



Reduction in Biomarkers of Exposure Following Short-Term Switching From Cigarettes to Velo Nicotine Pouches in Adult Smokers

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Background

Combustible cigarette smoking remains a leading cause of preventable diseases, largely due to exposure to harmful toxicants formed during tobacco combustion.

Oral nicotine pouches, which deliver nicotine but do not contain tobacco leaf and are not combusted when used, present a reduced-exposure alternative product for adult smokers as compared to continued smoking.

This study was designed to assess changes in Biomarkers of Exposure to certain tobacco- and tobacco smoke toxicants when smokers switch to exclusive use of one of five Velo nicotine pouch products.

The Velo Nicotine Pouch



Velo Pouch	
Nicotine Levels	▪ 4 mg ▪ 8 mg ▪ 10 mg ▪ 12 mg
Pouch Size (total pouch weight)	▪ Slim: 600 mg ▪ Mini: 400 mg
Nicotine Grade	▪ Tobacco-derived pharmaceutical-grade nicotine
Pouch Ingredients	▪ Powdered mix of cellulose, water, flavor concentrate, and other ingredients ▪ 20 Velo Pouch per container



Study Design



Biomarkers of Exposure Endpoints

To quantitatively assess changes in biomarker of exposure (BoE) endpoints in cigarette smokers switched exclusively to Velo Investigational Products (IP) use compared to continued usual brand (UB) cigarette smoking over a 5-day in-clinic period

BoE	Matrix	Associated Toxicant
NNAL	Urine	NNK
NNN	Blood	NNN
Total NNN	Urine	NNN
S-PMA	Urine	Benzene
MHBMA	Urine	1,3-butadiene
3-HPMA	Urine	Acrolein
4-ABP	Urine	4-ABP
1-AN	Urine	1-AN

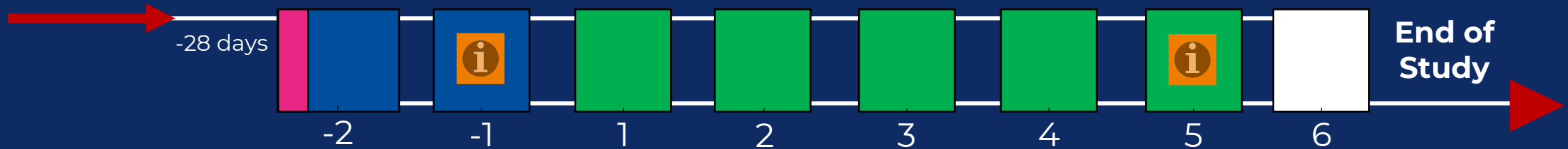
BoE	Matrix	Associated Toxicant
2-AN	Urine	2-AN
HMPMA	Urine	Crotonaldehyde
CEMA	Urine	Acrylonitrile
3-OH-B[a]P	Urine	Benzo[a]pyrene
1-OHP	Urine	Pyrene
T-Neq*	Urine	Nicotine
COHb	Blood	Carbon monoxide

Validated methods for measurement of BoE have been established, and consistent differences have been demonstrated between smokers and non-tobacco users

*Total Nicotine Equivalents: molar sum of nicotine, cotinine, 3-hydroxycotinine and their glucuronides

Study Design

Screening Visit



-  Trial Period (Velo Mini Pouch Cool Mint, 8 mg; Velo Pouch Smooth, 10 mg; Velo Pouch Cool Mint, 12 mg)
-  Velo Pouch IP Use (Groups 1-5); UB Cigarette Smoking (Group 7)
-  UB Cigarette Smoking (All Groups)
-  24-hour urine collection; Blood Collection

Post-randomization on Day 1:

- Groups 1-5: *ad libitum* assigned Velo use + three required use periods per day (~11:00 a.m., 3:00 p.m., and 7:00 p.m.)
- Group 6: no tobacco- or nicotine-containing product use
- Group 7: *ad libitum* UB cigarette smoking + three required use periods per day (~11:00 a.m., 3:00 p.m., and 7:00 p.m.)

