



The next frontier in advancing THR: **Oral nicotine pouches**

Simone Hadley,¹ Belinda Zonnestein,¹ Jana Jeffery,¹ Yen Nguyen,¹ Kevin McAdam,² Helena Digard,¹ Stuart Meredith,¹ Fabio Miazzi,¹ Lydia Doherty,¹ Olivia Chester,¹ David Smart,¹ **Chris Junker**¹



GFN, Warsaw

¹ B.A.T (Investments) Limited, Southampton SO15 8TL, ² McAdam Scientific Ltd, 65a Bishopstoke Road, Eastleigh, SO50 6BF, UK

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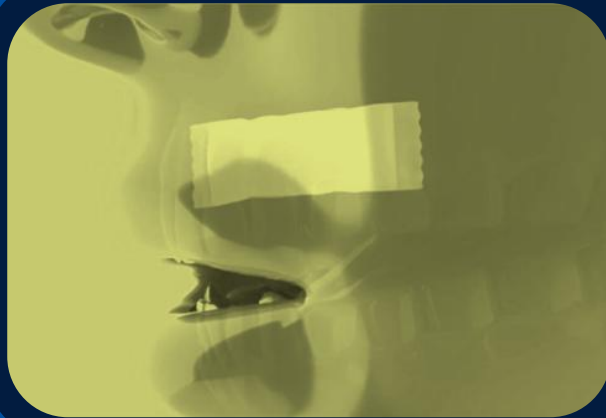
AGENDA



- 1 INTRODUCTION TO ONPs
- 2 TOXICANT PROFILE
- 3 TOXICOLOGICAL ACTIVITY
- 4 CONSUMER USE
- 5 PK COMPARISON
- 6 CLINICAL BIOMARKERS
- 7 THE SWEDISH EXPERIENCE
- 8 POPULATION OUTCOME POTENTIAL

ORAL NICOTINE POUCHES

USE



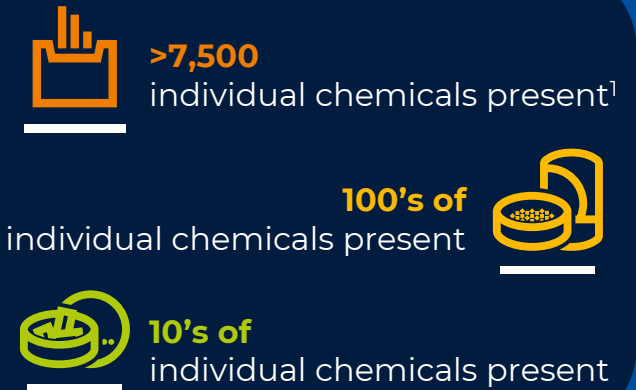
Consumers place the pouch between their gum and upper lip

COMPOSITION



It contains water, plant-based materials, flavourings, sweeteners and nicotine. All prepacked in small pouches

COMPLEXITY



No heat or tobacco makes Oral Nicotine Pouches BAT's **simplest Smokeless Product**

