

**Assessing the Population Health Effects of Camel SNUS and Its
Proposed Marketing as a Modified-Risk Tobacco Product
Statistical Modeling Using the Dynamic Population Modeler
Execution 1 Final Report: Revised**

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Change log for Execution 1 Complete Report

Page number	Location
3	Narrative text
4	Narrative text
5	Narrative text
7	Narrative text
19	Narrative text
20	Table 2.3
24 & 25	Table 2.5
26	Table 2.6
27	Table 2.7
30	Table 2.10
32	Table 2.15
36	Narrative text
37	Table 3.1
37	Table 3.1_2
38	Table 3.1_3
38	Narrative text
39	Narrative text
39	Table 3.2
40	Narrative text
40	Table 3.3
45	Narrative text
45	Table 3.6
48	Narrative text
49	Table 3.11
59	Narrative text
60	Narrative text
61	Table 3.15
62	Narrative text
63	Narrative text
64	Narrative text

Table of Contents

Executive summary	1
1. Introduction.....	8
1.1 Rationale	8
1.2 Statistical models	9
Models based on a single birth cohort	10
Models based on a cross-section of the population.....	11
1.3 Objectives	13
2. Methods.....	14
2.1 Overview of the DPM(+1).....	14
2.2 Use of projected purchase probabilities as DPM(+1) input for transitions in tobacco exposures	17
Camel SNUS initiation.....	17
Switching to Camel SNUS use.....	19
2.3 Research questions and corresponding DPM(+1) transition probabilities.....	21
Population health effects based on combined beneficial and harmful transitions	22
Population health effects due to individual beneficial and harmful transitions.....	29
Population health effects based on ‘switching’ combined with extreme scenarios for harmful transitions	33
Population health effects based on systematically increased first age category of Camel SNUS use	35
3. Detailed description of results from the DPM(+1)-based analyses.....	35
Population health effects based on combined beneficial and harmful transitions	35
Population health effects due to individual beneficial and harmful transitions.....	44
Population health effects based on ‘switching’ combined with extreme scenarios for harmful transitions	49
Population health effects based on systematically increased first age category of Camel SNUS use	59
4. Conclusions	62

List of Appendices

Appendix A: Complete Descriptions of Transition Probabilities (by Research Question) for Replication of Analyses

Appendix B: Adjusting U.S. Smoking Initiation and Cessation Rates and Mortality Rates from the Kaiser-Permanente Cohort Study for use in the DPM(+1)

Appendix C: Methods Used for Sensitivity Analyses for the Secondary Harmful Transition 'Relapse'

Appendix D: Results from Life Expectancy (LE) and Quality-Adjusted Life Expectancy (QALE) Analyses

Appendix E: Results from Analyses of Numbers of Survivors for All Age Intervals

Appendix F: Tipping Point Extrapolations

Appendix G: Assessing the Cumulative Effects of Exposure Transitions of 'Switching', 'Diversion from Quitting' and 'Additional Initiation'

Appendix H: Tipping point analysis for women

Executive summary

Those responsible for evaluating and implementing tobacco control policies intended to reduce population harm must assess the potential for both intended and unintended consequences associated with those policies. Such assessments should be based on the combined dimensions of (1) magnitude, and thus likelihood, of shifts in exposure patterns needed to produce a population benefit or harm, and (2) magnitude of the expected population benefit or harm. The Dynamic Population Modeler, DPM(+1), was developed to address this assessment need, and employs a 'birth cohort' framework to estimate the effects on all-cause mortality, life expectancy (LE) and quality-adjusted life expectancy (QALE) if tobacco exposure patterns in a population shift from cigarettes to a lower-, or modified-risk tobacco product (MRTP) in specified ways.

The key benefit of using models such as the DPM(+1) to assess the population health effects likely to result from changes in tobacco exposure patterns is the ability to hold constant all assumptions and factors other than the distribution of exposures and/or the comparative risk estimates. Model outputs can thus be used to test hypotheses regarding the possible magnitude of benefit or harm that might follow from specified exposure distributions under conditions that are otherwise the same. Analyses based on the DPM(+1) should not be viewed as providing absolute predictions of differences in survival due to changes in exposure patterns. Instead, such analyses estimate the magnitude of behaviour change(s) that must occur in order to result in either benefit or harm to a population, and thus allow researchers and policy makers to rank the likelihood, and thus the importance for prevention, of various unintended consequences.

Alternative analytic frameworks have been suggested for assessing the population benefit or harm that may result from specified shifts in tobacco exposure patterns. In particular, some researchers have suggested models that employ a 'cross-sectional' (versus 'birth cohort') framework, whereby simulations start with a population stratified by age, gender and tobacco use status (never users, former users by years since quitting, and current users). Birth cohorts contained in the initial cross-section are followed over time (based on calendar year and age), with new members added through births and existing members removed through deaths; transitions in exposure patterns can increase or decrease the population. While such models purport to predict future smoking prevalence and mortality under the assumption that an MRTP is introduced during the follow-up period, use of a 'cross-sectional' framework to assess population health in this manner is methodologically unsound. In particular, models based on a 'cross-sectional' framework are limited by short follow-up periods. Given the decades-long induction periods for tobacco-related causes of death, it is very unlikely that the introduction of an MRTP to a population will have a sizeable impact within a short follow-up period, especially if one considers that initiation of, or switching to the new product is likely to occur throughout the follow-up period and not just in the beginning. Moreover, because estimates for the cross-sectional population are affected by survivor bias, results are not generalizable.

To address recommendations provided in the Food and Drug Administration's (FDA) draft guidance to industry for submitting an MRTP application, and in compliance with Section 911 of the Family Smoking Prevention and Tobacco Control Act (FSPTCA), RAI Services Company (RAIS) conducted a series of 'likelihood of use' studies to assess the potential population health effects of Camel SNUS and its proposed modified-risk messaging. Each execution of RAIS's 'likelihood of use' study differed in terms of the stimulus shown to study participants (U.S. adult tobacco users and non-users), including differently worded modified-risk messaging.

For the current analyses, a hypothetical population of one-million 12 year-old never tobacco users was followed from age 13 years, in 5-year intervals, through age 102 years, when the number of survivors is approximately 0 in both the base case (where population members may use cigarettes) and counterfactual scenario (which includes exposure to both cigarettes and Camel SNUS). Age-specific mortality rates for never, current and former smokers were calculated based on data from the Kaiser-Permanente Cohort

Study and 2000 U.S. Census. For current and former MRTTP users, these mortality rates were reduced based on an excess relative risk (ERR) that compares excess mortality among current and former MRTTP users to current and former cigarette smokers, respectively. ERRs of 0.08 and 0.11, used for the current analyses, were based on consensus estimates for the mortality risks associated with long-term use of a low-nitrosamine smokeless tobacco product, relative to conventional cigarettes and no tobacco use.

The base case specified transition probabilities that were based on 2009 U.S. cigarette smoking initiation rates and 2005-2008 U.S. smoking cessation rates. For the counterfactual scenarios, RAIS's 'likelihood of use' studies provided empirical data – in the form of projected purchase probabilities – that were used as 'best estimates' for Camel SNUS initiation and switching from smoking to Camel SNUS use, as well as starting points for sensitivity analyses. Cessation of Camel SNUS use was suspended (the probability of Camel SNUS cessation was set to 0), as a worst-case scenario. For transitions that were not directly assessed in RAIS's 'likelihood of use' studies, hypothetical probabilities were used. Results comparing the number of survivors in the counterfactual scenario and base case are presented for the cohort at the end of age category 68-72 years, as results after age 72 years are increasingly uninformative (the number of survivors in both the base case and counterfactual scenario approaches zero).

The DPM(+1)-based analyses described in the current report addressed three primary objectives:

1. To estimate the 'net' population health effect of changes in tobacco exposure patterns expected to result from Camel SNUS and its proposed marketing as a modified-risk tobacco product;
2. To more closely assess the influence of specific changes in tobacco exposure patterns - expected to result from Camel SNUS and its proposed modified-risk messaging - on the overall 'net' population health effect; and
3. To assess whether Camel SNUS and its proposed modified-risk messaging is likely to have a beneficial effect on population health, or at a minimum is unlikely to have an adverse effect on population health, even if unintended changes in tobacco exposure transitions are extreme.

The **first objective** was to estimate the 'net' population health effect of changes in tobacco exposure patterns expected to result from Camel SNUS and its proposed marketing as a modified-risk tobacco product. This objective was addressed by collectively examining all primary and secondary exposure transitions, intended and unintended, using population survival as a surrogate for population health. Primary exposure transitions examined for these analyses included: (1) some base case never tobacco users initiate Camel SNUS use instead of remaining never tobacco users ('additional initiation'); (2) some base case never tobacco users initiate Camel SNUS use instead of initiating cigarette smoking ('alternative initiation'); (3) some base case current smokers switch to Camel SNUS use instead of continuing to use cigarettes ('switching'); and, (4) some base case current smokers switch to Camel SNUS use instead of quitting all tobacco use ('diversion from quitting'). Probabilities for these primary transitions were based on the first execution of RAIS's 'likelihood of use' study.¹ Secondary exposure transitions included: (5) some portion of 'additional initiation' Camel SNUS users transition to cigarette smoking ('gateway effect'); (6) some portion of 'alternative initiation' Camel SNUS users transition to cigarette smoking ('delayed smoking'); (7) some portion of 'switching' Camel SNUS users resume cigarette smoking ('resumed smoking'); and, (8) some portion of 'diversion from quitting' Camel SNUS users relapse to cigarette smoking ('relapse'). These secondary transitions were not directly investigated by RAIS's 'likelihood of use' studies, and were thus modeled using hypothetical probabilities that, in many instances, represented extreme scenarios.

¹ "Camel SNUS Modified Risk Messaging: Likelihood of Use among Tobacco Users and Non-Users - *First Execution of Consumer Testing* - Amended Final Report", dated October 4, 2016. Analyses based on the other two executions of RAIS's 'likelihood of use' study, with different modified-risk messaging, are reported separately.

The 'net' population health effect of Camel SNUS and its proposed modified-risk messaging was evaluated in a series of counterfactual scenarios, using different combinations of primary beneficial and harmful transitions combined with secondary harmful transitions. Based on U.S. rates, cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. Empirical data on primary beneficial and harmful transitions were based on projected purchase probabilities, as provided by the first execution of RAIS's 'likelihood of use' study. Specifically, the probability that base case cigarette initiators would instead initiate tobacco use with Camel SNUS ('alternative initiation') was projected to be 0.5%; this transition occurred in the first three age categories. 'Switching' to Camel SNUS use instead of continuing to use cigarettes among base case smokers was projected to range from 2.3% to 16.5%, depending on age category. The probability that base case never tobacco users would initiate Camel SNUS use instead of remaining never users ('additional initiation') was projected to be 0.3%; similar to 'alternative initiation', this transition occurred in the first three age categories. Finally, the probability that base case smokers would switch to using Camel SNUS instead of quitting tobacco use ('diversion from quitting') was projected to range from 1.8%-20.0%, depending on the age category.

In the absence of empirical data on secondary harmful transitions from RAIS's 'likelihood of use' studies, the effects of these unintended changes in tobacco exposure patterns were evaluated using hypothetical transition probabilities that, in many instances, represented extreme scenarios. Specifically, both 'gateway effect' (the probability that some portion of 'additional initiation' Camel SNUS users would transition to cigarette use) and 'delayed smoking' (the probability that some portion of 'alternative initiation' Camel SNUS users would transition to cigarette use) were evaluated using extreme scenarios, whereby 50% of all Camel SNUS initiators transition to cigarette smoking in the age category following initiation (ages 18-22, 23-27 and 28-32 years). In addition, the harmful transition of 'resumed smoking' was evaluated using a scenario whereby 50% of those base case smokers who switched to Camel SNUS use instead of continuing to smoke resumed cigarette use. Under the assumption that 'resumed smoking' would likely occur in the same 5-year age category as 'switching', this transition was modeled by reducing by 50% the transition probabilities for 'switching' from smoking to Camel SNUS by 50%. Finally, sensitivity analyses evaluated the effect of an extreme scenario for 'relapse', whereby 50% of base case smokers who would have quit tobacco but instead switched to Camel SNUS use ('diversion from quitting') subsequently relapsed to smoking.

The 'net' population health effect of all primary beneficial transitions ('alternative initiation' and 'switching'), all primary harmful transitions ('additional initiation' and 'diversion from quitting'), and the secondary harmful transitions of 'gateway effect', 'delayed smoking' and 'resumed smoking' – from here on referred to as the 'master model' – was a survival benefit at the end of age category 68-72 years, of almost 6,140 and 5,700 additional survivors for ERRs of 0.08 and 0.11, respectively.² Sensitivity analyses for the 'master model' that additionally included the secondary harmful transition, 'relapse', showed a smaller survival benefit, with approximately 5,380 and 4,980 additional survivors based on an ERR of 0.08 and 0.11, respectively. Omitting the primary beneficial transition, 'alternative initiation', had very little effect on the estimated number of survivors for the 'master model', while the added exclusion of all secondary harmful transitions increased the survival benefit in the counterfactual scenario to about 12,000 and 11,300 additional survivors for ERRs of 0.08 and 0.11, respectively.

² Modeling results for the current analyses are always presented as the difference in the number of survivors for the counterfactual scenario compared to the based case at the end of age interval 68-72 years; more complete results for the numbers of survivors across all age intervals are provided in [Appendix E](#).

The transition probabilities for 'switching' and 'diversion from quitting' from RAIS's 'likelihood of use' study were high. However, further sensitivity testing of the 'master model' showed that reduction of all primary beneficial and harmful transition probabilities by 75% - while retaining probabilities for the secondary harmful transitions - still resulted in a survival benefit, with an estimated 1,620 and 1,510 additional survivors in the counterfactual scenarios at the end of age category 68-72 years, for ERRs of 0.08 and 0.11, respectively. Lastly, sensitivity analyses that assessed a range of ERRs indicated that ERRs for Camel SNUS relative to cigarettes of 0.48 or lower would provide a 'net' population health benefit. This was the case even though smoking cessation was allowed to occur throughout life (based on U.S. cessation rates) but MRTTP cessation was suspended; as a result, 'switching' replaced smokers, some of whom eventually became former smokers, with MRTTP users who could not quit.