Study Design: Products and Key IE Criteria

Group 1	Velo Mini Cool Mint - 4 mg nicotine
Group 2	Velo Mini Cool Mint - 8 mg nicotine
Group 3	Velo Mini Pouch Smooth - 8 mg nicotine
Group 4	Velo Pouch Smooth - 10 mg nicotine
Group 5	Velo Pouch Cool Mint - 12 mg nicotine
Group 6	Tobacco and Nicotine Product (TNP) Abstinence
Group 7	Continued UB Cigarette Smoking

Key Inclusion/Exclusion Criteria:

- 21-60 years of age, smoke an average of 10 cigarettes per day for at least 6 months;
- Females who were pregnant, breastfeeding or intended to become pregnant during the study were excluded



Results



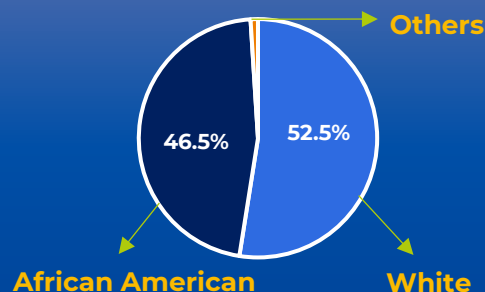
Demographic Results

Gender Distribution



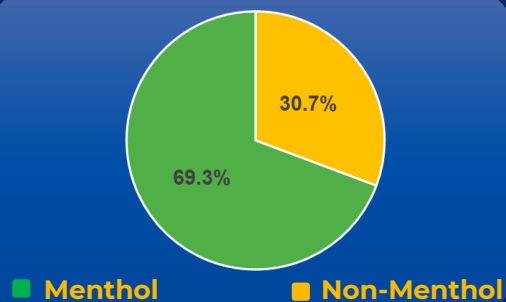
60.4% Male 39.6% Female

Race Distribution



Average 37.9 years

Age

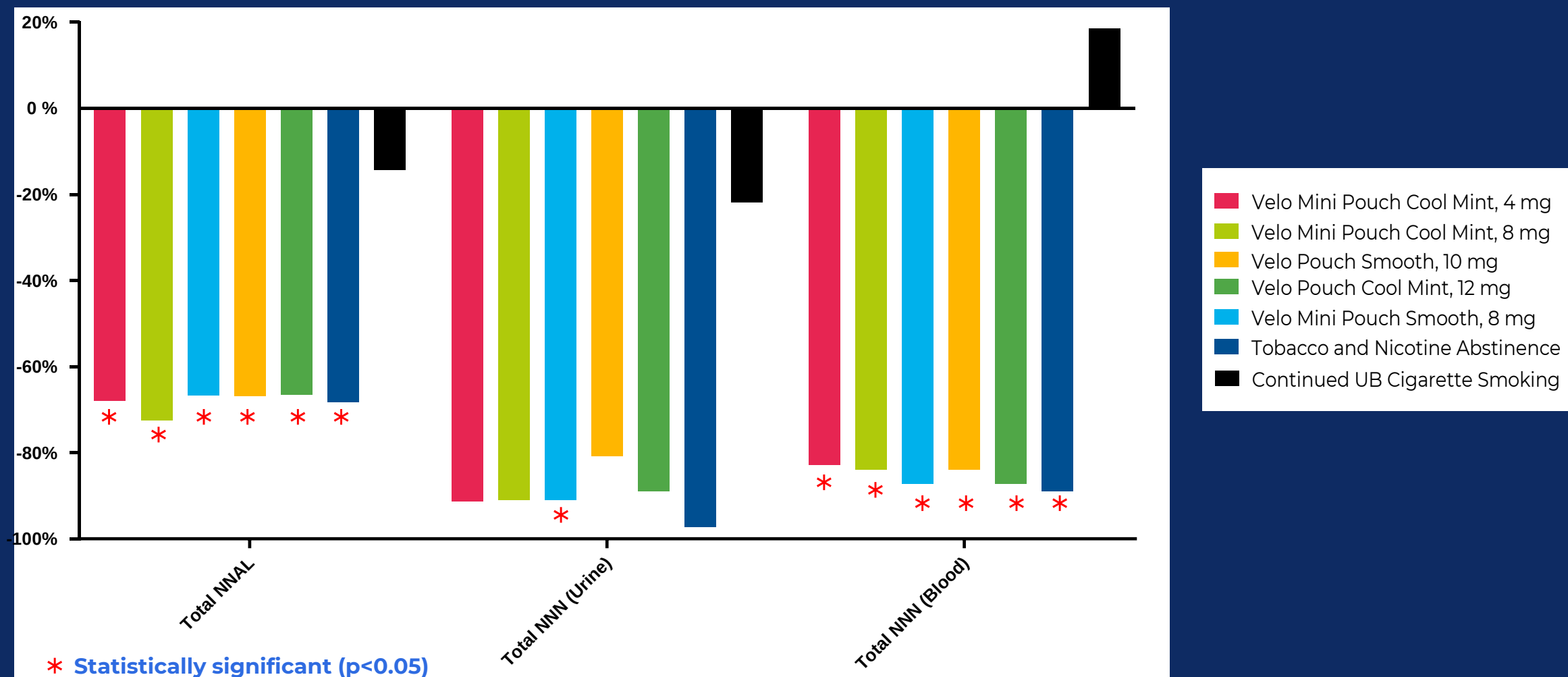


Usual Brand Cigarette

- Majority of participants were male
- Roughly equal number of African American/Black and White participants
- Average age ~40 years
- Majority of participants were Menthol UB Cigarette Smokers

Completed subjects (N = 194)

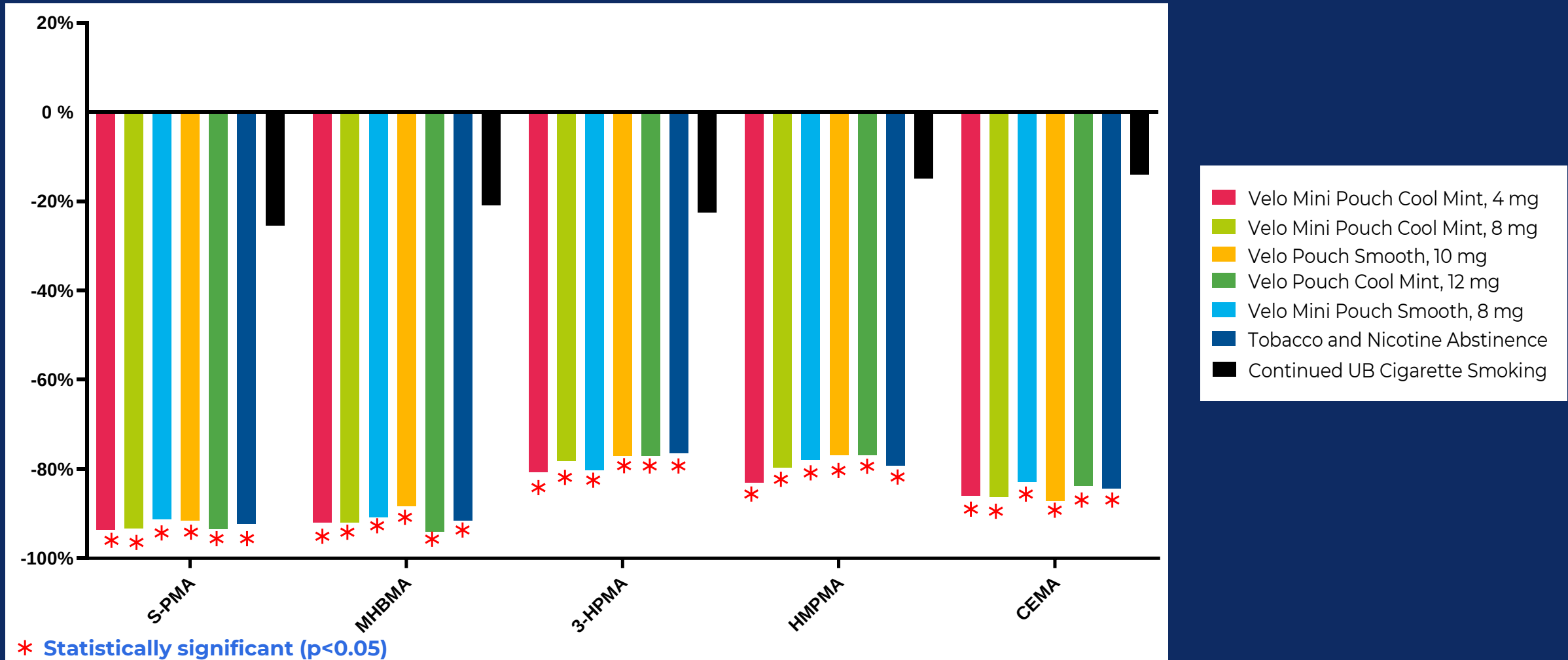
Median % Change from Baseline: NNAL and NNN



