction
- Offers an array of pleasant flavors and an enjoyable usage experience
- Attractive to many tobacco users of both gender
- Can be used anywhere and anytime