Beneficial and harmful transitions were also evaluated within the context of 'tipping point' analyses, used to estimate the magnitude of a beneficial transition required to offset the population health effects of one or more harmful transitions. Tipping points evaluated for the current analyses were between the primary beneficial transition, 'switching', and different combinations of primary and secondary harmful transitions. Based on an ERR of 0.08 and absent the beneficial primary transition of 'switching', the survival deficit in a counterfactual scenario that included 0.3% 'additional initiation' with 50% 'gateway effect', and 1.8-20.0% 'diversion from quitting' (depending on age category) was estimated to be about 600 fewer survivors. 'Tipping point' analyses indicated that a concurrent increase in 'switching' of about 0.4% (in each age category, for ages 18+ years) provided a point estimate for the difference in the number of survivors (counterfactual scenario versus base case) that was 'near zero'. Introducing the extreme scenario of a 50% relapse to smoking among base case smoking quitters who instead switched to using Camel SNUS ('relapse', coupled to 'diversion from quitting') provided a point estimate that was 'near zero' when there was a concurrent 0.9% increase in 'switching'. Finally, a 50% resumption of smoking among base case continuing smokers who switched to Camel SNUS ('resumed smoking', coupled to 'switching') doubled the 'tipping point' estimates. Choosing a slightly higher ERR of 0.11 had a nominal effect on the 'tipping point' estimates. These results demonstrate that complete switching to an MRTTP that presents substantially lower mortality risks than cigarettes, when it occurs in each age category among a small proportion of smokers who otherwise would have continued to smoke, would be expected to offset the population harm caused by the collective effects of unintended, harmful changes in tobacco use behaviours that may be associated with widespread availability of an MRTTP.³

The next series of DPM(+1)-based analyses addressed the **second objective**, to more closely assess the influence of specific changes in tobacco exposure patterns - expected to result from Camel SNUS and its proposed modified-risk messaging - on the overall 'net' population health effect. This objective was achieved by examining the population-level effects of changes in beneficial and harmful tobacco exposure patterns, individually and in limited combinations, based largely on projected purchase probabilities from the first execution of RAIS's 'likelihood of use' study.⁴ Population survival was used as a surrogate for population health. Exposure transitions examined using the DPM(+1) included the same primary and secondary transitions as described for the first objective and the same ERRs of 0.08 and 0.11.

³ While the results presented here were based on mortality rates for men, tipping points for 'switching' were almost identical for men and women. Using mortality rates for women in the 'master model' (with or without 'alternative initiation'), the 'net' population effect was about 20% lower than for men. Detailed results are shown in [Appendix H](#).

⁴ "Camel SNUS Modified Risk Messaging: Likelihood of Use among Tobacco Users and Non-Users - *First Execution of Consumer Testing* - Amended Final Report", dated October 4, 2016. Analyses based on the other two executions of RAIS's 'likelihood of use' study, with different modified-risk messaging, are reported separately.

'Best estimates' for primary beneficial and harmful transitions, based on projected purchase probabilities, indicated that only 'switching' demonstrates a sizable population-level effect. Based on transition probabilities for 'switching', which were projected to range from 2.3% to 16.5% and generally decreased from younger to older age categories, the survival benefit at the end of age category 68-72 years in the counterfactual scenario was estimated to be almost 12,400 additional survivors for an ERR of 0.08, and nearly 11,800 additional survivors for an ERR of 0.11. Reducing the transition probabilities for 'switching' by 50% to examine the secondary harmful transition of 50% 'resumed smoking' (50% of base case continuing smokers who switched to Camel SNUS use resumed smoking in the same 5-year age category) indicated a reduced survival benefit of approximately 6,700 additional survivors for an ERR of 0.08; choosing a slightly different ERR of 0.11 had a nominal effect on the number of survivors.

For the other primary beneficial transition, 'alternative initiation', and using purchase probabilities projected by RAIS's 'likelihood of use' study – whereby 0.5% of base case cigarette initiators instead initiate tobacco use with Camel SNUS (ages 13-17, 18-22 and 23-27 years) - the overall survival benefit at the end of age category 68-72 years in the counterfactual scenario was estimated to be fewer than 100 additional survivors, irrespective of the ERR (0.8 or 0.11). This small effect is due to the very small number of base case cigarette initiators who become Camel SNUS users in the counterfactual scenario. To examine the effect of 'delayed smoking', 50% of those who initiated tobacco use with Camel SNUS instead of cigarettes ('alternative initiation') then switched to cigarette smoking in the next age category (ages 18-22, 23-27 and 28-32 years). For this counterfactual scenario, the survival benefit was reduced to about 50 additional survivors, at the end of age category 68-72 years, irrespective of the ERR.

For the primary harmful transition, 'additional initiation', purchase probabilities projected by RAIS's 'likelihood of use' study suggested that 0.3% of base case never tobacco users may initiate tobacco use with Camel SNUS (ages 13-17, 18-22 and 23-27 years). As a result, the survival deficit at the end of age category 68-72 years in the counterfactual scenario would be expected to be less than 150 fewer survivors for an ERR of 0.08, and near 200 fewer survivors for an ERR of 0.11. These small effects are due to the small increase in risk among Camel SNUS users compared to never tobacco users, as reflected by the small ERRs, which in turn affects a moderate number of base case never tobacco users who initiate Camel SNUS use. Moreover, Camel SNUS initiation among base case never tobacco users in a particular age category reduces slightly the pool of those available to initiate cigarette use in the next age category. Related analyses examined the harmful secondary transition, 'gateway effect', based on an extreme scenario whereby 50% of Camel SNUS initiators ('additional initiation', in age categories 13-17, 18-22 and 23-27 years) switched to cigarette smoking in the next age category (ages 18-22, 23-27 and 28-32 years). These analyses indicated an overall survival deficit approximating 400 fewer survivors in the counterfactual scenario, at the end of age category 68-72 years, irrespective of the ERR.

For the remaining primary harmful transition, 'diversion from quitting', and using purchase probabilities projected by RAIS's 'likelihood of use' study that ranged from 1.8% to 20.0% (generally decreasing from younger to older age categories), the overall survival deficit at the end of age category 68-72 years in the counterfactual scenario was estimated to be near 240 fewer survivors for an ERR of 0.08, and near 320 fewer survivors for an ERR of 0.11. Analyses examining the harmful secondary transition of 50% 'relapse', whereby 50% of those who switched to Camel SNUS use instead of quitting tobacco ('diversion from quitting') subsequently relapsed to smoking in the same age interval, suggested a survival deficit in the counterfactual scenario of nearly 1,140 fewer survivors for an ERR of 0.08, and nearly 1,180 fewer survivors for an ERR of 0.11.

DPM(+1)-based analyses were also used to address a **third objective**, assessing whether Camel SNUS and its proposed modified-risk messaging is likely to have a beneficial effect on population health, or at a minimum is unlikely to have an adverse effect on population health, even if unintended changes in tobacco exposure transitions are extreme. These assessments were based on a series of analyses that estimated the proportion of current smokers who must completely switch to using Camel SNUS instead of continuing to smoke ('switching') to fully offset any unintended population harm that may occur due to extreme scenarios for the primary harmful transitions of 'additional initiation' and 'diversion from quitting', and the secondary harmful transition of 'gateway effect'. Population survival was used as a surrogate for population health.

The first set of analyses estimated the proportion of base case cigarette smokers who must switch completely to using Camel SNUS instead of continuing to smoke ('switching') to fully offset the population harm expected from an extreme scenario whereby a large proportion of base case never tobacco users initiate Camel SNUS use ('additional initiation'). Specifically, the probability of 'additional initiation' with Camel SNUS by base case never tobacco users (ages 13-17, 18-22 and 23-27 years) was set equal to U.S. cigarette smoking initiation rates, almost doubling tobacco use incidence within the population.⁵ For an ERR of 0.08, and absent the population health benefit of 'switching', this extreme exposure scenario resulted in a survival deficit in the counterfactual scenario of about 3,800 fewer survivors at the end of age category 68-72 years. 'Tipping point' analyses indicated that a concurrent increase of about 2.6% in the proportion of current smokers who switch completely to Camel SNUS use instead of continuing to smoke ('switching', in each age category, for ages 18+ years) provided a point estimate of 'near zero' for the difference in the number of survivors between the counterfactual scenario and the base case. The survival deficit was projected to be larger (~5,550 fewer survivors) for this extreme scenario of 'additional initiation' when the ERR was set to 0.11, with the 'tipping point' corresponding to a 'near zero' point estimate for the difference in the number of survivors estimated to be near 4.1%.

Subsequent analyses estimated the proportion of base case cigarette smokers who must switch completely to using Camel SNUS instead of continuing to smoke ('switching') to offset the population harm expected from a scenario whereby an elevated proportion of base case never tobacco users initiated Camel SNUS use ('additional initiation'), and then some of those Camel SNUS initiators switched to cigarette smoking in the next age category ('gateway effect'). Specifically, the probability of 'additional initiation' with Camel SNUS by base case never tobacco users (ages 13-17, 18-22 and 23-27 years) was set to 3.0%, or 10 times the purchase probability projected for 'additional initiation' by RAIS's 'likelihood of use' study. To examine an extreme scenario for the secondary harmful transition, 'gateway effect', 50% of Camel SNUS initiators ('additional initiation') were then transitioned to cigarette smoking in the next age category (ages 18-22, 23-27 and 28-32 years). For an ERR of 0.08, and absent the population health benefit of 'switching', this extreme exposure scenario resulted in a survival deficit of 3,720 fewer survivors in the counterfactual scenario at the end of age category 68-72 years. 'Tipping point' analyses indicated that a concurrent 2.4% increase in 'switching' provided a point estimate for the difference in the number of survivors between the counterfactual scenario and the base case that was 'near zero'. The survival deficit was projected to be larger (near 4,050 fewer survivors) for this extreme scenario of 'additional initiation' coupled with 'gateway effect' when the ERR was set to 0.11, with the 'tipping point' expected to provide a 'near zero' point estimate for the difference in the number of survivors estimated to be 2.8%.

The last set of 'tipping point' analyses estimated the proportion of current cigarette smokers who must switch completely to using Camel SNUS use instead of continuing to smoke ('switching') to fully offset the population harm expected from an extreme scenario whereby a large proportion of base case smokers who

⁵ In each age category of tobacco initiation (age categories 13-17, 18-22 and 23-27 years), Camel SNUS initiation occurs only among never tobacco users who have not already initiated smoking in that age category.

would have quit tobacco use instead switch to using Camel SNUS ('diversion from quitting'). Specifically, the level of smoking cessation in the counterfactual scenario was set to 50% of levels specified in the base case (i.e., 50% of those who would have quit smoking in the base case instead transition to Camel SNUS use). For an ERR of 0.08, and absent the population health benefit of 'switching', this extreme scenario resulted in a survival deficit of nearly 1,500 fewer survivors in the counterfactual scenario. 'Tipping point' analyses indicated that a concurrent 0.9% increase in 'switching' provided a point estimate for the difference in the number of survivors between the counterfactual scenario and the base case that was 'near zero'. For an ERR of 0.11, and absent the population health benefit of 'switching', the survival deficit was projected to be near 2,000 fewer survivors, with a 'tipping point' of 1.3% 'switching' expected to provide a 'near zero' point estimate for the difference in the number of survivors.

Finally, sensitivity analyses assessed the population health impact of Camel SNUS and its proposed modified-risk messaging among birth cohorts for which Camel SNUS is available at increasing ages. For birth cohorts for which Camel SNUS was available in age categories 18-22 years, with age category-specific transition probabilities as projected by RAIS's 'likelihood of use' study, the survival benefit in the counterfactual scenario was estimated to be more than 6,270 additional survivors for an ERR of 0.08, and approximately 5,850 additional survivors for an ERR of 0.11. The survival benefit in the counterfactual scenario decreased as the first age category in which Camel SNUS became available increased, and became negligible when Camel SNUS was introduced late in life (after age 55 years).

Collectively, these DPM(+1)-based analyses demonstrate that 'switching', whereby some base case continuing smokers switch completely to using a tobacco product that presents significantly less risk for mortality than cigarettes, is the most influential of the changes in tobacco exposure patterns that might occur within a population, as operationalized within a single birth cohort. This determination was based on the magnitude, and thus likelihood, of shifts in tobacco exposure patterns needed to produce a population benefit or harm; and, the consideration that 'switching' exerts a substantial beneficial effect on population health, individually and in combination with primary and secondary harmful transitions. The population health benefit for 'switching' exceeds that expected for the other primary beneficial transition, 'alternative initiation', because tobacco initiation rarely occurs beyond young adulthood, whereas 'switching' can occur in all subsequent age categories. Thus, there is more time for smokers to switch to Camel SNUS use than there is for non-users of tobacco to initiate tobacco use with Camel SNUS rather than cigarettes. Likewise, 'additional initiation' is unlikely to occur beyond young adulthood; the small population health effect for this primary harmful transition is also due to the nominal increase in risk among Camel SNUS users compared to never tobacco users, as reflected by the small ERR. Although 'diversion from quitting' can occur across a large range of age categories, the small effect resulting from this primary harmful transition is due to the nominal increase in risk among Camel SNUS users compared to tobacco quitters, again reflected by the small ERR.

Estimates from the 'tipping point' analysis for the 'master model' without 'alternative initiation' provide strong evidence that Camel SNUS and its proposed marketing as a modified-risk tobacco product is unlikely to adversely impact population health. To the contrary, 'best estimates' for transition probabilities, based on projected purchase probabilities from the first execution of RAIS's 'likelihood of use' study, and corresponding sensitivity analyses indicate the potential for a sizable 'net' population health benefit for Camel SNUS and its proposed modified-risk messaging.

1. Introduction

1.1 Rationale

Section 911 ('Modified Risk Tobacco Products') of the Family Smoking Prevention and Tobacco Control Act (FSPTCA)⁶, Public Law 111-31 states that a tobacco product may be designated as a modified-risk product if, among other conditions, the applicant has demonstrated that "a measurable and substantial reduction in morbidity or mortality among individual tobacco users is reasonably likely in subsequent [epidemiologic] studies". The applicant must take into account the "increased or decreased likelihood that existing users of tobacco products who would otherwise stop using such products will switch to the tobacco product that is the subject of the application", as well as the "increased or decreased likelihood that persons who do not use tobacco products will start using the tobacco product that is the subject of the application".

Projecting likelihood of use for a tobacco product prior to that product being in the market requires either (1) use of an uptake algorithm based on sales of existing products; or, (2) development of a tobacco product-specific algorithm by surveying consumers about a product prior to market launch, and then re-interviewing those same consumers with regard to whether or not they purchased the product following market launch. To project 'likelihood of use' for a tobacco product prior to that product being in the market, RAI Services Company (RAIS)⁷ commissioned two-wave survey research⁸ to create a ratings conversion algorithm that translates continuous 'likelihood to purchase for personal trial' ratings into projected purchase probabilities. The basis for the algorithm is a survey-weighted logistic regression model that uses ratings from an initial survey wave (prior to market launch) and actual purchase incidence from self-reported survey data collected among those same respondents nine months after market launch.