Data are for the per-protocol population.

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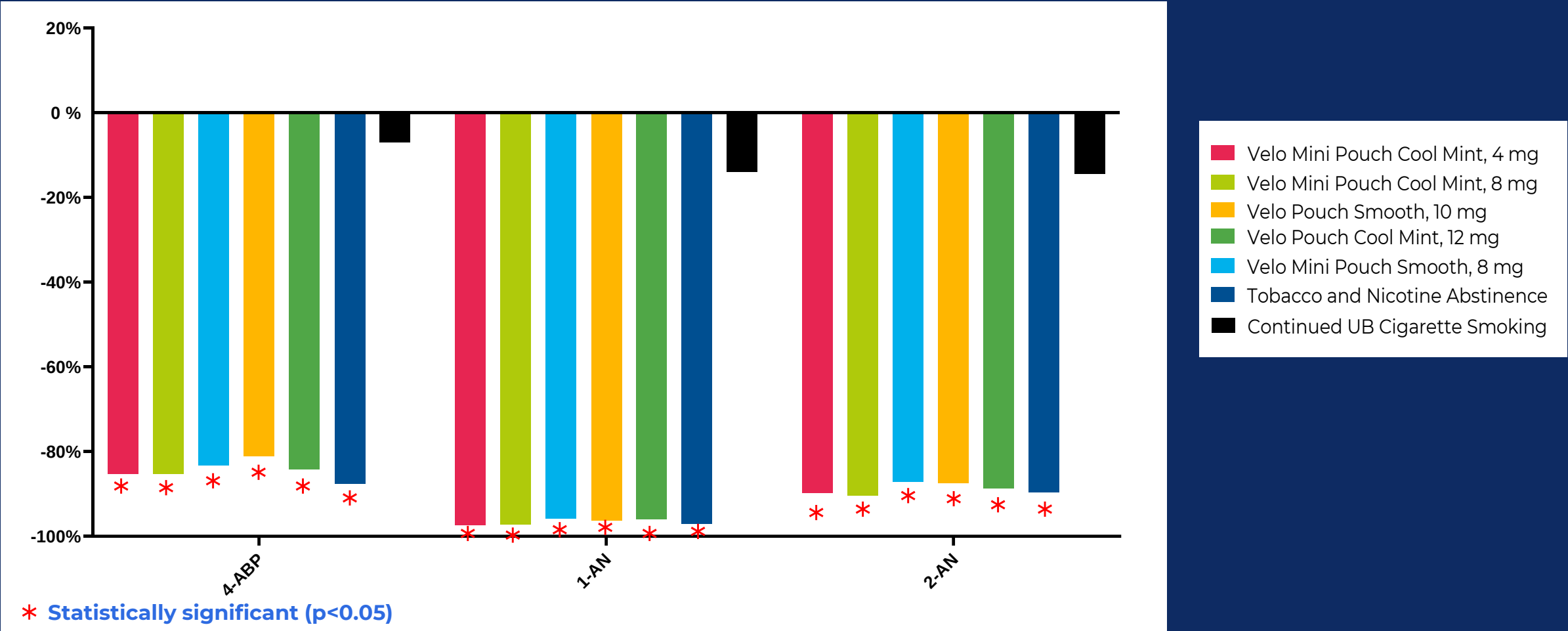
Median % Change from Baseline : VOCs



