Supplement 1. The Menthol SAVM Model

Calibration of the NVP Model

A previous version of SAVM had been shown to validate well overall,[25] but underestimated the decline in smoking rates at younger ages. Due to the importance of these age groups to future smoking rates, we recalibrated model parameters against 2013-2018 NHIS data. Because NHIS and SAVM begin in 2013 with different prevalence levels, we employ the relative change in smoking prevalence [(2018 prevalence -2013 prevalence)/2013 prevalence] to re-calibrate the models. We also compare model predictions to confidence intervals (CIs) from the 2018 NHIS.

Based on comparison of relative changes and confidence intervals, we adjusted the parameters of model until the model predictions were within 10% of the survey estimates for 2018. In our final calibration, we reduced the initiation rate of those below age 24 by 40% and the switching rate at ages 18-24 was doubled for those below ages 18 in order to calibrate smoking at younger ages. We also reduced the cessation rate by 20% except females ages 25-54 (reduced 10%) to better predict smoking at older ages. To account for the potential reduction in the percent of smokers who switch to NVP (e.g., as those most attracted to NVPs have already switched and technological advance slows), switching rates were reduced by 10% annually starting in 2018 at all ages.

The predictions from the re-calibrated SAVM are compared to the NHIS in Table 1. From 2013 to 2018, adult smoking prevalence for males falls from 21.4% to 16.6%, compared reductions of 20.3% to 15.8% (15.0%-16.6%) from NHIS, and for females from 15.9% in 2013 to 12.5% in 2018 compared with 15.4% to 12% from NHIS. While SAVM prevalence is above

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NHIS for both males and females, the prevalence in relative terms declines by 22.4% for males compared to 22.2% from NHIS, and by 21.4% for females compared to 22.1% from NHIS. While discrepancies in relative reductions were greater for some age groups (i.e., males ages 18-24, females ages 45-64 and males and females above age 65), the 2018 predictions were within NHIS CIs except for males and females ages 25-44.

In the calibrated model, male smoking prevalence declines from 16.6% in 2018 to 7.5% in 2040 and 5.7% in 2060, while female prevalence declines from 12.5% in 2018 to 6.0% in 2040 and 4.5% in 2060. Much of the reduction results from the reduced initiation rates.

The age 18 and above NVP prevalence increases from 3.1% in 2018 to 7.1% in 2060 for males, and from 1.9% in 2018 to 4.6% in 2060 for females. The NVP rates increase from ages 18-24 to 25-44 and then decline with age.

Menthol Model

Background

According to a recent study, approximately 40% of US smokers prefer menthol over non-menthol cigarettes.[2] According to 2004-2010 data from the National Surveys on Drug Use and Health (NSDUH),[3] the proportion of menthol smokers is higher among youth (ages 12-17 years) and young adult (ages 18-25 years) smokers (56.7% and 45.0% respectively, vs. 30.5%-34.7% among older age groups); among women (39.6% vs. 31.4% among men); and among African Americans (88.5% vs. 25.7% among Caucasians). Similar results were reported by Villanti et al.[2] extending to later years and by Mattingly et al.[4] using the NHIS. In the latter study, proportion of menthol smokers in 2015 was 28% for males and 37% for females, and by age group: 18-24 (35-44%), 25-34 (40%), 35-54 (29%) and 55+ (27%).

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For the percent menthol and non-menthol smokers among smokers in the base year (2013), we also examine data from the Population Assessment of Tobacco and Health (PATH) in wave 3 (2015/16) and 4 (2016/17) and the Tobacco Use Supplement to the Current Population Survey (TUS-CPS) in 2018/19. Both PATH and TUS-CPS measured current smokers by those who smoked ≥100 cigarettes in their lifetime and now smoke cigarettes every day or some days. Among those current smokers, menthol and non-menthol smokers were defined by those who regularly smoked each type. Those current smokers missing menthol use information were classified as unknown current smokers, accounting for 3%-7% by age group and gender, and are excluded in estimating the proportion of menthol and non-menthol smokers, as shown in Table S1.1.