To assess 'likelihood of use' prior to market launch of Camel SNUS as a modified-risk tobacco product (MRTP), RAIS conducted a series of 'likelihood of use' studies in compliance with Section 911 of the FSPTCA. Each execution differed in terms of the stimulus shown to study participants, U.S. adult tobacco users and non-users, including differently worded modified-risk messaging. Projected purchase probabilities were used as 'best estimates' for transitions in tobacco exposures, as well as starting points for sensitivity analyses in Dynamic Population Modeler (DPM(+1))-based analyses.

Statistical models and simulation programs can be used to provide estimates of the health effects expected to result from changes in the distribution of beneficial and/or harmful exposures in a given population. If the projected changes are due to regulatory action, then modeled results allow direct assessment of the population health impact of alternative policies, thus supporting the selection of one policy over another (Levy et al. 2006)⁹. 'Best estimates' for transitions in tobacco exposures from 'likelihood of use' studies can be used as starting points for sensitivity analyses in statistical model-based analyses that quantify the magnitude, and thus likelihood, of shifts in tobacco exposure patterns needed to produce a population benefit or harm, as well as the magnitude of the expected benefit or harm. They can also be used to assess whether specified shifts in tobacco exposure patterns are likely to produce a population benefit or harm by

⁶ Family Smoking Prevention and Tobacco Control Act. 2009. (Public Law 111-31 [H.R.1256]).

⁷ RAIS is a wholly owned subsidiary of Reynolds American Inc. (RAI) that bears primary responsibility for coordinating implementation of the Family Smoking Prevention and Tobacco Control Act for itself and RAI's FDA-regulated tobacco operating companies, namely R.J. Reynolds Tobacco Company, American Snuff Company, LLC, Santa Fe Natural Tobacco Company, Inc., Kentucky Bioprocessing, LLC, and R.J. Reynolds Vapor Company.

⁸ The initial survey wave of the "algorithm development" research was conducted from December 23, 2009 through January 6, 2010, and 9-month follow-up wave was conducted from September 16, 2010 through October 5, 2010; "New Tobacco Product "Likelihood" Study: An Algorithm to Predict Usage of New Tobacco Products Prior to Market Launch".

⁹ Levy DT, Mumford EA, Cummings KM. The potential impact of a low-nitrosamine smokeless tobacco product on cigarette smoking in the United States: Estimates of a panel of experts. *Addictive Behaviors*. 2006; 31:1190–1200.

estimating 'tipping points', defined as the proportion of the population that must choose a less risky exposure to overcome the harm arising from a proportion of the population choosing a more harmful exposure, or vice versa.

1.2 Statistical models

Dynamic models for assessing the risks associated with tobacco product use were initially developed to estimate the population-level benefit or harm due to changes in the proportions of never, current and former smokers; in particular, changes that would result from increasing smoking cessation rates and/or decreasing smoking initiation rates.^{10 11 12 13 14 15} These initial models were not designed to assess the effect of introducing a new product to a population. Two subsequent models^{16 17} were suggested to assess the population-level effects of introducing a new product to a population of never, current and former smokers; however, both models were limited by the range of questions that could be addressed, as smoking initiation and cessation rates were held constant and transition probabilities were not influenced by age. In addition to these shortcomings, both models allowed for very few transitions, and assumed that mortality risk depended only on current tobacco exposure status and no other exposure metric. The model proposed by Mejia et al. further quantified the risk of tobacco-related health effects by a health index that was assumed to be the same regardless of duration of tobacco use or cessation, and was not based on empirical data. A detailed critique of the Mejia et al. model is published elsewhere.¹⁸

To our knowledge, only five published dynamic population models have been specifically designed to estimate the effects of introducing an MRTP to a population. These models can be most easily distinguished by their study populations and time variables. DPM(+1)¹⁹ and the model described by Levy et al.²⁰ are both based on a single birth cohort that is followed as it ages. Weitkunat et al.²¹, Vugrin et al.²², and Poland et

¹⁰ Kulik MC, et al. Comparison of Tobacco Control Scenarios: Quantifying Estimates of Long-Term Health Impact Using the DYNAMO-HIA Modeling Tool. *PLoS One*. 2012; 7(2): e32363.

¹¹ Levy DT, Friend K. Examining the effects of tobacco treatment policies on smoking rates and smoking related deaths using the SimSmoke computer simulation model. *Tob Control*. 2002; 11(1): 47-54.

¹² Tengs TO, et al. Federal policy mandating safer cigarettes: a hypothetical simulation of the anticipated population health gains or losses. *J Policy Anal Manage*, 2004; 23(4): 857-872.

¹³ Tengs TO, et al. The AMA proposal to mandate nicotine reduction in cigarettes: a simulation of the population health impacts. *Prev Med*. 2005; 40(2): 170-180.

¹⁴ Tengs TO, Osgood ND, Lin TH. Public health impact of changes in smoking behavior: results from the Tobacco Policy Model. *Med Care*. 2001; 39(10): 1131-1141.

¹⁵ Hoogenveen R.T, et al. Dynamic effects of smoking cessation on disease incidence, mortality and quality of life: The role of time since cessation. *Cost Eff Resour Alloc*. 2008; 6: 1.

¹⁶ Apelberg BJ, et al. Estimating the risks and benefits of nicotine replacement therapy for smoking cessation in the United States. *Am J Public Health*. 2010; 100(2): 341-348.

¹⁷ Mejia AB, Ling PM, Glantz SA. Quantifying the effects of promoting smokeless tobacco as a harm reduction strategy in the USA. *Tob Control*. 2010; 19: 297-305.

¹⁸ Bachand AM and Sulsky S. Critique of "Quantifying the effects of promoting smokeless tobacco as a harm reduction strategy in the USA" by Mejia AB, Ling PM, Glantz SA. *Tobacco Control Online*. 2011.

¹⁹ Bachand AM and Sulsky SI. A dynamic population model for estimating all-cause mortality due to lifetime exposure history. *Regul Toxicol Pharmacol*. 2013; 67(2): 246-51.

²⁰ Levy DT et al. The Application of a Decision-Theoretic Model to Estimate the Public Health Impact of Vaporized Nicotine Product Initiation in the United States. *Nicotine Tob Res*. 2016; doi: 10.1093/ntr/ntw158.

²¹ Weitkunat R, et al. A novel approach to assess the population health impact of introducing a Modified Risk Tobacco Product. *Regul Toxicol Pharmacol*. 2015; 72(1): 87-93.

²² Vugrin ED, et al. Modeling the potential effects of new tobacco products and policies: a dynamic population model for multiple product use and harm. *PLoS One*. 2015; 10(3): e0121008.

al.²³ each have proposed models where simulations start with a cross-section of an actual population that is then followed over time, based on two time variables (age and calendar year). All five models allow modelling of a range of probabilities for each transition of interest, to determine the potential magnitude and likelihood of a population benefit or harm that may be expected to result from the introduction of an MRTP to a population.

All models must be built on simplifying assumptions. The five models discussed below share the following: (1) they compare the effects of using only two types of tobacco products; (2) only the direct effects of exposure to higher- and lower-risk tobacco products are considered, with no accounting for changes to second-hand smoke exposures that may occur due to changes in the proportions of cigarette smokers in a population; and, (3) the models require the analyst to specify values for the relevant input data.

Models based on a single birth cohort

To our knowledge, two existing models are based on the single birth cohort approach. As described elsewhere²⁴ and in some detail below, the DPM(+1) is a comprehensive and flexible dynamic model that estimates all-cause mortality for a hypothetical birth cohort which is followed as it ages. All model input is specified by the model user, and can be based on either empirical data or hypothetical values. In the base case, members of the cohort may be exposed to a high-risk tobacco product (e.g., cigarettes) as they age. The counterfactual scenario includes exposure to both the high-risk product and a lower-risk product (e.g., an MRTP). The model sorts the study population into age and exposure categories, and applies mortality rates specific to age, duration of exposure, and duration of exposure cessation to each category. The model tracks individual exposure histories, and estimates - at the end of each modeled age category - the number of survivors in the two exposure scenarios (base case and counterfactual), and the difference between those scenarios. Markov chain Monte Carlo (MCMC) techniques are used to estimate the variability of the results.

The main strengths of the DPM(+1) are its flexibility, its ability to account for uncertainty in the model input and output, its comprehensiveness, and its demonstrated validity. All model inputs can be changed by the analyst, and the level of uncertainty in model inputs can be specified - and is accounted for - by posterior intervals around the estimated differences in the numbers of survivors. There are no restrictions on age, time of initiation, or time of cessation of exposure. The DPM(+1) can be used to assess the potential magnitude and likelihood of population-level benefit or harm, and to estimate 'tipping points'. In addition, results from the DPM(+1) can provide insight into the effect of introducing an MRTP to a cross-sectional population, if population members of different ages are recognized as members of different birth cohorts. It cannot, however, directly provide absolute predictions of differences in survival in a cross-sectional population resulting from changes in tobacco exposure patterns.

The DPM(+1) is executed in the R language,²⁵ both as a desk-top version and as the back end to an internet-accessible platform with a user-friendly interface that simplifies the recreation of existing analyses and testing of new scenarios. Post-market survey data can be easily incorporated. Expansions that are under way or have been completed include modeling exposure histories with more than two products, and modeling the removal of a tobacco exposure from a population.

²³ Poland B, Teischinger F. Population Modeling of Modified Risk Tobacco Products Accounting for Effects of Cigarettes Per Day. Poster, Society for Research on Nicotine & Tobacco Annual Meeting: Chicago, IL. 2016.

²⁴ Bachand AM, Sulsky SI. A dynamic population model for estimating all-cause mortality due to lifetime exposure history. *Regul Toxicol Pharmacol*, 2013; 67(2): 246-51.

²⁵ R Core Team. R: A language and environment for statistical computing. R Foundation for Statistical Computing, <http://www.R-project.org>: Vienna, Austria. 2015.

A model described recently by Levy et al.²⁶ follows a birth cohort of 15-year olds in 2012 (the 1997 birth cohort) until follow-up ends, in 2083 (age 85 years). Only cigarettes are available for use in the base case, while different rates of trial and established use of a Vaporized Nicotine Product (VNP) - either alone or in combination with cigarettes - can occur in the counterfactual scenario. Model output includes the proportion of the cohort in each exposure category (at various ages), smoking-attributable deaths, and life-years lost and gained; rates are provided in the published supplementary materials, but details on the calculations are not provided. The authors completed sensitivity analyses by altering the estimated excess risks and rates of VNP trial and use. However, the model does not account for variability of the model input, and variability of the results is not estimated.

While results from models based on a single birth cohort can provide insight into the likely effect of introducing an MRTP to an actual cross-sectional population, they do not provide direct predictions of changes in smoking prevalence or mortality in the cross-sectional population expected to result from changes in tobacco exposure patterns - unless all birth cohorts in the population are included in the simulations.

Models based on a cross-section of the population

An alternative, conceptually appealing but ultimately flawed approach, whereby a cross-sectional population of mixed ages and tobacco exposures is followed into the future, has been proposed by some authors (Weitkunat et al.,²⁷ Vugrin et al.,²⁸ Poland et al.²⁹). These models compare mortality between a counterfactual scenario, where an MRTP is introduced during the follow-up period, and a base case, where only cigarettes are available for use. These models sort the study population into calendar year, age and exposure categories, and track individual exposures during follow-up; for smokers in the initial cross-sectional population, age at onset of smoking and years smoked are unknown. The Weitkunat et al. model is restricted to members of the initial cross-section, and deaths do not occur until the end of follow-up. The Poland et al. and Vugrin et al. models allow changes to the study population throughout follow-up, through births and deaths; the Vugrin et al. model also takes migration into account. While all models estimate total deaths in the base case and counterfactual scenario, two models (Vugrin et al.; Weitkunat et al.) estimate smoking-attributable deaths in the base case and the reduction in smoking-attributable deaths in the counterfactual scenario; one model (Poland et al.) estimates the reduction in total deaths. None of these models account for uncertainty in the model input values, or provide variability estimates for the model outcome measures. Underlying assumptions are easily assessed for the Weitkunat et al. and Poland et al. models, but are not easily assessed for the considerably more complex Vugrin et al. model.

In any simulation analysis, model results are highly dependent on the input data selected by the analyst, and should be substantiated by population data to the extent possible. Two of the three models based on an initial cross-section of a population require a large number of unobservable estimates for birth and death rates and, in one case, rates of in- and out-migration. All three models require age- and gender-specific smoking initiation and cessation rates corresponding to each year of follow-up into the future, as specified by the analysis.

²⁶ Levy DT, et al. A framework for evaluating the public health impact of e-cigarettes and other vaporized nicotine products. *Addiction*. 2016.

²⁷ Weitkunat R, et al. A novel approach to assess the population health impact of introducing a Modified Risk Tobacco Product. *Regul Toxicol Pharmacol*. 2015; 72(1): 87-93.

²⁸ Vugrin ED, et al. Modeling the potential effects of new tobacco products and policies: a dynamic population model for multiple product use and harm. *PLoS One*. 2015; 10(3): e0121008.

²⁹ Poland B, Teischinger F. Population Modeling of Modified Risk Tobacco Products Accounting for Effects of Cigarettes Per Day. Poster, Society for Research on Nicotine & Tobacco Annual Meeting: Chicago, IL. 2016.

Weitkunat et al. and Poland et al. suggest several potential expansions of their model to take post-market survey data into account, and the models appear simple and flexible enough to allow for the suggested adaptations. The model proposed by Vugrin et al. is very complex, and requires large amounts of input data that, in turn, make expansions difficult. Published validation and calibration exercises for all three models are incomplete and/or show results that do not lend credence to the approach.