NO TOBACCO

NO COMBUSTION

NO SMOKE

NO TAR

ONPs TOXICANT PROFILE

TobReg 9 reference product comparison¹



Oral Nicotine Pouches* had

>99 – 99.8%

reduction in toxicants compared to 1R6F
reference cigarette 30-day average

*11 products tested



BAT ONPs** had

42 – 92%

reduction in toxicants compared to
snus reference product

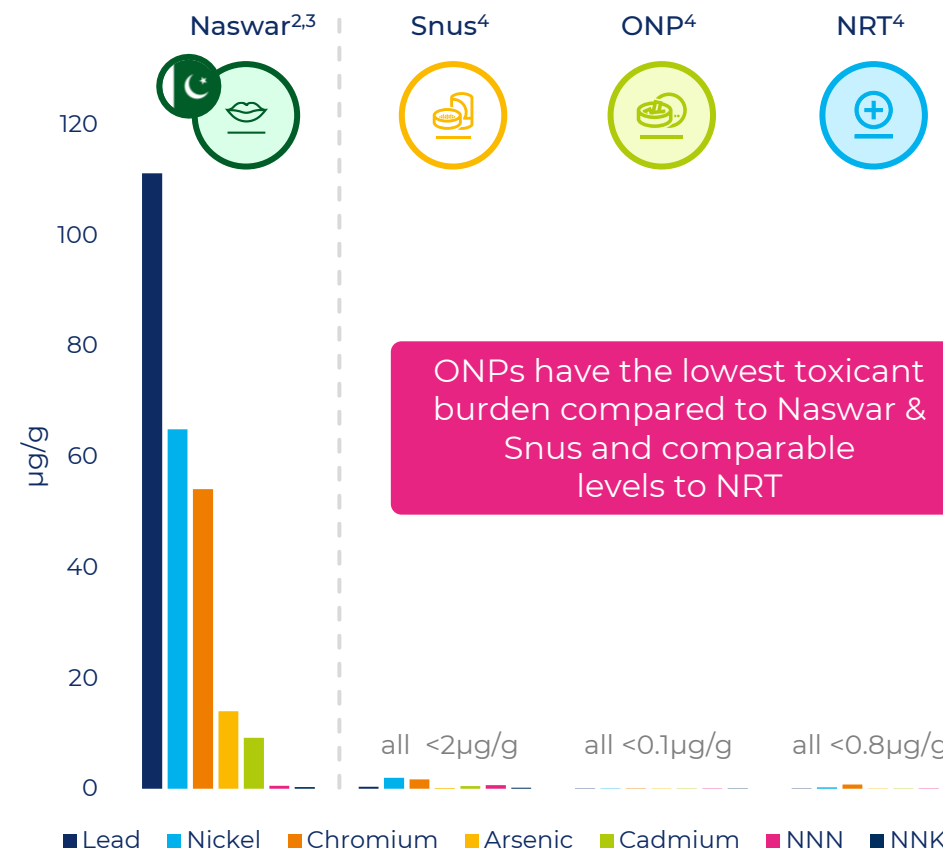
**9 products tested



All samples were lower than the
Gothiatek standard for analytes tested



Global comparison to Oral Products



¹Hadley, S., et al., Toxicant contents of oral nicotine pouches: comparative quantitative analysis with Swedish snus and cigarette smoke. [Unpublished Manuscript]. British American Tobacco (BAT), 2025. ²Saeed, M., et al., 2012. DOI: 10.1136/tc.2010.042630. ³Stanfill, S.B., et al., 2011. DOI: 10.1136/tc.2010.037465. ⁴Azzopardi, D., et al., 2022. DOI: 10.1080/01480545.2021.1925691.

TOXICOLOGICAL ACTIVITY OF ONPs



ONP nicotine levels range from 6 mg/pouch to 20 mg/pouch

CYTOTOXICITY

Impedance

Cigarette AQE

Most Cytotoxic

3 orders of magnitude

IC₅₀

1. BAT Large Pouch Mint
2. Market Place ONP
3. **Snus Reference (1S4)**
4. Market Place Snus

IC₈₀

5. BAT ONP
6. BAT Sweet Mint High NIC
7. BAT Salty
8. BAT Salty Mint
9. BAT Sweet Fruit Low NIC
10. BAT Sweet Mint Low NIC
11. BAT Sweet Fruit High NIC
12. BAT Hybrid Fruit
13. Market Place ONP

73%

Treatment Concentration

100%

Least Cytotoxic

IC₅₀ = Concentration reducing cell viability to 50%
IC₈₀ = Concentration reducing cell viability to 80%

Real-Time Cell Analysis



GENOTOXICITY

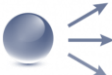
DNA Damage, Oxidative Stress, Protein Damage & Cellular Stress

- Positive Response (>2-fold threshold)
- Borderline Response (~2-fold threshold)
- Negative Response (<2-fold threshold)

Endpoint

Endpoint	Snus Reference (1S4)	Market Place Snus	BAT Salty	BAT Hybrid Fruit	BAT Sweet Mint High NIC
Protein Damage	Positive	Positive	Negative	Borderline	Borderline
Cell Stress	Negative	Negative	Negative	Negative	Negative
Ox Stress + NRF2	Positive	Positive	Positive	Negative	Negative
Ox Stress - NRF2	Positive	Positive	Borderline	Negative	Negative