In PATH wave 4, menthol smokers accounted for 38.9% of all smokers age 18+ (36.1% among males and 42.2% among females). Distinguishing by age, menthol smokers accounted for 65.1% among those age 15-17, 46.2% among those age 18-24, 48.7% among those age 25-34, 35.3% among those age 35-54, and 32.5% among those age 55+. The menthol smoking prevalence was higher among females than males and increased with age from 18-24 to 25-34 and then declined with age. The percentage change in proportion of menthol smokers between Wave 3 and Wave 4 is less than 1% (38.3% vs. 38.9%) overall as well as by gender and age. We also considered PATH Waves 1 and 2 (2013/14 and 2014/15) by age and did not find major differences.

In TUS-CPS 2018/19, menthol smokers accounted for 29.4% among male smokers age 18+ and 38.8% among female smokers age 18+. By age, menthol smokers accounted for 35.3% among males age 18-24 and 44.1% among females age 18-24, 36.1% among males age 25-34 and

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52.8% among females age 25-34, 31.9% among males age 35-44 and 37.9% among females age 35-44, 25.4% among males age 45-64 and 34.9% among females age 45-64, and 23.6% among males age 65+ and 31.5% among females age 65+. We also considered the TUS-CPS 2014/15 and found similar patterns, but the TUS-CPS 2018/19 at each age were still below, but closer to the PATH wave 3 and wave 4 estimates. We also considered the 2012 and 2018 NSDUH. Different from the PATH and TUS-CPS (regular use), NSDUH measured menthol smokers by those current who smoked menthol cigarettes in the past 30 days. In 2018, menthol smokers accounted for 38.9% of all smokes age 18+ (35.1% for males and 43.5% for females). The 2018 NSDUH estimates were generally below, but closer to PATH waves 3 and 4 than the TUS-CPS.

We also considered studies of recent trends in menthol vs. non-menthol use. Although the prevalence of non-menthol cigarette use is decreasing, the prevalence of menthol cigarette use has either increased or remained unchanged.[2, 3, 5] Data from the NSDUH showed that the prevalence of menthol cigarette use stayed constant from 2004 to 2010 among adults aged 26+ years but increased among adults aged 18-25 from 14.0% to 16.3%.[3] Similar increases were observed in a later study.[2] Among past-30 day cigarette smokers, the proportion of menthol cigarette use increased between 2004 and 2014 for ages 12-17 (42% to 53%), ages 18-25 (32% to 51%) and age 26+ (29% to 37%).[2] Most of the increase was between 2004 and 2010, although a reduction from 55% to 53% was observed for ages 12-17 from 2010-2014.[2] Mattingly et al.[4] found that the prevalence of non-menthol cigarette use generally fell by gender and age in 2005-2010 and 2010-2015 using NHIS. However, menthol use increased between 2005 and 2010, but fell during 2010 to 2015. These latter reductions were most prominent among males and those ages 18-24 and 25-34. Our calculations using Matting et al. estimates indicated increases from 2005 to 2015 in the

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proportion of smokers using menthol by males (21.5% to 28%), females (32% to 36.5%), ages 18-24 (30.5% to 35.5%), 25-34 (24% to 40%), 35-54 (27% to 29%) and 55+ (23% to 27%), with generally stable trends from 2010 to 2015 except among those 18-24 (from 44% to 35.5%).

In general, while non-menthol use has clearly fallen in the last 15 years, menthol use appears to have been relatively stable, and thus making up a larger percent of overall cigarette use. These tendencies are most pronounced among younger smokers, except possibly for those ages 18-24 from 2010-2015 in NHIS. Most apparent is the increase among those ages 25-34, ages when regular use is often established. The relative increase in menthol use is also confirmed by Delnevo et al.[6] They examined consumption data (reflecting quantity and prevalence) and found that since 2009 (at the time of the Tobacco Control Act), menthol cigarette sales increased from 25.9% in 2010 to 35.4% of the cigarette market in 2018.