Each of the three models has specific strengths and limitations, but their utility in the regulatory context is very limited due to the inherent shortcomings of the cross-sectional approach that affect the validity of the resulting predictions. First, neither the effect of MRTP initiation nor the effect of MRTP initiation followed by smoking ('gateway effect') can be assessed validly. This is because the study population consists of a large number of birth cohorts, one for each year of current age represented in the initial cross-section, and one for each year during the follow-up interval when births are added. Births, migration, exposure, and mortality rates for a large number of birth cohorts cannot be predicted far into the future, so follow-up must necessarily be short (follow-up periods of 20-50 years have been suggested). As a result, tobacco-related mortality may not take place until after the end of follow-up for a sizeable proportion of the study population, due to the decades-long induction period for the most important tobacco-related diseases (lung cancer, heart disease and non-malignant respiratory disease). This is specifically the case for younger members of the initial cross-sectional population and for members of birth cohorts added during follow-up. The incomplete follow-up for mortality results in artificially low mortality risks among the younger subsets of the study population, i.e., those persons most likely to initiate tobacco use with an MRTP. In addition, for current smokers in the initial cross-sectional population or for those added through in-migration, neither age at smoking initiation nor the number of years of smoking is known. As a result, mortality rates - which depend heavily on these factors - cannot be validly estimated.^{30 31 32 33 34}

A second shortcoming of the cross-sectional approach is that neither the effect of switching from smoking to MRTP use, nor the effect of smokers adding MRTP use (becoming dual users) can be assessed. This is because the follow-up period is too short for current smokers who add or switch to MRTP use later in the follow-up period to experience a change in risk, again due to the follow-up period being shorter than the induction period for smoking-related diseases. For those who switch to an MRTP completely, follow-up may also be shorter than the interval needed for risk to be reduced after quitting.

Third, the initial cross-sectional population only contains survivors. As a consequence, current and former smokers in the initial cross-section who have a large amount of accumulated smoking exposure (many pack-years of smoking history) are less likely to be affected by tobacco-related mortality, as susceptible members of the cohort will have died prior to initiation of the simulation. Therefore, the effect of switching to, adding, or initiating MRTP use is artificially reduced in this sub-population, and the mortality risks estimated on the basis of their experience is lower than risks experienced by subsequent cohorts.

³⁰ Peto R. Influence of dose and duration of smoking on lung cancer rates. IARC Sci Publ. 1986; 74: 23-33.

³¹ Flanders WD, et al. Lung Cancer Mortality in Relation to Age, Duration of Smoking, and Daily Cigarette Consumption: Results from Cancer Prevention Study II. Cancer Res. 2003; 63(19): 6556-6562.

³² Knoke JD, et al. Lung cancer mortality is related to age in addition to duration and intensity of cigarette smoking: an analysis of CPS-I data. Cancer Epidemiol Biomarkers Prev. 2004; 13(6): 949-957.

³³ Meade TW, Imeson J, Stirling Y. Effects of changes in smoking and other characteristics on clotting factors and the risk of ischaemic heart disease. Lancet. 1987; 2(8566): 986-8.

³⁴ Thun MJ, et al. Age and the Exposure-Response Relationships Between Cigarette Smoking and Premature Death in Cancer Prevention Study II, in Smoking and Tobacco Control Monograph No. 8. National Institutes of Health, National Cancer Institute. 1997; 383-413.

Finally, the need to incorporate two time variables, age and calendar year, into the cross-sectional approach increases complexity compared with the single birth cohort approach. Specifically, model input values stratified by two time variables are more difficult to obtain, necessitating the use of age and calendar year restrictions and estimated input values that are not substantiated by the literature.

1.3 Objectives

The DPM(+1) was developed to specifically address the regulatory requirements for an MRTP application (Section 911 of the FSPTCA), and does not have the limitations previously noted for other published statistical models/simulation programs. The DPM(+1) produces estimates of the effects on all-cause mortality, life expectancy (LE) and quality-of-life-adjusted life expectancy (QALE) if exposure patterns in the population shift from cigarettes to a lower-, or modified-risk tobacco product in specified ways. Based on 'best estimates' for the likely use of cigarettes and an MRTP, DPM(+1)-based analyses can estimate the likelihood of an intended benefit from a proportion of the population choosing a less harmful exposure offsetting or exceeding the unintentional harm from a proportion of the population choosing a more harmful exposure. Sensitivity analyses for transitions in tobacco behaviour patterns can be used to further examine the potential for a 'net' population benefit versus harm. Finally, DPM(+1)-based analyses can be accessed on a web portal, such that the Food and Drug Administration's (FDA) Center for Tobacco Products (CTP) scientific staff can verify the model output based on the associated input and assumptions.

The DPM(+1)-based analyses described in the current report address three primary objectives. The **first objective** was to estimate the 'net' population health effect of changes in tobacco exposure patterns expected to result from Camel SNUS and its proposed marketing as a modified-risk tobacco product. This objective was addressed by collectively examining all primary and secondary exposure transitions, intended and unintended, using population survival as a surrogate for population health. Primary exposure transitions examined for these analyses included: (1) some base case never tobacco users initiate Camel SNUS use instead of remaining never tobacco users ('additional initiation'); (2) some base case never tobacco users initiate Camel SNUS use instead of initiating cigarette smoking ('alternative initiation'); (3) some base case current smokers switch to Camel SNUS use instead of continuing to use cigarettes ('switching', the intended change); and, (4) some base case current smokers switch to Camel SNUS use instead of quitting all tobacco use ('diversion from quitting'). These primary transition probabilities were based on the first execution of RAIS's 'likelihood of use' study.³⁵ Secondary exposure transitions included: (5) some portion of 'additional initiation' Camel SNUS users transition to cigarette smoking ('gateway effect'); (6) some portion of 'alternative initiation' Camel SNUS users transition to cigarette smoking ('delayed smoking'); (7) some portion of 'switching' Camel SNUS users resume cigarette smoking ('resumed smoking'); and, (8) some portion of 'diversion from quitting' Camel SNUS users relapse to cigarette smoking ('relapse'). These secondary transitions were not directly investigated by RAIS's 'likelihood of use' study, and were modeled using hypothetical probabilities that, in many instances, represented extreme scenarios. The effect of using different excess relative risks (ERRs) was addressed in sensitivity analyses.

The next series of DPM(+1)-based analyses addressed the **second objective**, to more closely assess the influence of specific changes in tobacco exposure patterns - expected to result from Camel SNUS and its proposed modified-risk messaging - on the overall 'net' population health effect. This objective was achieved by examining the population-level effects of changes in beneficial and harmful tobacco exposure patterns, individually and in limited combinations, based largely on projected purchase probabilities from

³⁵ "Camel SNUS Modified Risk Messaging: Likelihood of Use among Tobacco Users and Non-Users - *First Execution of Consumer Testing* - Amended Final Report", dated October 4, 2016. Analyses based on the other two executions of RAIS's 'likelihood of use' study, with different modified-risk messaging, are reported separately.

the first execution of RAIS's 'likelihood of use' study.³⁶ Population survival was used as a surrogate for population health. Exposure transitions examined using the DPM(+1) included the same primary and secondary transitions as described for the first objective and the same ERRs of 0.08 and 0.11 for the mortality risks associated with long-term use of a low-nitrosamine smokeless tobacco product relative to conventional cigarettes.

Finally, DPM(+1)-based analyses further address a **third objective**, assessing whether Camel SNUS and its proposed modified-risk messaging is likely to have a beneficial effect on population health, or at a minimum is unlikely to have an adverse effect on population health, even if unintended changes in tobacco exposure transitions are extreme. These assessments were based on a series of analyses that estimated the proportion of current smokers who must completely switch to using Camel SNUS instead of continuing to smoke ('switching') to fully offset any unintended population harm that may occur due to extreme scenarios for the primary harmful transitions of 'additional initiation' and 'diversion from quitting', and the secondary harmful transition of 'gateway effect'. Population survival was used as a surrogate for population health.

2. Methods

2.1 Overview of the DPM(+1)

The DPM(+1) allows for age-specific changes, or transitions in tobacco exposure to occur at age intervals of identical widths throughout the duration of follow-up; the proportion transitioning (transition probability), age category widths, and duration of follow-up are all specified by the analyst. As a first step, a hypothetical population of individuals who have never used tobacco is defined, and initialized to the same age. Transition probabilities define the exposure patterns to be compared in the base case and counterfactual scenarios, where only one tobacco product is available for use in the base case (cigarettes) and one new product (an MRTP) is added in the counterfactual scenario ([Figure 1](#)).

In the base case, never tobacco users can remain never users or they can begin cigarette smoking; and, cigarette smokers can continue to smoke or they can quit and then relapse to smoking ([Figure 1](#), bolded transitions). The counterfactual exposure scenario assumes that an additional tobacco product (an MRTP) is available for the population to use ([Figure 1](#), all transitions). Tobacco initiation, switching, cessation and relapse rates are specified by the analyst, according to either completely hypothetical rates or population rates based on empirical data. The identified rates are entered as either fixed probabilities or as probabilities with some degree of uncertainty (as random probabilities from a normal distribution, truncated at 0 and 1, with the point estimate of the probability as the mean and an analyst-specified variance). The probability of transitioning to any exposure pattern that is not of interest can be set to zero. Mortality rates for current and former cigarette smokers are estimated for each age interval of follow-up by a Poisson model, which defines mortality rates by age, duration of exposure, and duration of exposure cessation. For current and former MRTP users, these mortality rates are reduced based on an ERR. The ERR compares excess mortality among current and former MRTP users to current and former cigarette smokers, respectively, and is entered as a fixed value (when comparing cigarettes to an MRTP with a particular, hypothesized risk profile) or as a value with some degree of uncertainty (when a literature-based estimate is used); the latter is

³⁶ "Camel SNUS Modified Risk Messaging: Likelihood of Use among Tobacco Users and Non-Users - *First Execution of Consumer Testing* - Amended Final Report", dated October 4, 2016. Analyses based on the other two executions of RAIS's 'likelihood of use' study, with different modified-risk messaging, are reported separately.

generated using a left-truncated normal distribution, with the point estimate of the ERR as the mean and the variance specified by the analyst.

The DPM(+1) provides the number of survivors remaining in the population for each age interval. Survivors move to the next age interval, where they can remain in their current exposure category or transition to a different exposure category. At the end of each age category, the DPM(+1) compares the number of survivors remaining in the population in the counterfactual scenario versus the base case; the maximum lifetime that can be simulated is 102 years of age.³⁷

The coefficients of the Poisson model that are used to define mortality risks are estimated using a Bayesian approach and MCMC techniques. To guarantee that the Markov chains converge, 10,000 sets of model coefficients are generated after a burn-in of 2,000 iterations. For the base case and counterfactual scenario, survivors are estimated as described above for each set of Poisson model coefficients (for each iteration), and means with 95% posterior intervals (95% PI) are reported. The DPM(+1) is executed in the R language.³⁸

Although of great importance and interest, morbidity is less easily measured than mortality – and thus the effects of changes in tobacco exposure patterns are less easily estimated; and because there is no standard definition, there are no methods for effectively measuring or tracking changes in morbidity. QALE approximates population morbidity, and is calculated by multiplying LE - calculated by the DPM(+1) according to actuarial principles - by a factor that accounts for disability, illness or both.^{39 40 41 42 43} Age category-specific EuroQol EQ-5D scores from the Medical Expenditure Panel Survey (MEPS) are used as the adjustment factor to estimate QALE for those surviving to the end of the first age category.⁴⁴ The EQ-5D score is an index score reflecting a person's health status based on a brief, standardized questionnaire.⁴⁵

³⁷ Modeling results for the current analyses are always presented as the difference in the number of survivors for the counterfactual scenario compared to the based case at the end of age interval 68-72 years; more complete results for the numbers of survivors across all age intervals are provided in [Appendix E](#).

³⁸ R Core Team. R: A language and environment for statistical computing Vienna, Austria: R Foundation for Statistical Computing, <http://www.R-project.org>; 2015.

³⁹ Jia H, Lubetkin EI. The statewide burden of obesity, smoking, low income and chronic diseases in the United States. *JPublic Health (Oxf)*. 2009; 31(4): 496-505.

⁴⁰ Jia H, Zack MM, Thompson WW. State Quality-Adjusted Life Expectancy for U.S. adults from 1993 to 2008. *QualLife Res*. 2011; 20(6): 853-63.

⁴¹ Stiefel MC, Perla RJ, Zell BL. A healthy bottom line: healthy life expectancy as an outcome measure for health improvement efforts. *Milbank Q*. 2010; 88(1): 30-53.

⁴² Madans J. Healthy Life Expectancy: Center for Disease Control, US Department of Health & Human Services; http://www.cdc.gov/nchs/ppt/nchs2012/SS-24_MADANS.pdf. 2012; [updated 2012].

⁴³ Weinstein MC, Torrance G, McGuire A. QALYs: the basics. *ValueHealth*. 2009;12 (Suppl 1): S5-S9

⁴⁴ Fleishman JA. Methodology Report #15: Demographic and Clinical Variations in health Status. January 2005. Rockville, MD: Agency for Healthcare Research and Quality; http://meps.ahrq.gov/data_files/publications/mr15/mr15.shtml; 2005; [updated 2005].

⁴⁵ Group E. About EQ-5D: EuroQol Research Foundation; <http://www.euroqol.org/about-eq-5d.html>; 2014; [updated 2014].