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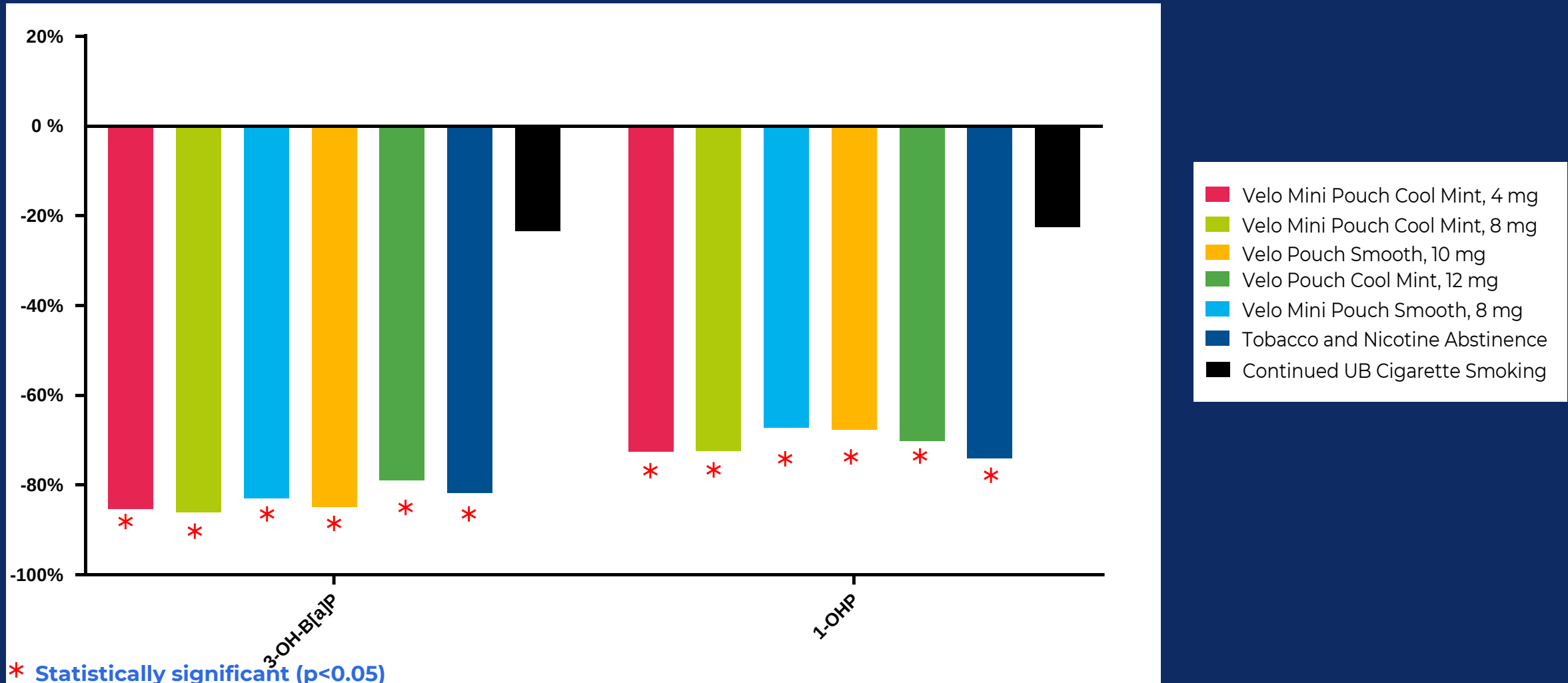
Median % Change from Baseline: Aromatic Amines