We also examined recent trends in the proportion menthol use from the PATH, TUS-CPS and NSDUH surveys. Between 2013/4 and 2016/7, PATH had an increase from 35% for males and 40% for females to 36% for males and 42% for females. The TUS-CPS had larger increases from 2010/11 to 2014/5 compared to 2014/5 to 2018/9. The largest increases were for those age 25-34 (45% to 49%) and 35-54 (32% to 35%). According to NSDUH, the proportion of menthol use rose slightly from 33.5% male and 42% female in 2013 to 35% male and 43.5% female in 2018. Notably, the largest 2013-2018 increase was among those ages 25-34 (44% to 48%) and 35-49 (31% to 38%). Thus, trends show increases in the use of menthol relative to non-menthol smoking, with the largest increase among those ages 25-34. These results suggest that initiation rates have been increasing and cessation rates have been declining among menthol relative to non-menthol smokers.

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A recent review by Villanti et al.[7] finds that smoking initiation often occurs with menthol use and that those initiating menthol smoking often progress to more established levels of either menthol or switching to non-menthol smoking. This latter result suggests the need to gauge initiation into regular use. They also note the increase in the proportion of menthol use over time by youth and young adults. These results are consistent with our review of levels and trends in menthol use in the relevant age groups.

A large literature also examines whether smoking cessation rates differ between menthol and non-menthol smokers. While most studies indicate some difference, the results are mixed regarding whether the differences are significant. Four earlier reviews have summarized findings across a heterogeneous literature and concluded that, despite mixed evidence, menthol cigarette use is probably associated with a lower likelihood of   smoking   cessation.[7-10] A recent meta-analysis[11] did not obtain a significant association between menthol use and cessation; however, menthol users were significantly less likely to quit among African American smokers (OR = 0.88). A recent study[12] using PATH (2013/4-2016/7) found that daily menthol smokers were less likely to quit compared to non-menthol smokers (OR=0.76 [0.63, 0.91]), but no differences was found for non-daily smokers nor in relapse rates. Schneller et al[13] found no significant differences after adjusting for sociodemographic characteristics in the longitudinal association menthol status and smoking cessation over two one-year intervals (PATH Waves 1 and 2). Cook et al. (2020, unpublished study) found menthol smokers generally had a lower likelihood of having quit smoking (OR =0.8). Two studies[14, 15] also found indications of higher levels of dependence among menthol compared to non-menthol smokers, as discussed also by Villanti et al.[7] We also considered PATH data Waves 1-4, and found that cessation rates were similar for

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males and females, but that cessation rates among menthol smokers were about 80% that of non-menthol smokers for ages 25 and above, although were below those of menthol smokers for those ages 18-24 (11% vs. 8.6%). Table S1.2 shows cessation rates from PATH for waves 1-4, where cessation is measure as those who were established smokers (smoked 100 cigarettes lifetime) but now quit smoking. Both by gender and age except for those ages 18-24, cessation rates are less, generally at 80%, for menthol compared to non-menthol smokers. In general, studies show, but not uniformly that cessation rates are lower among menthol than non-menthol smokers. Lower cessation rates or increased initiation rates among menthol smokers may explain the relative increase in menthol use among smokers.

The recent increase in NVP use may differentially affect menthol and non-menthol smokers. Usidame et al. (2020, unpub. study) considered dual use of NVPs by menthol and non-menthol smokers using the four waves of PATH, NHIS 2015 and TUS-CPS 2014/15. They generally found similar although slightly higher dual use among menthol smokers compared to non-menthol smokers by gender and age. These results suggest that menthol smokers are more likely to use menthol NVPs, but incorporate the potential impact of that use on cessation from smoking (into NVPs or into use of neither product). Cook et al. (2020, unpublished study) found menthol smokers had a higher likelihood of having quit smoking when using e-cigarettes (OR=1.3 to 1.45). Thus, while information is currently limited, there is some indication that menthol smokers may be more attracted to NVPs and have greater success quitting with their use.

The Development of the Menthol Status Quo SAVM

As in our pre-Menthol model, we initialize the level of menthol use in the beginning model year (2013). Using the PATH data, we distinguish smokers of menthol (who regularly smoke a

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brand that is flavored to taste like menthol) from non-menthol (those regularly smoking nonmenthol) smokers by age and gender. The menthol proportions by age and gender in 2013 are estimated as a product of the ratio of the PATH 2103/14 to 2016/17 menthol proportions by gender (males: 96.0%; females: 95.0%) and the PATH 2016/17 menthol proportions by age and gender (Table S1.3).