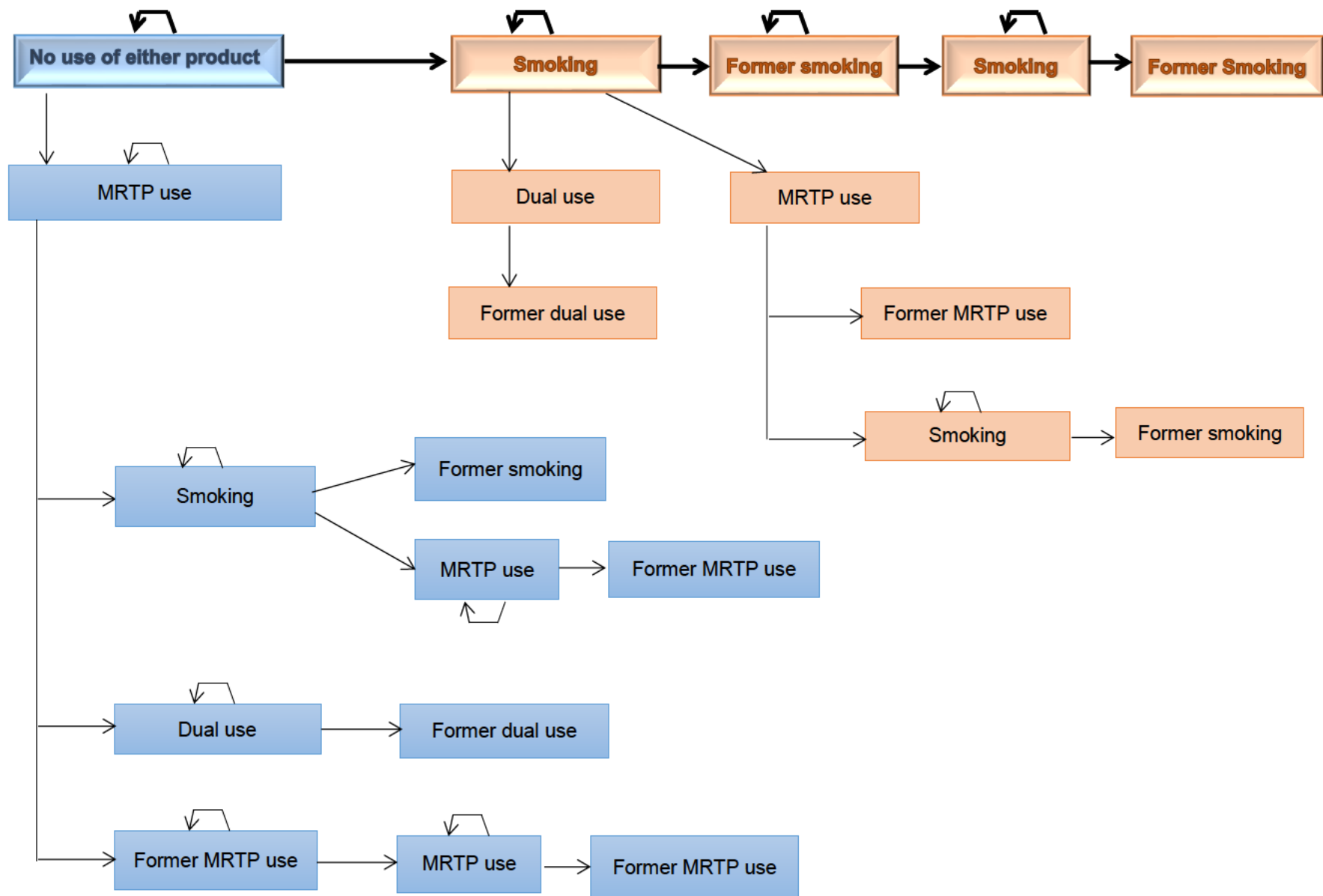


Figure 1: Schematic representation of the distribution of persons into exposure categories by the DPM(+1); transitions for base case (top row) and counterfactual scenario (all rows).

2.2 Use of projected purchase probabilities as DPM(+1) input for transitions in tobacco exposures

The ‘likelihood of use’ studies conducted by RAIS project purchase probabilities for Camel SNUS with modified-risk messaging, based on a cross-sectional survey of U.S. adult tobacco users and non-users. Purchase probabilities are projected across a wide age range, with age-specific projections potentially influenced by four factors (refer to Table 2.1).

Table 2.1: Factors influencing age-specific projections of purchase probabilities

Factor	Potential effect on purchase probabilities
Chronologic age	As never tobacco users age, they may become less likely to initiate use of tobacco products
Cohort effect	Persons born in different years may be inherently different in terms of purchase probabilities or likelihoods of initiating use of tobacco products throughout their lives
Age at which information about the MRTP was obtained	Some respondents are informed early in life while others are not informed until later in life, modifying the effect of the message due to age and cohort differences in the likelihood of initiating tobacco use, as noted above
Intent	Purchase probabilities are based on an intent to purchase the MRTP for personal trial and therefore likely overestimate the actual number of MRTP users

The purchase probabilities projected by RAIS’s ‘likelihood of use’ studies cannot be used directly in the DPM(+1) because calculations in the modeler are not based on a cross-section of a population but rather a single birth cohort - where all persons are of the same age and are followed for a full life-time. The DPM(+1) assumes that all members of the cohort are informed about the MRTP at the same age; and, transition probabilities in the DPM(+1) reflect the actual proportions of the cohort that transition during a given age category (transition probabilities), rather than transition intent.

As discussed in the following two sections, the purchase probabilities projected by the RAIS’s ‘likelihood of use’ studies can be used as ‘best estimates’ for transitions in tobacco exposures, and provide suitable starting points for sensitivity analyses in the DPM(+1).

Camel SNUS initiation

[Table 2.2](#) summarizes the projected purchase probabilities for Camel SNUS with modified-risk messaging among never regular tobacco users, as provided by the first execution of RAIS’s ‘likelihood of use’ study.⁴⁶ Projected purchase probabilities among never regular tobacco users who were *not likely* to initiate cigarette use were very low (0.2%-0.3%) for all age categories, while purchase probabilities among never regular tobacco users who were *likely* to initiate cigarette use were not substantially higher (generally, 0.4%-0.6%).

⁴⁶ “Camel SNUS Modified Risk Messaging: Likelihood of Use among Tobacco Users and Non-Users - *First Execution of Consumer Testing* - Amended Final Report”, dated October 4, 2016. Analyses based on the other two executions of RAIS’s ‘likelihood of use’ study, with different modified-risk messaging, are reported separately.

Given that projected purchase probabilities among never regular tobacco users who were either *not likely* or *likely* to initiate cigarette use were similar in all age groups ([Table 2.2](#)), the presence of a cohort effect (that would indicate differences between members of a cross-sectional population of different ages) appears unlikely. However, it is likely that respondents who were informed about the lower risk for Camel SNUS at a later age and still indicated an intent to purchase the product for personal trial would not have delayed Camel SNUS use had they received the information at a younger age. Due to the apparent lack of a cohort effect, it can be assumed that purchase probabilities among older respondents would have been similar to the purchase probabilities reported among younger respondents to the study survey.

The projected purchase probabilities from RAIS's 'likelihood of use' study are used as input for the DPM(+1), as follows:

- Camel SNUS initiation in age categories 18-22 and 23-27 years: 0.3% among those *not likely* to initiate cigarette use, and 0.5% among those *likely* to initiate cigarette use;
- Camel SNUS initiation in age category 13-17 years: RAIS's 'likelihood of use' study did not include respondents under age 18 years; given the apparent lack of an age effect, the same probabilities are used as specified for age categories 18-22 and 23-27 years; and,
- Camel SNUS initiation after age 27 years: Camel SNUS initiation among current non-users of tobacco is assumed, like cigarette smoking initiation, to be essentially zero after the mid-20s. Therefore, even though some older members of the cross-sectional population participating in the 'likelihood of use' study endorsed their intention to purchase Camel SNUS for personal trial (purchase probability>0), the probability of initiating sustained Camel SNUS use for members of the hypothetical cohort followed in the DPM(+1) is assumed to be zero after the cohort attains age 27 years. This is because the older participants in the 'likelihood of use' study likely would have started MRTP use at a younger age, had the MRTP been available.

Table 2.2: Camel SNUS projected purchase probabilities and corresponding DPM(+1) transition probabilities, by age and likelihood of initiating cigarette use among never regular tobacco users, based on the first execution of RAIS's 'likelihood of use' study

Age interval ^a	<i>Likely to initiate cigarette use</i>			<i>Not likely to initiate cigarette use</i>		
	Number of respondents	Camel SNUS purchase probability ^b (%)	DPM(+1) transition probability (%)	Number of respondents	Camel SNUS purchase probability ^c (%)	DPM(+1) transition probability (%)
13-17	-	-	0.5	-	-	0.3
18-22	35	0.5	0.5	105	0.3	0.3
23-27	72	0.6	0.5	229	0.2	0.3
28-32	96	0.4	-	287	0.3	-
33-37	37	0.5	-	183	0.3	-
38-42	27	0.6	-	183	0.3	-
43-47	25	0.6	-	230	0.3	-
48-52	14	0.4	-	205	0.3	-
53-57	17	0.4	-	188	0.2	-
58-62	7	0.3	-	220	0.3	-
63-67	6	0.7	-	174	0.2	-
68+	7	1.3	-	175	0.3	-

^a DPM(+1) age categories

^b Used to estimate the DPM(+1) transition, probability of initiating tobacco use with Camel SNUS among those base case never tobacco users who would otherwise have initiated cigarette use ('alternative initiation')

^c Used to estimate the DPM(+1) transition, probability of initiating tobacco use with Camel SNUS among those base case never tobacco users who would otherwise have remained never users ('additional initiation')

Switching to Camel SNUS use

Table 2.3 summarizes the projected purchase probabilities for Camel SNUS with modified-risk messaging among current regular smokers, as provided by the first execution of RAIS's 'likelihood of use' study.⁴⁷ Projected purchase probabilities among current regular smokers who were *not likely* to quit smoking decreased with increasing age, from 16.5% in age category 18-22 years to 2.3% in age category 68+ years. Similarly, purchase probabilities among current regular smokers who were *likely* to quit smoking decreased with increasing age, from 20.0% in age category 18-22 years to about 2% in age categories 58-62, 63-67 and 68-72 years.

The observed age effect may have been, at least in part, due to chronologic age, suggesting that switching to a new product (Camel SNUS) becomes increasingly unlikely with increasing age. Also, projected purchase probabilities may reflect a cohort effect if, in fact, more recent birth cohorts are more open to trying a new product throughout their lifetime. In the presence of a cohort effect, it is possible to observe a

⁴⁷ "Camel SNUS Modified Risk Messaging: Likelihood of Use among Tobacco Users and Non-Users - *First Execution of Consumer Testing* - Amended Final Report", dated October 4, 2016. Analyses based on the other two executions of RAIS's 'likelihood of use' study, with different modified-risk messaging, are reported separately.

decrease in purchase probabilities with increasing age even if chronologic age does not affect (or even if it increases) purchase probabilities.

The age at which respondents were informed about Camel SNUS with its proposed modified-risk messaging may also have affected the projected purchase probabilities, as age groups contained current regular smokers who may have switched to Camel SNUS use at a younger age had they been informed, and current regular smokers who may have continued to smoke cigarettes, regardless. Conversely, the corresponding DPM(+1) age groups only contain current smokers who continued to smoke despite having been informed about the lower risks of Camel SNUS at the start of the simulation (age category 13-17 years). For this reason, the purchase probabilities estimated from RAIS's 'likelihood of use' study likely overestimate the probability of completely switching from cigarette use to Camel SNUS use, as modeled by the DPM(+1).

Projected purchase probabilities from the first execution of RAIS's 'likelihood of use' study are used as input for the DPM(+1), as follows:

- Under the assumption of no cohort effect, the projected purchase probabilities likely overestimate the probability of switching from cigarette use to Camel SNUS use in the DPM(+1); thus, age-specific purchase probabilities are used as upper limits (age category 13-17 years is not relevant because switching does not occur in the first age category).

Table 2.3: Camel SNUS projected purchase probabilities and corresponding DPM(+1) transition probabilities, by age and likelihood of quitting smoking among current regular cigarette users, based on the first execution of RAIS's 'likelihood of use' study

Age interval ^a	<i>Likely to quit smoking</i>			<i>Not likely to quit smoking</i>		
	Number of respondents	Camel SNUS purchase probability (%)	DPM(+1) transition probability (%) ^b	Number of respondents	Camel SNUS purchase probability (%)	DPM(+1) transition probability (%) ^c
13-17	-	-	-	-	-	-
18-22	14	20.0	20.0	40	16.5	16.5
23-27	22	8.6	8.6	136	10.9	10.9
28-32	56	6.5	6.5	165	8.6	8.6
33-37	37	4.5	4.5	138	6.0	6.0
38-42	30	7.4	7.4	124	6.0	6.0
43-47	28	5.4	5.4	153	5.7	5.7
48-52	37	5.5	5.5	141	4.1	4.1
53-57	39	2.9	2.9	164	2.5	2.5
58-62	28	1.8	1.8	123	3.4	3.4
63-67	18	2.1	2.1	85	3.3	3.3
68+	6	2.1	2.1	40	2.3	2.3

^a DPM(+1) age categories

^b Used to estimate the DPM(+1) transition, probability of switching to Camel SNUS among those base case current smokers who would otherwise have quit smoking ('diversion from quitting')

^c Used to estimate the DPM(+1) transition, probability of switching to Camel SNUS among those base case current smokers who would otherwise have continued to smoke ('switching')

2.3 Research questions and corresponding DPM(+1) transition probabilities

As discussed above, the purchase probabilities projected by the first execution of RAIS's 'likelihood of use' study⁴⁸ provide 'best estimates' for transitions in tobacco exposure patterns, and likewise provide starting points for sensitivity analyses using the DPM(+1). These purchase probabilities are used to address a series of research questions on the potential population health effects of Camel SNUS and its proposed modified-risk messaging.

For the current analyses, a hypothetical population of one-million 12 year-old never tobacco users is followed from age 13 years, in 5-year intervals, through age 102 years, when the number of survivors is approximately 0 in both the base case and counterfactual scenario. Age-specific mortality rates for never, current, and former smokers are calculated based on data from the Kaiser-Permanente Cohort Study⁴⁹ and the 2000 U.S. Census⁵⁰. Results comparing the number of survivors in the counterfactual scenario and base case are presented for the cohort at the end of age category 68-72 years, as results after age 72 years are increasingly uninformative (the number of survivors in both the counterfactual and the base cases approaches zero).

The base case specifies transition probabilities based on 2009 U.S. cigarette smoking initiation rates⁵¹ and 2005-2008 U.S. smoking cessation rates⁵² (refer to [Table 2.4](#)). More current smoking cessation estimates have been published, but they include as former smokers individuals who quit smoking less than one year in the past, i.e., they include quit attempts. This definition is incompatible with the mortality data for successful smoking quitters (i.e., those who were former smokers for at least 2 years) from the Kaiser-Permanente Cohort Study. Therefore, the DPM(+1) was calibrated using the 2005-2008 U.S. smoking cessation rates, which are based on successful cessation defined as lasting at least one year. Uncertainty in initiation and cessation rates is accounted for by modeling the transition probabilities as truncated normal random variables, with means equal to the respective estimates and standard deviations equal to 0.01. For the counterfactual scenarios, projected purchase probabilities for Camel SNUS initiation and switching from smoking to Camel SNUS use (primary beneficial and harmful transitions of 'alternative initiation', 'switching', 'additional initiation' and 'diversion from quitting') were used as 'best estimates', as well as starting points for sensitivity analyses. Cessation of Camel SNUS was suspended, with the probability of Camel SNUS cessation set to 0. Secondary harmful transitions ('gateway effect', 'delayed smoking', 'resumed smoking' and 'relapse'), which were not assessed in RAIS's 'likelihood of use' study, were based on hypothetical transition probabilities, that were, in most instances, extreme scenarios. Transition probabilities for the counterfactual scenarios are summarized in the [Section 2](#) tables below, and shown in detail in [Appendix A](#).