+ Metabolism



ToxTRACKER®

1

None of the BAT Oral Nicotine Pouches were more potent than the **reference snus (1S4)**

2

Data suggests nicotine and flavours **are not** drivers of cytotoxicity

3

Differences in cytotoxicity between SKUs appear to be due to osmotic stress

4

Use of Contemporary Tox supports a lower genotoxicity profile associated with ONP

CONSUMER USE OF ONPs



AVERAGE DAILY CONSUMPTION

Loose Snus
12.3 ± 6.6 portions¹

Pouch Snus
11.7 ± 6.5 pouches¹

Oral Nicotine Pouch
10.4 ± 4.7 pouches²



MOUTH HOLD TIME

Loose Snus
69.2 ± 41.6 minutes¹

Pouch Snus
65.2 ± 49.8 minutes¹

Oral Nicotine Pouch
33.3 ± 24.6 minutes³



NICOTINE EXPOSURE

Loose Snus
3.38 ± 1.92 mg⁴

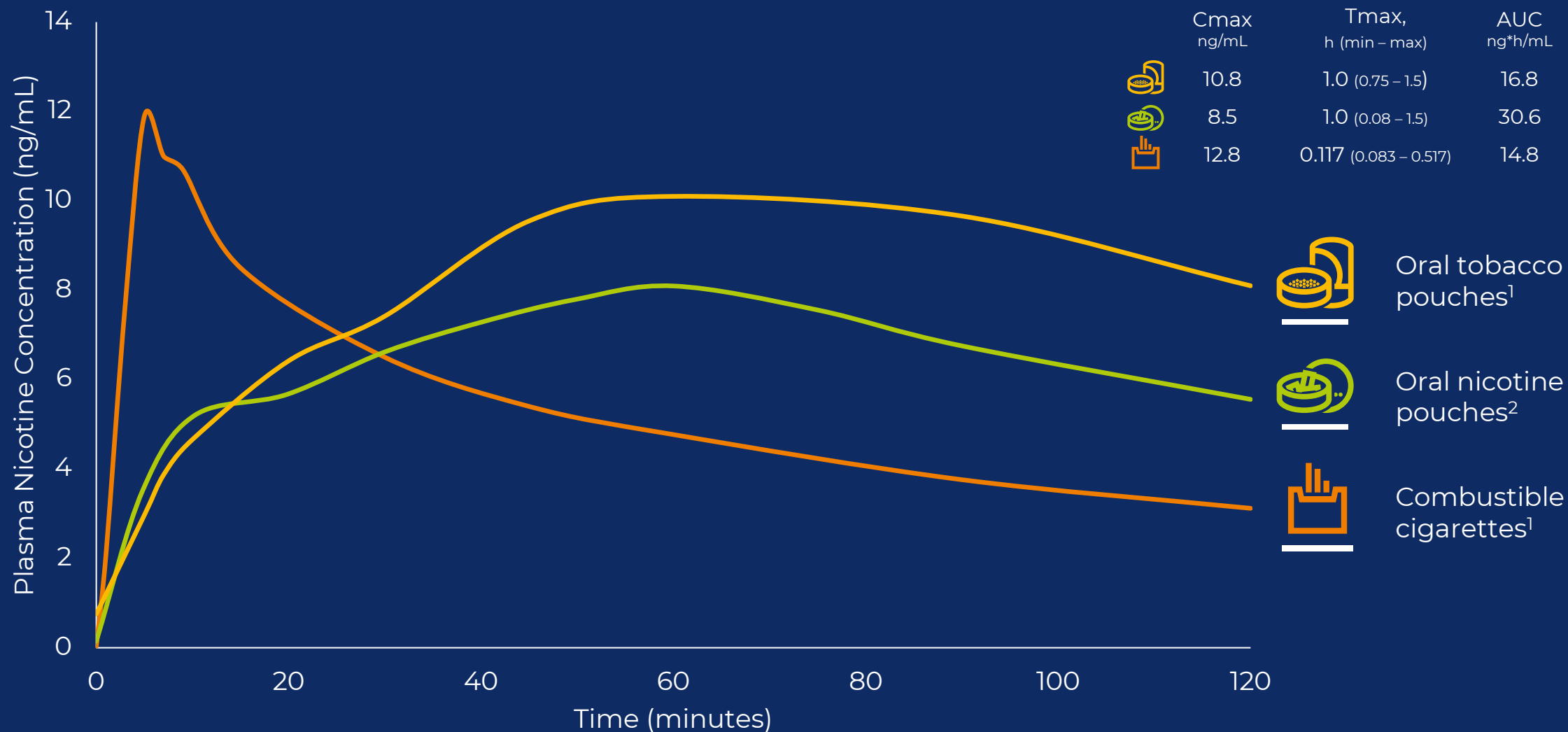
Pouch Snus
3.45 ± 1.42 mg⁴

Oral Nicotine Pouch
2.30 ± 1.43 mg³

Adult consumers use **ONPs at comparable-to-lower levels than snus** and are exposed to **comparable-to-lower levels of nicotine**

¹Digard, H., et al., 2009. DOI: 10.1093/ntr/ntp118. ²McEwan, M., et al., 2023. DOI: 10.2478/cttr-2023-0016. ³Azzopardi, D., et al., 2023. DOI: 10.1080/1354750X.2022.2148747. ⁴Digard, H., et al., 2013. DOI: 10.1093/ntr/nts123

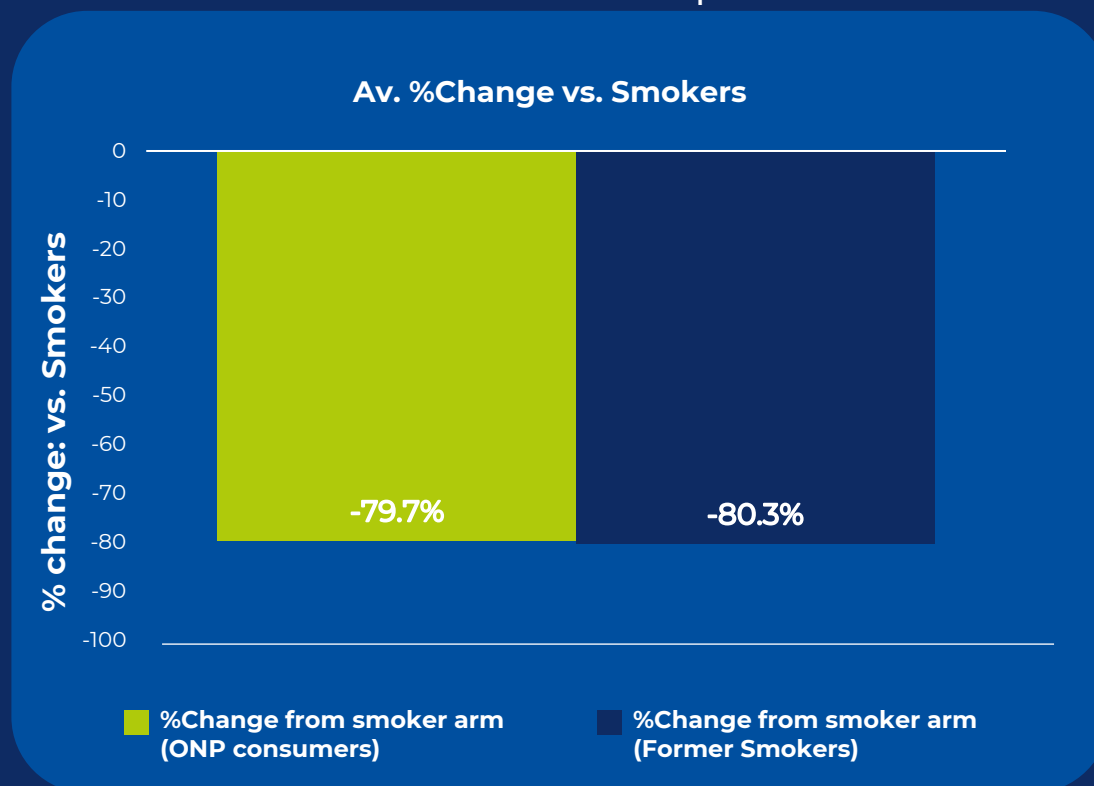
ONPs PK PROFILE SIMILAR TO SNUS



¹Digard, H., et al., 2013. DOI: 10.1093/ntr/nts123. ²Azzopardi, D., et al., 2022. DOI: 10.1038/s41598-022-10544-x.