We applied a linear interpolation method to smooth the menthol proportions for ages 21-82 for single ages. The menthol proportions for ages under 21 were set equal to 34.7% for males and 40.1% for females, and for ages 83 and above to 26.8% for males and 34.3% for females in 2013. We maintain the same NVP initiation rates as in the previously calibrated model. We then apply rates of menthol/non-menthol initiation, cessation and switching to NVP use to project menthol and non-menthol smoking prevalence forward.

We begin with the initiation rates by age, period, and cohort using the Cancer Intervention and Surveillance Modeling Network (CISNET) data developed by Holford, which is based on NHIS data through 2013. We distinguish the overall smoking initiation rates (2013 level) into menthol and non-menthol smokers simply in terms of the menthol smoking proportion (MP) among all smokers. We focus on an age group when most initiation has already taken place. As described in our literature review and data analysis above, the proportion of menthol use increases through the age 25-34 age group. To keep the model tractable and because it is the rate of menthol use once smoking habits have been established that is relevant to health outcomes, we simply apply the menthol proportion at age 30, MP_{30} (40.2% males; 49.7% for females) to the overall smoking initiation parameter by age and gender, so that at age a in year t:

Menthol initiation rate$_a$ = MP_{30} * overall smoking initiation rate$_a$

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$$\text{Non-menthol initiation rate}_a = (1\text{-}MP_{30}) * \text{overall smoking initiation rate}_a$$

This method allows for smoking to increase by age and gender based on the initiation rates of smokers in our pre-menthol model, implying that the progression in initiation is the same for menthol and non-menthol smokers. While this method does not explicitly model differences in the trajectories of menthol and non-menthol prior to age 30, it implicitly allows for initiation as well as switching between menthol and non-menthol and abstracts from the need to model transitions from experimental to regular, more long-term use.

While our method does not incorporate initiation by menthol status after age 30, most initiation takes place by age 30. According to 2013 version of CISNET initiation rates, at most 0.3% of males and 0.2% of females never smokers initiate after age 30. Our method for incorporating menthol initiation does not explicitly consider switching between regular menthol and non-menthol use after age 30, but most switching occurs by age 30. Using the four waves of PATH (2013/14- 2016/17), we found that 5% or less of menthol smokers switch to non-menthol smokers or vice versa between the ages of 35 and 54 within 2 years, with a net switching rate of less than 3%. By age 30, most initiation is also expected to reflect more established than experimental use.

A limitation of incorporating a constant proportion of menthol smokers is that it does not incorporate variations over time as reflected in trends. Because our literature review and data analyses indicated an upward trend in the proportion of menthol use of those ages 25-34, we apply the last available year of the PATH (2016/17), which shows the highest proportion of age 25-34 menthol use for both males and females. That rate is also the highest of the surveys considered. The menthol proportion used to estimate the menthol and non-menthol initiation is 45.2% for

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males and 53.7% for females, which is a constant proportion for all ages over years. We note that initiation into NVP use is maintained as NVP initiation (before ban) = overall smoking initiation * 0.5 for all ages and both genders.

We adopt a method allows for variation in the cessation rates, and allows for the same cessation rates as a special case. Let CR = menthol cessation rate/non-menthol cessation rate assumed constant across gender, age and time, cess rate = cessation rate, and $MP_{a,t}$ = the menthol proportion. We apply the following equation:

Overall cessation rate$_a$ =(MP$_a$*CR* non-menthol cess rate$_a$)+((1-MP$_a$) *non-menthol cess rate$_a$)

$$= (MP_a * CR_a + 1\text{-}MP_a) * \text{non-menthol cess rate}_{a,}$$

It follows that:

Non-menthol cessation rate$_a$ = overall cessation rate$_a$ / (MP$_a$ * CR$_a$ +1- MP$_a$)

Menthol cessation rate$_a$ = non-menthol cessation rate$_a$ * CR$_a$

The overall cessation rates used in the menthol model are the overall smoking cessation rates in the SAVM NVP Scenario, which were estimated by smoking cessation multipliers (as we described in our calibrated model) and 2013 version of CISNET cessation rates (in the absence of NVP use). The menthol and non-menthol cessation rates vary with the cessation rates in the Pre-menthol model, and are distinguished by age and gender. These rates begin as early as age 15. With the cessation rate of menthol smokers lower than for non-menthol smokers, the rate of decline will be lower among menthol than non-menthol smokers and the proportion of menthol smokers will increase with age.