⁴⁸ "Camel SNUS Modified Risk Messaging: Likelihood of Use among Tobacco Users and Non-Users - *First Execution of Consumer Testing* - Amended Final Report", dated October 4, 2016. Analyses based on the other two executions of RAIS's 'likelihood of use' study, with different modified-risk messaging, are reported separately.

⁴⁹ Friedman G, Tekawa IS, Sadler M, Sidney S. Smoking and mortality: the Kaiser Permanente experience. In: Shopland DR, Burns DM, Garfinkel L, Samet J, editors. *Changes in Cigarette-Related Disease Risks and Their Implication for Prevention and Control*. Rockville, MD: US Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute. 1997; 477-99.

⁵⁰ Census Bureau, U.S. Death and Death Rates, by Age and Leading Cause. 2000.

⁵¹ SAMHSA. NSDUH 2010 Table 4.3B: Past Year Initiation of Cigarette Use among Persons Aged 12 or Older, Persons Aged 12 or Older At Risk for Initiation of Cigarette Use, and Past Year Cigarette Users Aged 12 or Older, by Demographic Characteristics: Numbers in Thousands and Percentages, 2009 and 2010. 2010.

⁵² SAMHSA. Recent Smoking Cessation Rockville, MD: Substance Abuse and Mental Health Services Administration. 2010; [updated 4/8/2010]. Available from: <http://www.samhsa.gov/data/2k10/172/172smokingcessation.htm>.

ERRs of 0.08 and 0.11 were used for the current analyses, and are based on consensus estimates for the mortality risk associated with long-term use of a low-nitrosamine smokeless tobacco product relative to conventional cigarettes and no tobacco use. The values of the consensus estimates (adjusted means; smokeless tobacco use compared to cigarette smoking) were 11.0 for those ages 35-49 years and 8.2 for those age 50+ years, based on a 100-point scale.⁵³ Uncertainty in the values of the ERRs was accounted for by modeling the risk estimates as left-truncated normal random variables, with means of 0.08 or 0.11 and standard deviations of 0.01. For the ERR of 0.08, the standard deviation ensured a range of approximately 0.05 to 0.11; and, for the ERR of 0.11, a range of approximately 0.08 to 0.14. Detailed information regarding data sources for smoking initiation and cessation and for mortality rates is provided in [Appendix B](#).

Table 2.4: Estimated U.S. smoking initiation (2009) and cessation (2005-2008) rates

Age interval	5-year smoking initiation (%) ^{a,c}	5-year smoking cessation (%) ^{b,c}
13-17	13.75	N/A ^d
18-22	10.00	9.00
23-27	1.00	9.50
28-32	0.00	14.00
33-37	0.00	14.00
38-42	0.00	14.00
43-47	0.00	14.00
48-52	0.00	14.00
53-57	0.00	14.00
58+	0.00	14.00

^a Based on <http://www.samhsa.gov/data/NSDUH/2K10ResultsTables/NSDUHTables2010R/HTM/Sect4peTabs1to16.htm#Tab4.3B>

^b Based on <http://www.samhsa.gov/data/2k10/172/172smokingcessation.htm>

^c Published annual smoking initiation and cessation rates were adjusted to align with the 5-year age categories used in the DPM(+1) and were multiplied by 2.5 to estimate rates over a 5-year period, the average person-time at risk of smoking initiation or cessation in each 5-year age category

^d No smoking cessation allowed in the first age category, ages 13-17 years

Population health effects based on combined beneficial and harmful transitions

The **first objective** was to estimate the 'net' population health effect of changes in tobacco exposure patterns expected to result from Camel SNUS and its proposed marketing as a modified-risk tobacco product. This objective was addressed by collectively examining all primary and secondary exposure transitions, intended and unintended, using population survival as a surrogate for population health. Primary exposure transitions examined for these analyses included: (1) some base case never tobacco users initiate Camel SNUS use instead of remaining never tobacco users ('additional initiation'); (2) some base case never tobacco users initiate Camel SNUS use instead of initiating cigarette smoking ('alternative initiation'); (3) some base case current smokers switch to Camel SNUS use instead of continuing to use cigarettes

⁵³ Levy DT, Mumford EA, Cummings KM, Gilpin EA, Giovino G, Hyland A, et al. The relative risks of a low-nitrosamine smokeless tobacco product compared with smoking cigarettes: estimates of a panel of experts. *Cancer Epidemiol Biomarkers Prev.* 2004;13(12): 2035-42.

(‘switching’, the intended change); and, (4) some base case current smokers switch to Camel SNUS use instead of quitting all tobacco use (‘diversion from quitting’). These primary transition probabilities were based on the first execution of RAIS’s ‘likelihood of use’ study.⁵⁴ Secondary exposure transitions included: (5) some portion of ‘additional initiation’ Camel SNUS users transition to cigarette smoking (‘gateway effect’); (6) some portion of ‘alternative initiation’ Camel SNUS users transition to cigarette smoking (‘delayed smoking’); (7) some portion of ‘switching’ Camel SNUS users resume cigarette smoking (‘resumed smoking’); and, (8) some portion of ‘diversion from quitting’ Camel SNUS users relapse to cigarette smoking (‘relapse’). These secondary transitions were not directly investigated by RAIS’s ‘likelihood of use’ study, and were thus modeled using hypothetical probabilities that represented, in most instances, extreme scenarios. Analyses were conducted using ERRs of 0.08 and 0.11, to define the mortality risk of Camel SNUS use relative to cigarette smoking. [Tables 2.5-2.8](#), described in detail in the chart below, present operational research questions, as well as DPM(+1) transition probabilities used to support the corresponding analyses, including sensitivity and ‘tipping point’ analyses. The corresponding results are shown in [Tables 3.1-3.4](#) in [Section 3](#).

Input tables	Result tables	Description	Transition probabilities
2.5	3.1	Net effect of all primary transitions and secondary transitions ‘gateway effect’/‘delayed smoking’ and ‘resumed smoking’(‘master model’); ‘relapse’ and effect of different ERRs addressed in sensitivity analyses	<ul style="list-style-type: none"> Primary transitions: Projections from ‘likelihood of use’ study ‘Gateway effect’/‘delayed smoking’: Extreme scenario for each (50%) ‘Resumed smoking’ (among ‘switchers’): Age interval-specific ‘switching’ reduced by 50%
2.6	3.2	Net effect of primary transitions ‘additional initiation’, ‘switching’ and ‘diversion from quitting’, and secondary transitions ‘gateway effect’ and ‘resumed smoking’; ‘relapse’ addressed in sensitivity analysis	<ul style="list-style-type: none"> Primary transitions: Projections from ‘likelihood of use’ study ‘Gateway effect’: Extreme scenario (50%) ‘Resumed smoking’ (among ‘switchers’): Age interval-specific ‘switching’ reduced by 50%
2.7	3.3	Net effect of primary transitions ‘additional initiation’, ‘switching’ and ‘diversion from quitting’	Primary transitions: Projections from ‘likelihood of use’ study
2.8	3.4	Tipping point for ‘switching’ versus primary transitions ‘additional initiation’ and ‘diversion from quitting’ and secondary transition ‘gateway effect’	<ul style="list-style-type: none"> ‘Switching’: Variable Other primary transitions: Projections from ‘likelihood of use’ study ‘Gateway effect’: Extreme scenario (50%)

⁵⁴ “Camel SNUS Modified Risk Messaging: Likelihood of Use among Tobacco Users and Non-Users - *First Execution of Consumer Testing* - Amended Final Report”, dated October 4, 2016. Analyses based on the other two executions of RAIS’s ‘likelihood of use’ study, with different modified-risk messaging, are reported separately.

Table 2.5: Research question and corresponding transition probabilities for assessing the 'net' population health effect of all primary transitions and the secondary transitions 'gateway effect', 'delayed smoking' and 'resumed smoking', combined ('master model')

Research question	DPM(+1) transition probabilities	
‘What is the ‘net’ population health effect if		
<ul style="list-style-type: none">• some never tobacco users who would have remained never users instead initiate Camel SNUS use (‘additional initiation’); and,	Probability of ‘additional initiation’, % (from Table 2.2 ^a)	
	Ages 13-17, 18-22, 23-27	0.3
	Ages 28+	0.0
<ul style="list-style-type: none">• some never tobacco users who would have initiated cigarette use instead initiate Camel SNUS use (‘alternative initiation’); and,	Probability of ‘alternative initiation’, % (from Table 2.2 ^a)	
	Ages 13-17, 18-22, 23-27	0.5
	Ages 28+	0.0
<ul style="list-style-type: none">• some proportion of ‘additional initiators’ transition to cigarette use in the next age category (‘gateway effect’); the same proportion of ‘alternative initiators’ transition to cigarette use in the next age category (‘delayed smoking’); and,	Probability of ‘gateway effect’ or ‘delayed smoking’, %	
	Ages 13-17	No switching
	Ages 18-22, 23-27, 28-32	50 ^b
	Ages 33+	0
<ul style="list-style-type: none">• some current smokers who would have continued to use cigarettes instead switch completely to Camel SNUS use (‘switching’) but 50% of switchers return to smoking in same age category (‘resumed smoking’); and,	50% of probability of ‘switching’, % (based on Table 2.3 ^{a,c})	
	Ages 13-17	No switching
	Ages 18-22	8.3
	Ages 23-27	5.5
	Ages 28-32	4.3
	Ages 33-37	3.0
	Ages 38-42	3.0
	Ages 43-47	2.9
	Ages 48-52	2.1
	Ages 53-57	1.3
	Ages 58-62	1.7
	Ages 63-67	1.7
	Ages 68+	1.2

^a In sensitivity analyses, reduced transition probabilities by 75% to model considerably lower transition probabilities than suggested by 'likelihood of use' study

^b Extreme transition probability, in absence of empirical data

^c Hypothetical transition probabilities, in absence of empirical data; probabilities from 'likelihood of use' study reduced by 50% to model 50% return from Camel SNUS use to smoking ('resumed smoking') in same 5-year age category

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Table 2.5, cont.: Research question and corresponding transition probabilities for assessing the 'net' population health effect of all primary transitions and the secondary transitions 'gateway effect', 'delayed smoking' and 'resumed smoking', combined ('master model')

Research question	DPM(+1) transition probabilities	
<ul style="list-style-type: none"> some current smokers who would have quit tobacco use instead switch to Camel SNUS use ('diversion from quitting') 	Probability of 'diversion from quitting', % (from Table 2.3 ^{a,d})	
	Ages 13-17	No switching
	Ages 18-22	20.0
	Ages 23-27	8.6
	Ages 28-32	6.5
	Ages 33-37	4.5
	Ages 38-42	7.4
	Ages 43-47	5.4
	Ages 48-52	5.5
	Ages 53-57	2.9
	Ages 58-62	1.8
	Ages 63-67	2.1
	Ages 68+	2.1

^a In sensitivity analyses, reduced transition probabilities by 75% to model considerably lower transition probabilities than suggested by 'likelihood of use' study

^d In sensitivity analyses, assessed effect of 50% relapse to smoking among base case smoking quitters who switched to Camel SNUS use in counterfactual scenario ('relapse'); see [Appendix C](#) for details

Table 2.6: Research question and corresponding transition probabilities for assessing the ‘net’ population health effect of the primary transitions ‘additional initiation’, ‘switching’ and ‘diversion from quitting’ and the secondary transitions ‘gateway effect’ and ‘resumed smoking’, combined

Research question	DPM(+1) transition probabilities	
‘What is the ‘net’ population health effect if		
<ul style="list-style-type: none">some never tobacco users who would have remained never users instead initiate Camel SNUS use (‘additional initiation’); and,	Probability of ‘additional initiation’, % (from Table 2.2)	
	Ages 13-17, 18-22, 23-27	0.3
	Ages 28+	0.0
<ul style="list-style-type: none">some proportion of ‘additional initiators’ transition to cigarette use in the next age category (‘gateway effect’); and,	Probability of ‘gateway effect’, %	
	Ages 13-17	No switching
	Ages 18-22, 23-27, 28-32	50 ^a
<ul style="list-style-type: none">some current smokers who would have continued to use cigarettes instead switch completely to Camel SNUS use (‘switching’) but 50% of switchers return to smoking in same age category (‘resumed smoking’); and,	50% of probability of ‘switching’, % (based on Table 2.3 ^b)	
	Ages 13-17	No switching
	Ages 18-22	8.3
	Ages 23-27	5.5
	Ages 28-32	4.3
	Ages 33-37	3.0
	Ages 38-42	3.0
	Ages 43-47	2.9
	Ages 48-52	2.1
	Ages 53-57	1.3
	Ages 58-62	1.7
	Ages 63-67	1.7
<ul style="list-style-type: none">some current smokers who would have quit tobacco use instead switch to Camel SNUS use (‘diversion from quitting’)	Probability of ‘diversion from quitting’, % (from Table 2.3 ^c)	
	Ages 13-17	No switching
	Ages 18-22	20.0
	Ages 23-27	8.6
	Ages 28-32	6.5
	Ages 33-37	4.5
	Ages 38-42	7.4
	Ages 43-47	5.4
	Ages 48-52	5.5
	Ages 53-57	2.9
	Ages 58-62	1.8
	Ages 63-67	2.1
Ages 68+	2.1	

^a Extreme transition probability, in absence of empirical data

^b Hypothetical transition probabilities, in absence of empirical data; probabilities from ‘likelihood of use’ study reduced by 50% to model 50% return from Camel SNUS use to smoking (‘resumed smoking’) in same 5-year age category

^c In sensitivity analyses, assessed effect of 50% relapse to smoking among base case smoking quitters who switched to Camel SNUS use in counterfactual scenario (‘relapse’); see [Appendix C](#) for details

Table 2.7: Research question and corresponding transition probabilities for assessing the ‘net’ population health effect of the primary transitions ‘additional initiation’, ‘switching’ and ‘diversion from quitting’

Research question	DPM(+1) transition probabilities	
What is the ‘net’ population health effect if		
• some never tobacco users who would have remained never users instead initiate Camel SNUS use (‘additional initiation’); and,	Probability of ‘additional initiation’, % (from Table 2.2)	
	Ages 13-17, 18-22, 23-27	0.3
	Ages 28+	0.0
• some current smokers who would have continued to use cigarettes instead switch completely to Camel SNUS use (‘switching’); and,	Probability of ‘switching’, % (from Table 2.3)	
	Ages 13-17	No switching
	Ages 18-22	16.5
	Ages 23-27	10.9
	Ages 28-32	8.6
	Ages 33-37	6.0
	Ages 38-42	6.0
	Ages 43-47	5.7
	Ages 48-52	4.1
	Ages 53-57	2.5
	Ages 58-62	3.4
	Ages 63-67	3.3
	Ages 68+	2.3
• some current smokers who would have quit tobacco use instead switch to Camel SNUS use (‘diversion from quitting’)	Probability of ‘diversion from quitting’, % (from Table 2.3)	
	Ages 13-17	No switching
	Ages 18-22	20.0
	Ages 23-27	8.6
	Ages 28-32	6.5
	Ages 33-37	4.5
	Ages 38-42	7.4
	Ages 43-47	5.4
	Ages 48-52	5.5
	Ages 53-57	2.9
	Ages 58-62	1.8
	Ages 63-67	2.1
	Ages 68+	2.1