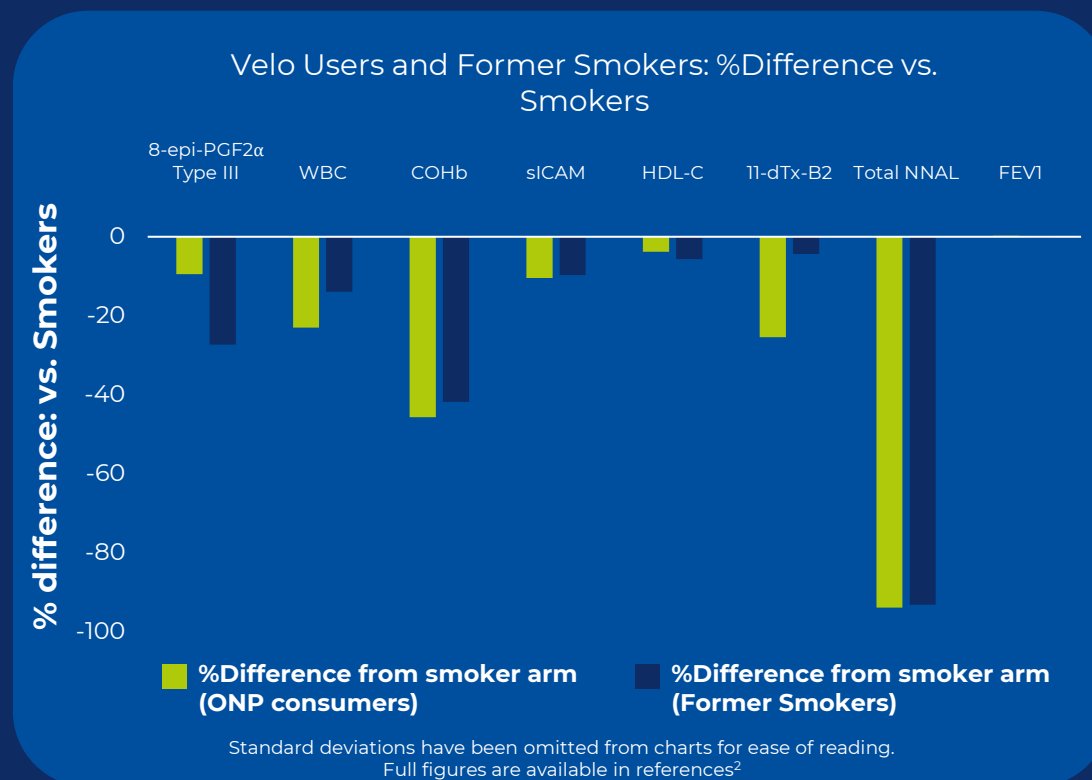
ONPs CLINICAL BIOMARKERS SIMILAR TO FORMER SMOKERS

Biomarkers of Exposure



ONP consumer's exposure reduction similar to former smokers on average^{1,2}

Biomarkers of Potential Harm



Smokers who switch completely to ONPs have favourable changes in these BoPH – with some comparable to former smokers²

¹Average of 7 biomarkers of exposure related to smoking related diseases. ²Azzopardi, D., et al., 2022. DOI: 10.1080/1354750X.2022.2148747.



THE SWEDISH EXPERIENCE



5.4%



-35%



3x



3.5M

Smoking prevalence in Sweden is approaching the **WHO's definition of a non-smoking nation** ($\leq 5\%$)

Statistics Sweden, ages 16 - 84 years. Folkhälsomyndigheten, Tobacco and nicotine use (self-reported) by age, sex and year. Percentage. (Accessed: 29 July 2024)

Swedish mortality rate* (21 per 100,000) is **35% lower than the EU average** (32.8 per 100,000))

WHO & IARC. Available at: <https://gco.iarc.who.int/today/en> (Accessed: 04APR2025)