The SAVM applies gender- and age-specific rates of current and former smoker death rates. Based on the available evidence and to simplify the model, SAVM does not distinguish

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deaths rates for menthol and non-menthol current smokers. Former smokers are not distinguished

between those who were former menthol and non-menthol smokers, and thus former smoker death

rates are not distinguished.

The model maintains the same NVP cessation, i.e., NVP cessation (pre-ban) = overall

smoking cessation. Additional cessation from smoking can implicitly occur through the switching

rate from menthol or non-menthol cigarette use to NVPs as discussed in the next section.

To allow for different menthol and non-menthol switching rates from smoking to NVP use,

the ratio of menthol and non-menthol switching rates (SR) is applied, rather than the separate

menthol and non-menthol switching rates. Allowing the switching rate to decline at a annual rate

δ, the formulas for switching rates at age a and year t are:

Non-menthol switching rate$_{a,t}$ = overall switching rate$_a$ * $(1-\delta)$^$(t- t_o)$ / ($MP_{a,t}$* SR_a + (1-

$MP_{a,t}$)), where t_o is designated as 2018;

Menthol switching rate$_{a,t}$ = non-menthol switching rate$_{a,t}$* SR

Smokers, whether using menthol or non-menthol, who switch to NVP use are assumed to

permanently switch, i.e., they do not switch back. However, they may quit NVPs by NVP

cessation rates, assumed to be at the same rate as for the overall smoking cessation rates in the

2013 version of CISNET data.

Based on the analysis by Cook et al., we consider differential switching rates of 0.9 to 1

for menthol to non-menthol smokers. When SR is 100%, and the menthol and non-menthol

switching annual decline rates are same, then above two methods for menthol and non-menthol

switching have the same estimates (i.e. menthol switching rates = non-menthol switching rates =

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overall switching rates). We conduct a sensitivity analysis for different levels of switching and rate of decline parameters. The revised model is shown in Figure S1.1.

Validation of the Menthol Model

We first validated the Menthol Status Quo Model (MSQM) against the Pre-menthol model (PMM) in steps, by comparing whether the menthol and non-menthol smoking prevalence in model by age and gender is consistent with the previous pre-menthol model, i.e., sum of menthol and non-menthol smoking prevalence in MSQM= smoking prevalence in the PMM. The overall smoking prevalence (the sum of menthol and non-menthol prevalence) by age and gender in the Menthol Status Quo Model (MSQM) and the Pre-menthol model (PMM) were same during 2013-2060. The overall vaping prevalence (the sum of exclusive NVP use and former smokers who use NVPs) in two models were also the same.

With CR=0.8 and SR=0.9, the male (female) menthol prevalence for ages 18 and above falls to 6.6% (5.7%) in 2018 (relative reduction of 20.0% (18.4%) from 2013), while the non-menthol prevalence falls to 10.1% (6.8%) in 2018 (relative reduction of 23.7% (23.4%) from 2013). For ages 18-24, the male (female) menthol prevalence falls to 3.5% (3.2%) in 2018 (relative reduction of 50.1% (48.4%)), while the non-menthol prevalence falls to 5.8% (3.9%) in 2018 (relative reduction of 55.2% (55.4%)). For ages 25-44, the menthol prevalence falls to 8.9% (8.3%) in 2018 (relative reduction of 20.5% (18.0%)), while the non-menthol prevalence falls to 13.2% (8.9%) in 2018 (relative reduction of 18.4% (15.5%)). For ages 45-64, the menthol prevalence falls to 6.9% (6.1%) in 2018 (relative reduction of 11.6% (8.5%)), while the non-menthol prevalence falls to 9.9% (7.5%) in 2018 (relative reduction of 20.7% (21.3%)). For ages 65 and above, the menthol prevalence falls to 3.8% (2.6%) in 2018 (relative reduction of 0.9%

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(10.1%)), while the non-menthol prevalence falls to 7.3% (4.3%) in 2018 (relative reduction of 12.9% (18.3%)).