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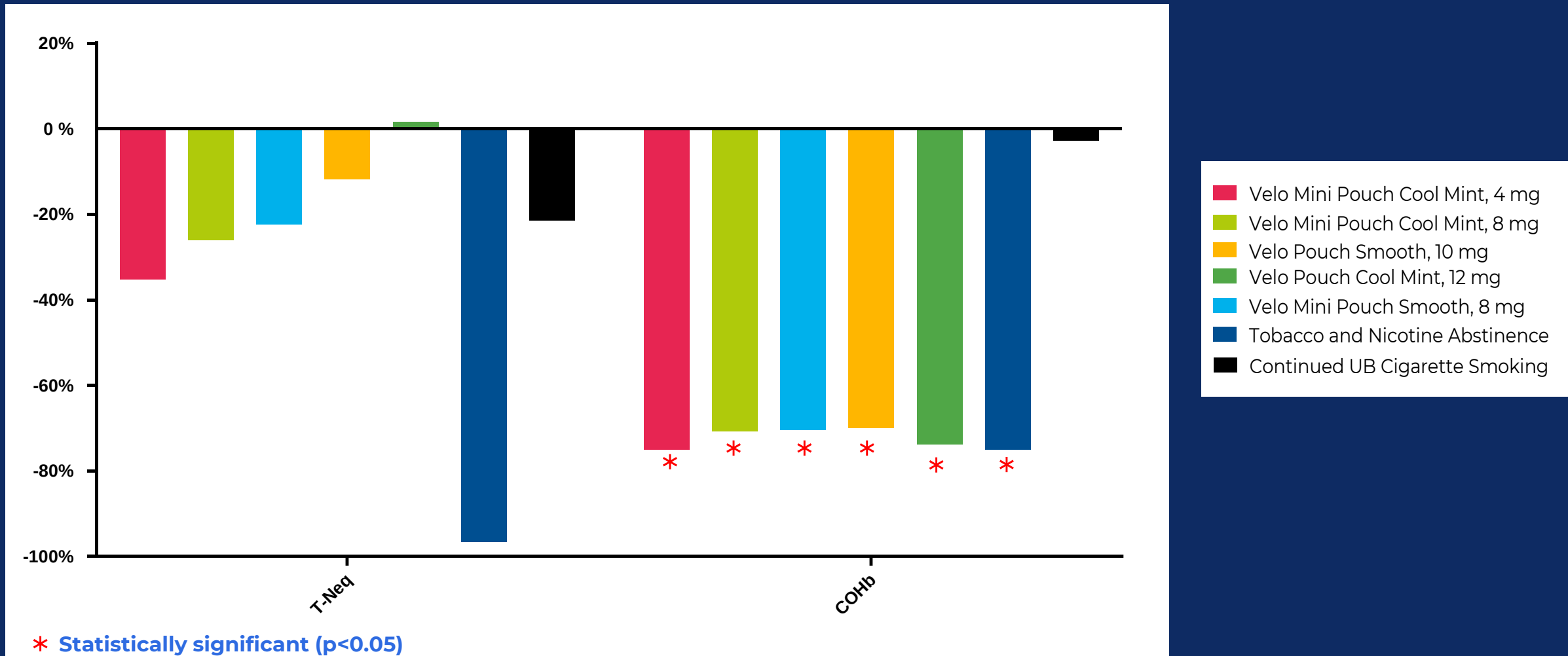
Median % Change from Baseline: PAHs



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Median % Change from Baseline: T-Neq and COHb



Data are for the per-protocol population.

Additional Findings



Investigational Product Use Behavior

- Across all Velo IPs, subjects used on average 6-8 per day
- Subjects used Velo IPs for approximately 30-34 minutes



Safety Results

- A total of 32 subjects (15.8%) reported an Adverse Event (“AE”) during the study—10 subjects (5.0%) prior to randomization and 22 subjects (10.9%) after randomization
- Most frequent AE reported: Headache
- Most AEs were mild in severity and resolved by end of study

Summary and Conclusion

- 1 Among the five Velo IP user groups, BoE significantly reduced compared to continued use of UB cigarettes
- 2 Participants generally tolerated the Velo IPs well during the study
- 3 As expected, Nicotine exposure (T-Neq) was maintained among subjects who continued smoking, as well as those in Velo groups
- 4 Switching completely to Velo IPs significantly lower toxicant exposure, supporting its potential as a reduced-risk alternative to smoking

Thank you!