Swedish epidemiological data shows switching from cigarette smoking to snus use are at 3x lower risk for oral cancer

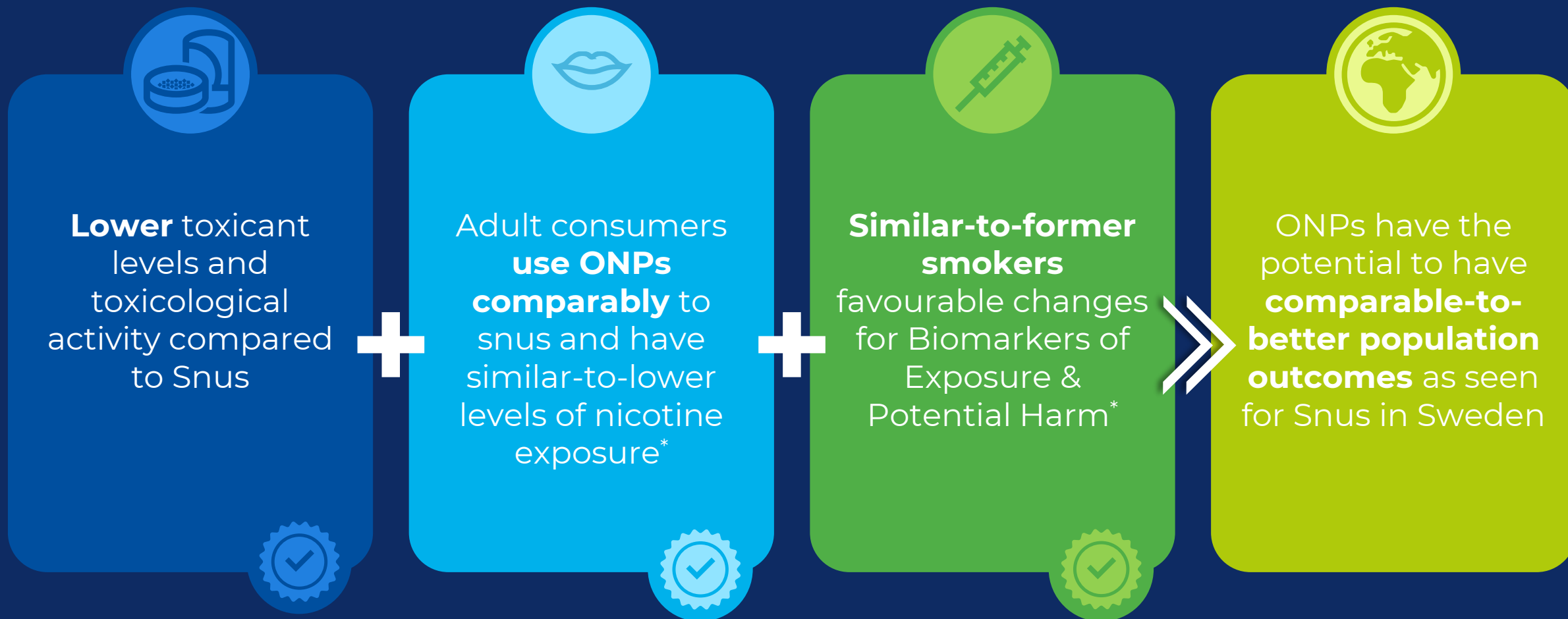
Schildt EB, et al. 1998. Oral snuff, smoking habits and alcohol consumption in relation to oral cancer in a Swedish case-control study. Int. J. Cancer 77, 341-346.

Estimated that if Swedish tobacco-related mortality rates could be applied in other countries, **more than 3.5M lives could be saved** in the EU over the next 10 years

www.smokefreesweden.org (Report: SAVING LIVES LIKE SWEDEN 02082023 WEB & Report: The Swedish Experience EN)

* Age-Standardized Rate (ASR) per 100,000 in 2022 for lip, oral cavity, trachea, bronchus and lung cancer, dataset inc both sexes

POPULATION OUTCOMES: POTENTIAL OF ONPs



*Based on the weight of evidence and assuming a complete switch from cigarette smoking. These products are not risk free and are addictive.

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Review the evidence...
join the conversation