Table 2.8: Research question and corresponding transition probabilities for determining the ‘tipping point’ related to the primary beneficial transition, ‘switching’, versus the primary transitions ‘additional initiation’ and ‘diversion from quitting’ and the secondary transition ‘gateway effect’, combined

Research question	DPM(+1) transition probabilities	
‘What is the ‘net’ population health effect if		
<ul style="list-style-type: none">some never tobacco users who would have remained never users instead initiate Camel SNUS use (‘additional initiation’); and,	Probability of ‘additional initiation’, % (from Table 2.2)	
	Ages 13-17, 18-22, 23-27	0.3
	Ages 28+	0.0
<ul style="list-style-type: none">some proportion of ‘additional initiators’ transition to cigarette use in the next age category (‘gateway effect’); and,	Probability of ‘gateway effect’, %	
	Ages 13-17	No switching
	Ages 18-22, 23-27, 28-32	50 ^a
<ul style="list-style-type: none">some current smokers who would have continued to use cigarettes instead switch completely to Camel SNUS use (‘switching’); and,	Ages 33+	0
	Probability of ‘switching’, % Ages 18+	Varied to find tipping point
<ul style="list-style-type: none">some current smokers who would have quit tobacco use instead switch to Camel SNUS use (‘diversion from quitting’)	Probability of ‘diversion from quitting’, % (from Table 2.3 ^b)	
	Ages 13-17	No switching
	Ages 18-22	20.0
	Ages 23-27	8.6
	Ages 28-32	6.5
	Ages 33-37	4.5
	Ages 38-42	7.4
	Ages 43-47	5.4
	Ages 48-52	5.5
	Ages 53-57	2.9
	Ages 58-62	1.8
	Ages 63-67	2.1
	Ages 68+	2.1

^a Extreme transition probability, in absence of empirical data

^b In sensitivity analyses, assessed effect of 50% relapse to smoking among base case smoking quitters who switched to Camel SNUS use in counterfactual scenario (‘relapse’); see [Appendix C](#) for details

Population health effects due to individual beneficial and harmful transitions

The next series of DPM(+1)-based analyses addressed the **second objective**, to more closely assess the influence of specific changes in tobacco exposure patterns - expected to result from Camel SNUS and its proposed modified-risk messaging - on the overall 'net' population health effect. This objective was achieved by examining the population-level effects of changes in beneficial and harmful tobacco exposure patterns, individually and in limited combinations, based largely on projected purchase probabilities from the first execution of RAIS's 'likelihood of use' study.⁵⁵ Population survival was used as a surrogate for population health. Tobacco exposure transitions examined using the DPM(+1) included the primary transitions (1) 'alternative initiation', whereby some never tobacco users initiate Camel SNUS use instead of initiating cigarette smoking; (2) 'switching', whereby some current smokers switch completely to Camel SNUS use instead of continuing to use cigarettes; (3) 'additional initiation', whereby some never tobacco users initiate Camel SNUS use instead of remaining never tobacco users; and/or, (4) 'diversion from quitting', whereby some current smokers switch to Camel SNUS use instead of quitting cigarettes. A second set of analyses included primary transitions followed by the secondary transitions (5) 'gateway effect', whereby some portion of 'additional initiators' transition to cigarette smoking; (6) 'delayed smoking', whereby some portion of 'alternative initiators' transition to cigarette smoking; (7) 'resumed smoking', whereby some portion of 'switchers' return to cigarette smoking; and (8) 'relapse', whereby some portion of those who 'diverted from quitting' relapse to cigarette smoking. Analyses were conducted using ERRs of 0.08 and 0.11 to define the mortality risk of Camel SNUS use relative to cigarette smoking. [Tables 2.9-2.15](#), described in detail in the chart below, present operational research questions, as well as DPM(+1) transition probabilities used to support the corresponding analyses. The corresponding results are shown in [Tables 3.5-3.11](#) in [Section 3](#).

Input tables	Result tables	Description	Transition probabilities
2.9	3.5	Effect of 'alternative initiation'	<ul style="list-style-type: none"> Projections from 'likelihood of use' study
2.10	3.6	Effect of 'switching'	<ul style="list-style-type: none"> Projections from 'likelihood of use' study
2.11	3.7	Effect of 'additional initiation'	<ul style="list-style-type: none"> Projections from 'likelihood of use' study
2.12	3.8	Effect of 'diversion from quitting'; 'relapse' addressed in sensitivity analysis	<ul style="list-style-type: none"> Projections from 'likelihood of use' study
2.13	3.9	Effect of 'additional initiation', followed by extreme 'gateway effect'	<ul style="list-style-type: none"> 'Additional initiation': Projections from 'likelihood of use' study 'Gateway effect': Extreme scenario (50%)
2.14	3.10	Effect of 'alternative initiation', followed by extreme 'delayed smoking'	<ul style="list-style-type: none"> 'Alternative initiation': Projections from 'likelihood of use' study 'Delayed smoking': Extreme scenario (50%)
2.15	3.11	Effect of 'switching', followed by 'resumed smoking'	<ul style="list-style-type: none"> 'Switching': Projections from 'likelihood of use' study 'Resumed smoking' (among 'switchers'): Age interval-specific 'switching' reduced by 50%

⁵⁵ "Camel SNUS Modified Risk Messaging: Likelihood of Use among Tobacco Users and Non-Users - *First Execution of Consumer Testing* - Amended Final Report", dated October 4, 2016. Analyses based on the other two executions of RAIS's 'likelihood of use' study, with different modified-risk messaging, are reported separately.

Table 2.9: Research question and corresponding transition probabilities for assessing the population health effect of the primary beneficial transition, 'alternative initiation'

Research question	DPM(+1) transition probabilities	
What is the expected population health benefit if some never tobacco users who would have initiated cigarette use instead initiate Camel SNUS use ('alternative initiation')?	Probability of 'alternative initiation', % (from Table 2.2)	
	Ages 13-17, 18-22, 23-27	0.5
	Ages 28+	0.0

Table 2.10: Research question and corresponding transition probabilities for assessing the population health effect of the primary beneficial transition, 'switching'

Research question	DPM(+1) transition probabilities	
What is the expected population health benefit if some current smokers who would have continued to use cigarettes instead switch completely to Camel SNUS use ('switching')?	Probability of 'switching', % (from Table 2.3)	
	Ages 13-17	No switching
	Ages 18-22	16.5
	Ages 23-27	10.9
	Ages 28-32	8.6
	Ages 33-37	6.0
	Ages 38-42	6.0
	Ages 43-47	5.7
	Ages 48-52	4.1
	Ages 53-57	2.5
	Ages 58-62	3.4
	Ages 63-67	3.3
	Ages 68+	2.3

Table 2.11: Research question and corresponding transition probabilities for assessing the population health effect of the primary harmful transition, 'additional initiation'

Research question	DPM(+1) transition probabilities	
What is the expected population health harm if some never tobacco users who would have remained never users instead initiate Camel SNUS use ('additional initiation')?	Probability of 'additional initiation', % (from Table 2.2)	
	Ages 13-17, 18-22, 23-27	0.3
	Ages 28+	0.0

Table 2.12: Research question and corresponding transition probabilities for assessing the population health effect of the primary harmful transition, 'diversion from quitting'

Research question	DPM(+1) transition probabilities	
What is the expected population health harm if some current smokers who would have quit tobacco use instead switch to Camel SNUS use ('diversion from quitting')?	Probability of 'diversion from quitting', % (from Table 2.3 ^a)	
	Ages 13-17	No switching
	Ages 18-22	20.0
	Ages 23-27	8.6
	Ages 28-32	6.5
	Ages 33-37	4.5
	Ages 38-42	7.4
	Ages 43-47	5.4
	Ages 48-52	5.5
	Ages 53-57	2.9
	Ages 58-62	1.8
	Ages 63-67	2.1
	Ages 68+	2.1

^a In sensitivity analyses, assessed effect of 50% relapse to smoking among base case smoking quitters who switched to Camel SNUS use in counterfactual scenario ('relapse'); see [Appendix C](#) for details

Table 2.13: Research question and corresponding transition probabilities for assessing the population health effect of the primary harmful transition, 'additional initiation', combined with the secondary harmful transition, 'gateway effect'

Research question	DPM(+1) transition probabilities	
What is the expected population health harm if some never tobacco users who would have remained never users instead initiate Camel SNUS use ('additional initiation'), and then some initiators transition to cigarette use in the next age category ('gateway effect')?	Probability of 'additional initiation', % (from Table 2.2)	
	Ages 13-17, 18-22, 23-27	0.3
	Ages 28+	0.0
	Probability of 'gateway effect', %	
	Ages 13-17	No switching
	Ages 18-22, 23-27, 28-32	50 ^a
	Ages 33+	0

^a Extreme transition probability, in absence of empirical data

Table 2.14: Research question and corresponding transition probabilities for assessing the population health effect of the primary beneficial transition, 'alternative initiation', combined with the secondary harmful transition, 'delayed smoking'

Research question	DPM(+1) transition probabilities	
What is the expected population health effect if some never tobacco users who would have initiated cigarette use instead initiate Camel SNUS use ('alternative initiation'), and then some initiators transition to cigarette use in the next age category ('delayed smoking')?	Probability of 'alternative initiation', % (from Table 2.2)	
	Ages 13-17, 18-22, 23-27	0.5
	Ages 28+	0.0
	Probability of 'delayed smoking', %	
	Ages 13-17	No switching
	Ages 18-22, 23-27, 28-32	50 ^a
	Ages 33+	0

^a Extreme transition probability, in absence of empirical data

Table 2.15: Research question and corresponding transition probabilities for assessing the population health effect of the primary beneficial transition, 'switching', combined with the secondary harmful transition, 'resumed smoking'

Research question	DPM(+1) transition probabilities	
What is the expected population health effect if some current smokers who would have continued to use cigarettes instead switch completely to Camel SNUS use ('switching') but 50% of switchers return to smoking in same age category ('resumed smoking')?	50% of probability of 'switching', % (based on Table 2.3 ^a)	
	Ages 13-17	No switching
	Ages 18-22	8.3
	Ages 23-27	5.5
	Ages 28-32	4.3
	Ages 33-37	3.0
	Ages 38-42	3.0
	Ages 43-47	2.9
	Ages 48-52	2.1
	Ages 53-57	1.3
	Ages 58-62	1.7
	Ages 63-67	1.7
	Ages 68+	1.2

^a Hypothetical transition probabilities, in absence of empirical data; probabilities from 'likelihood of use' study reduced by 50% to model 50% return from Camel SNUS use to smoking ('resumed smoking') in same 5-year age category

Population health effects based on ‘switching’ combined with extreme scenarios for harmful transitions

Lastly, DPM(+1)-based analyses addressed a **third objective**, assessing whether Camel SNUS and its proposed modified-risk messaging is likely to have a beneficial effect on population health, or at a minimum is unlikely to have an adverse effect on population health, even if unintended changes in tobacco exposure transitions are extreme. These assessments were based on a series of analyses that estimated the proportion of current smokers who must completely switch to using Camel SNUS instead of continuing to smoke (‘switching’) to fully offset any unintended population harm that may occur due to extreme scenarios for the primary harmful transitions of ‘additional initiation’ and ‘diversion from quitting’, and the secondary harmful transition of ‘gateway effect’. Population survival was used as a surrogate for population health. Analyses were conducted using ERRs of 0.08 and 0.11, to define the mortality risk of Camel SNUS use relative to cigarette smoking. [Tables 2.16-2.18](#), described in detail in the chart below, present operational research questions, as well as DPM(+1) transition probabilities used to support the corresponding analyses. The corresponding results are shown in [Tables 3.12-3.14](#) in [Section 3](#).

Input tables	Result tables	Description	Transition probabilities
2.16	3.12	Tipping point for ‘switching’ versus extreme scenario for ‘additional initiation’	<ul style="list-style-type: none"> • ‘Switching’: Variable • ‘Additional initiation’: Extreme scenario; same age interval-specific rates as U.S. smoking initiation
2.17	3.13	Tipping point for ‘switching’ versus scenario for elevated ‘additional initiation’ followed by extreme scenario for ‘gateway effect’	<ul style="list-style-type: none"> • ‘Switching’: Variable • ‘Additional initiation’: Projections from ‘likelihood of use’ study multiplied by factor of 10 • ‘Gateway effect’: Extreme scenario (50%)
2.18	3.14	Tipping point for ‘switching’ versus extreme scenario for ‘diversion from quitting’	<ul style="list-style-type: none"> • ‘Switching’: Variable • ‘Diversion from quitting’: Extreme scenario (50%)

Table 2.16: Research question and corresponding transition probabilities for determining the ‘tipping point’ related to ‘switching’ versus an extreme scenario for the primary harmful transition, ‘additional initiation’

Research question	DPM(+1) transition probabilities	
What proportion of current smokers must switch completely to Camel SNUS use instead of continuing to use cigarettes (‘switching’) to fully offset the population health harm expected from an extreme scenario whereby a large proportion of never tobacco users initiate Camel SNUS use instead of remaining non-tobacco users (‘additional initiation’)?	Probability of ‘additional initiation’, % (assume same % as U.S. smoking initiation, from Table 2.4) ^a	
	Ages 13-17	13.75
	Ages 18-22	10.00
	Ages 23-27	1.00
	Ages 28+	0.00
	Probability of ‘switching’ Ages 18+	Varied to find tipping point

^a Sensitivity analysis employed extreme scenario for ‘additional initiation’, almost doubling tobacco use incidence (counterfactual compared to base case)

Table 2.17: Research question and corresponding transition probabilities for determining the ‘tipping point’ related to ‘switching’ versus a scenario with elevated rates for the primary harmful transition, ‘additional initiation’, combined with an extreme scenario for the secondary harmful transition, ‘gateway effect’