We also considered future trends. Between 2018-2060, the proportion of male (female) menthol smokers increases from 39.7% (45.6%) to 43.1% (52.6%) for ages 18 and above, from 37.9% (44.8%) to 40.7% (50.1%) for ages 18-24, from 40.3% (48.3%) to 41.8% (51.3%) for ages 25-44, from 41.0% (44.8%) to 44.3% (53.9%) for ages 45-64, and from 34.5% (38.3%) to 46.4% (55.3%) for ages 65 and above.

We also check for different levels of the ratio of menthol and non-menthol cessation or switching rates. In all cases, sensitivity analysis show that these changes did not affect the model predictions of overall smoking or vaping prevalence. There were differences in the degree to which menthol prevalence increased over time relative to non-menthol prevalence, but, in all cases, there was an increase over time in the proportion of smokers that smoke menthol cigarettes. These results are consistent with recent studies and the data presented above.

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Table S1.1. Proportion of Menthol and Non-Menthol Smokers among Smokers in PATH Wave 3 & 4 and TUS 2018-19

		PATH				TUS		Approximate proportion across surveys	
		Wave 3 (N=28,123)		Wave 4 (N=33,611)		2018-2019 (N=136,638)			
		% menthol	% non-menthol	% menthol	% non-menthol	% menthol	% non-menthol	% menthol	% non-menthol
Male	**18-24**	41.0%	59.0%	41.9%	58.1%	35.3%	64.7%	40%	60%
	25-34	44.8%	55.2%	45.2%	54.8%	36.1%	63.9%	45%	55%
	35-44	36.5%	63.5%	39.8%	60.3%	31.9%	68.1%	35%	65%
	45-64	29.5%	70.5%	28.0%	72.0%	25.4%	74.6%	28%	72%
	65+	24.1%	75.9%	25.1%	74.9%	23.7%	76.3%	24%	76%
Female	**18-24**	53.3%	46.7%	52.4%	47.6%	44.1%	55.9%	54%	46%
	25-34	52.8%	47.2%	53.7%	46.3%	52.8%	47.2%	52%	48%
	35-44	39.5%	60.5%	41.0%	59.0%	37.9%	62.1%	40%	60%
	45-64	35.0%	65.0%	36.1%	63.9%	34.9%	65.1%	35%	65%
	65+	33.3%	66.7%	34.2%	65.8%	31.5%	68.5%	33%	67%

Note: Current smokers missing information on their menthol cigarette use are ignored from all current smokers, and the rest are either menthol or non-menthol smokers.

Table S1.2. Smoking Cessation Rates of Menthol and Non-Menthol Smokers, PATH Wave 1-4

|	Non-Menthol Smoker Cessation				Menthol Smoker Cessation				Ratio of menthol to non-menthol
	N	%	Lower bound	Upper Bound	N	%	Lower bound	Upper Bound	
Age group									
18-24	50	8.6%	6.1%	11.8%	66	11.0%	8.6%	13.8%	1.28
25-34	68	9.4%	7.0%	12.6%	52	7.4%	6.5%	9.7%	0.79
35-54	93	6.0%	4.8%	7.5%	43	4.5%	3.2%	6.2%	0.74
55+	54	7.2%	5.0%	10.2%	20	5.2%	3.3%	8.1%	0.73
Gender									
Female	128	7.4%	6.2%	8.7%	96	6.5%	5.2%	8.1%	0.88
Male	137	7.2%	5.9%	8.8%	85	6.6%	5.4%	8.1%	0.91

Notes:

(1) All estimates based on current established smokers who report past-30-day use, wave 1 N= 11,209;

(2) menthol prevalence at wave t-1 was included (e.g. wave 3 menthol for wave 4 cessation)

(3) smoking cessation was measured as 'non-current use' at follow-up who reported they 'completely quit smoking cigarettes'

(4) Upper and lower bound are based on 95% confidence intervals.

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Table S1.3. The Estimated Menthol Proportions by Age Group and Gender

Age	Male	Female	Mid-age
18-24	34.7%	40.1%	21
25-34	40.2%	49.7%	30
35-44	43.4%	51.0%	40
45-64	38.2%	39.0%	55
65-99	26.8%	34.3%	82

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Figure S1.1. Transitions between Smoking and Nicotine Vaping Products (NVPs) Use States in the Menthol Status Quo Scenario
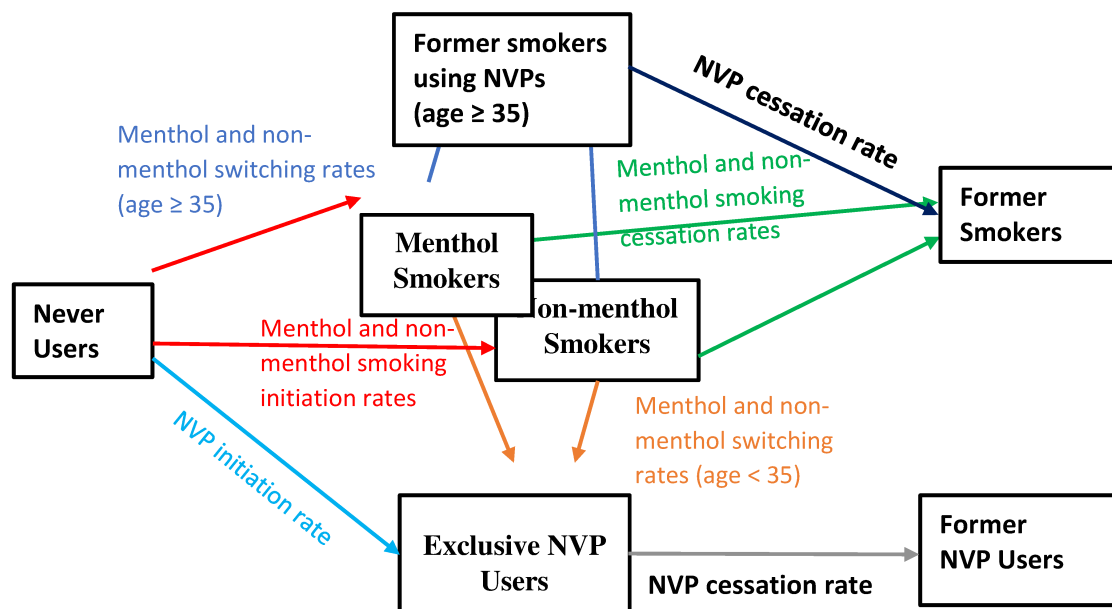
Notes:

1. The overall smoking initiation (menthol + non-menthol) in the Status Quo Scenario is 40% of the smoking initiation rates in the No-NVP Scenario, which was projected using NHIS data before 2013 when no NVP was available, for ages before 25 and 100% for ages after 25. The separation of overall initiation rates to menthol and non-menthol smokers are discussed above.
2. The NVP initiation in the NVP Scenario is 50% of the smoking initiation rates in the No-NVP Scenario for all ages.
3. The overall cessation rate for menthol and non-menthol smokers in the Status Quo Scenario is 80% of the cessation rates in the No-NVP Scenario for all ages, which was projected using NHIS data before 2013 when no NVP was available. Ninety percent of the cessation rate is assumed for females age 25-54 to improve the fitting of the model. The separation of overall cessation rate for menthol and non-menthol smokers are discussed above.
4. The cessation rate for NVP users is the same as the smoking cessation rates in the No-NVP Scenario for all ages.
5. The switching rates from male (female) smokers to NVP use before age 35 or former smokers using NVP after age 35 in the NVP Scenario is 8% (5%) for ages 10-17, 4.0% (2.5%) for ages 18-24, 2.5% (2.0%) for ages 25-34, 2.5% (1.6%) for ages 35-44, 1.3%

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(1.4%) for ages 45-54, 1.2% (1.4%) for ages 55-64, and 0.6% (1.0%) for ages 65 and above.

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