Research question	DPM(+1) transition probabilities	
‘What proportion of current smokers must switch completely to Camel SNUS use instead of continuing to use cigarettes (‘switching’) to fully offset the population health harm expected from an extreme scenario whereby a larger than projected proportion of never tobacco users who would have remained never users instead initiate Camel SNUS use, (‘additional initiation’) and then some initiators transition to cigarette use in the next age category (‘gateway effect’)?	10-fold probability of ‘additional initiation’, % (from Table 2.2)	
	Ages 13-17, 18-22, 23-27	3.0 ^a
	Ages 28+	0.0
	Probability of ‘gateway effect’, %	
	Ages 13-17	No switching
	Ages 18-22, 23-27, 28-32	50 ^b
	Ages 33+	0
	Probability of ‘switching’	
	Ages 18+	Varied to find tipping point

^a Sensitivity analysis employed 10-fold higher estimate for ‘additional initiation’ than suggested by purchase probabilities projected from ‘likelihood of use’ study

^b Extreme transition probability, in absence of empirical data

Table 2.18: Research question and corresponding transition probabilities for determining the ‘tipping point’ related to ‘switching’ versus an extreme scenario for the primary harmful transition, ‘diversion from quitting’

Research question	DPM(+1) transition probabilities	
What proportion of current smokers must switch completely to Camel SNUS use instead of continuing to use cigarettes (‘switching’) to fully offset the population health harm expected from an extreme scenario whereby a large proportion of current smokers switch to Camel SNUS use instead of quitting tobacco use (‘diversion from quitting’)?	Probability of ‘diversion from quitting’, %	
	Ages 18+	50 ^a
	Probability of ‘switching’	
	Ages 18+	Varied to find tipping point

^a Sensitivity analysis employed extreme scenario for ‘diversion from quitting’, whereby quitting was reduced by 50%

Population health effects based on systematically increased first age category of Camel SNUS use

The impact of Camel SNUS and its proposed modified-risk messaging on population health, in particular among current smokers of different ages, was assessed by examining the effect of the primary beneficial transitions of 'alternative initiation' and 'switching', the primary harmful transitions of 'additional initiation' and 'diversion from quitting' and the secondary harmful transitions of 'gateway effect'/'delayed smoking' and 'resumed smoking', while systematically increasing the first age category in which these transitions could occur. These analyses were conducted using multiple birth cohorts and with ERRs of 0.08 and 0.11 to define the mortality risk of Camel SNUS use relative to cigarette smoking.

3. Detailed description of results from the DPM(+1)-based analyses

Population health effects based on combined beneficial and harmful transitions

The **first objective** was to estimate the 'net' population health effect of changes in tobacco exposure patterns expected to result from Camel SNUS and its proposed marketing as a modified-risk tobacco product. This objective was addressed by collectively examining all primary and secondary exposure transitions, intended and unintended, using population survival as a surrogate for population health. Primary exposure transitions examined for the current analyses (described in detail, [Section 2.3](#) and [Tables 2.5-2.8](#)) were based on the first execution of RAIS's 'likelihood of use' study.⁵⁶ Secondary transitions were not directly investigated by RAIS's 'likelihood of use' study, and were thus modeled using hypothetical probabilities that, in many instances, represented extreme scenarios ([Section 2.3](#) and [Tables 2.5-2.8](#)).

Analyses were conducted using ERRs of 0.08 and 0.11, to define the mortality risk of Camel SNUS use relative to cigarette smoking. The results for differences between the counterfactual scenarios and the base case at the end of age category 68-72 years are presented in [Tables 3.1-3.4](#).⁵⁷

'Net' population health effect of all primary beneficial and harmful transitions, and secondary harmful transitions of 'gateway effect'/'delayed smoking' and 'resumed smoking', combined; secondary harmful transition 'relapse' addressed in sensitivity analyses, as is effect of different ERRs [refer to Table 2.5]

These analyses evaluated the 'net' population health effect of all primary beneficial transitions ('alternative initiation' and 'switching'), all primary harmful transitions ('additional initiation' and 'diversion from quitting') and the secondary harmful transitions of 'gateway effect', 'delayed smoking' and 'resumed smoking' – referred to as the 'master model'. Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

⁵⁶ "Camel SNUS Modified Risk Messaging: Likelihood of Use among Tobacco Users and Non-Users - *First Execution of Consumer Testing* - Amended Final Report", dated October 4, 2016. Analyses based on the other two executions of RAIS's 'likelihood of use' study, with different modified-risk messaging, are reported separately.

⁵⁷ Results for LE and QALE are presented in [Tables D3.1-D3.4 in Appendix D](#). The total numbers of survivors in the counterfactual scenario and the base case, and the differences between them are shown for all age categories in [Tables E3.1-E3.4 in Appendix E](#).

Empirical data on primary beneficial and harmful transitions were based on projected purchase probabilities, as provided by the first execution of RAIS's 'likelihood of use' study. Specifically, the probability that base case cigarette initiators would instead initiate tobacco use with Camel SNUS ('alternative initiation') was projected to be 0.5% (refer to [Table 2.2](#)); this transition occurs in the first three age categories. 'Switching' to the use of Camel SNUS instead of continuing to use cigarettes among base case current smokers was projected to range from 2.3% to 16.5%, depending on age category (refer to [Table 2.3](#)). The probability that base case never tobacco users would initiate use of Camel SNUS instead of remaining never users ('additional initiation') was projected to be 0.3% (refer to [Table 2.2](#)); similar to 'alternative initiation', this transition occurs in the first three age categories. Finally, the probability that base case current smokers would switch to using Camel SNUS instead of quitting tobacco use ('diversion from quitting') was projected to range from 1.8%-20.0%, depending on the age category (refer to [Table 2.3](#)).

In the absence of empirical data on secondary harmful transitions from RAIS's 'likelihood of use' studies, the effect of these unintended changes in tobacco exposure patterns were evaluated using hypothetical and, in many instances, extreme scenarios. Specifically, both 'gateway effect' (the probability that some portion of 'additional initiation' Camel SNUS users would transition to cigarette use) and 'delayed smoking' (the probability that some portion of 'alternative initiation' Camel SNUS users would transition to cigarette use) were evaluated using scenarios whereby 50% of all Camel SNUS initiators transition to cigarette smoking in the age category following initiation (ages 18-22, 23-27 and 28-32 years). In addition, the secondary harmful transition of 'resumed smoking' was evaluated using a scenario whereby 50% of those smokers who switched to using Camel SNUS instead of continuing to smoke subsequently resumed cigarette use. Under the assumption that 'resumed smoking' would likely occur in the same 5-year age category as 'switching', this transition was modeled by reducing the transition probabilities for 'switching' from smoking to Camel SNUS use by 50%. Finally, sensitivity analyses conducted within the context of the 'master model' evaluated (1) the 'net' population health effect of an extreme scenario for 'relapse', whereby 50% of base case current smokers who would have quit tobacco use but instead switched to Camel SNUS use ('diversion from quitting') subsequently relapsed to smoking; and, (2) the 'net' population health effect of reducing all primary beneficial and harmful transitions, as provided by RAIS's 'likelihood of use' study, by 75% (probabilities for harmful secondary transitions were retained); and, (3) the 'net' population health effect of using incrementally increased ERRs.

For ERRs of 0.08 and 0.11, the 'net' population health effect of all primary beneficial and harmful transitions and the secondary harmful transitions of 'gateway effect'/'delayed smoking' and 'resumed smoking' ('master model') was a survival benefit in the counterfactual scenario of almost 6,140 and 5,700 additional survivors, respectively (refer to [Table 3.1](#)). Sensitivity analyses for the 'master model' that additionally included the secondary harmful transition of 'relapse' provided a smaller survival benefit of approximately 5,380 and 4,980 additional survivors for ERRs of 0.08 and 0.11, respectively (refer to [Table C3 in Appendix C](#)). Reduction of all primary beneficial and harmful transition probabilities by 75% – while retaining probabilities for the secondary harmful transitions, as specified for the 'master model' – still resulted in a survival benefit, with an estimated 1,620 and 1,510 additional survivors in the counterfactual scenario, for ERRs of 0.08 and 0.11, respectively (refer to [Table 3.1_2](#)). Finally, sensitivity analyses that assessed a range of ERRs within the context of the 'master model' indicated that ERRs for Camel SNUS relative to cigarettes of 0.48 or lower would provide a 'net' population health benefit (refer to [Table 3.1_3](#)). This was the case even though smoking cessation was allowed to occur throughout life (based on U.S. cessation rates) but MRTTP cessation was suspended. As a result, 'switching' replaced smokers, some of whom eventually became former smokers, while MRTTP users could not quit.

Table 3.1: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking' ('master model')

ERR	Additional Initiation ^a (%)	Alternative Initiation ^a (%)	Gateway effect/ Delayed Smoking ^b (%)	Diversion from Quitting ^c (%)	Switching ^d (%)	Mean	95% PI	
0.08	0.3	0.5	50	1.8-20.0	1.2-8.3	6,137	5,345	6,948
0.11	0.3	0.5	50	1.8-20.0	1.2-8.3	5,695	4,946	6,461

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

^c Refer to [Table 2.3](#) for age interval-specific probabilities

^d Probabilities from 'likelihood of use' study reduced by 50% to model 50% return from Camel SNUS use to smoking ('resumed smoking'); refer to [Table 2.3](#) for age interval-specific probabilities

Table 3.1_2: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking'; probabilities for all primary beneficial and harmful transitions reduced by 75%, while probabilities for secondary harmful transitions retained at 100%

ERR	Additional Initiation ^a (%)	Alternative Initiation ^a (%)	Gateway effect/ Delayed Smoking ^b (%)	Diversion from Quitting ^c (%)	Switching ^d (%)	Mean	95% PI	
0.08	0.08	0.13	50	0.45-5.0	0.29-2.06	1,622	1,413	1,837
0.11	0.08	0.13	50	0.45-5.0	0.29-2.06	1,506	1,307	1,709

^a Probability from 'likelihood of use' study reduced by 75% (applied to age intervals 13-17, 18-22 and 23-27 years)

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

^c Probabilities from 'likelihood of use' study reduced by 75%; refer to [Table 2.3](#) for age interval-specific probabilities

^d Probabilities from 'likelihood of use' study reduced by 75%, and further reduced by 50% to model 50% return from Camel SNUS use to smoking ('resumed smoking'); refer to [Table 2.3](#) for age interval-specific probabilities

Table 3.1_3: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking', using different ERRs

Additional Initiation ^a (%)	Alternative Initiation ^a (%)	Gateway effect/ Delayed Smoking ^b (%)	Diversion from Quitting ^c (%)	Switching ^d (%)	ERR	Mean	95% PI	
0.3	0.5	50	1.8-20.0	1.2-8.3	0.1	5,843	5,079	6,624
					0.2	4,348	3,719	4,995
					0.3	2,817	2,326	3,332
					0.4	1,259	889	1,649
					0.5	-319	-608	-15
					0.6	-1,909	-2,206	-1,620
					0.7	-3,503	-3,888	-3,144
					0.8	-5,092	-5,593	-4,609
					0.9	-6,670	-7,306	-6,045
					1.0	-8,228	-9,013	-7,451

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

^c Refer to [Table 2.3](#) for age interval-specific probabilities

^d Probabilities from 'likelihood of use' study reduced by 50% to model 50% return from Camel SNUS use to smoking ('resumed smoking'); refer to [Table 2.3](#) for age interval-specific probabilities

'Net' population health effect of primary beneficial transition 'switching', all primary harmful transitions, and secondary harmful transitions of 'gateway effect'/'delayed smoking' and 'resumed smoking', combined; secondary harmful transition 'relapse' addressed in sensitivity analyses [refer to [Table 2.6](#)]

To assess the 'net' population health effect of omitting the primary beneficial transition of 'alternative initiation' from the 'master model', these analyses evaluated the primary beneficial transition of 'switching', all primary harmful transitions ('additional initiation' and 'diversion from quitting'), and the secondary harmful transitions of 'gateway effect', 'delayed smoking' and 'resumed smoking'. Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Empirical data on primary beneficial and harmful transitions were based on projected purchase probabilities, as provided by the first execution of RAIS's 'likelihood of use' study. Specifically, 'switching' to Camel SNUS use instead of continuing to use cigarettes among base case smokers was projected to range from 2.3% to 16.5%, depending on age category (refer to [Table 2.3](#)). The probability that base case

never tobacco users would initiate Camel SNUS use instead of remaining never users ('additional initiation') was projected to be 0.3% (refer to [Table 2.2](#)); this transition occurs in the first three age categories. Finally, the probability that base case current smokers would switch to using Camel SNUS instead of quitting tobacco use ('diversion from quitting') was projected to range from 1.8%-20.0%, depending on the age category (refer to [Table 2.3](#)).

In the absence of empirical data on secondary harmful transitions from RAIS's 'likelihood of use' studies, the effect of these unintended changes in tobacco exposure patterns were evaluated using hypothetical scenarios, which were extreme in many instances. Specifically, 'gateway effect' was evaluated using an extreme scenario whereby 50% of Camel SNUS initiators ('additional initiation') transitioned to cigarette smoking in the age category following initiation (ages 18-22, 23-27 and 28-32 years). In addition, the secondary harmful transition of 'resumed smoking' was evaluated using a scenario whereby 50% of those smokers who switched to using Camel SNUS instead of continuing to use cigarettes subsequently resumed smoking. Under the assumption that 'resumed smoking' would likely occur in the same 5-year age category as 'switching', this transition was modeled by reducing the transition probabilities for 'switching' from smoking to Camel SNUS by 50%. Finally, sensitivity analyses evaluated the effect of an extreme scenario for 'relapse', whereby 50% of base case current smokers who would have quit tobacco use but instead switched to using Camel SNUS ('diversion from quitting') subsequently relapsed to smoking.

Omitting 'alternative initiation' as a possible beneficial exposure transition had a nominal effect on the 'net' population health benefit, as projected by the 'master model'. For ERRs of 0.08 and 0.11, the survival benefit in the counterfactual scenario was estimated to be about 6,120 and 5,680 additional survivors, respectively (refer to [Table 3.2](#)). Sensitivity analyses that additionally included the secondary harmful transition, 'relapse', indicated that the survival benefit was slightly decreased to an estimated 5,360 and 4,960 additional survivors for ERRs of 0.08 and 0.11, respectively (refer to [Table C4 in Appendix C](#)).

Table 3.2: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'additional initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking'

ERR	Additional Initiation ^a (%)	Gateway Effect ^b (%)	Diversion from Quitting ^c (%)	Switching ^d (%)	Mean	95% PI	
0.08	0.3	50	1.8-20.0	1.2-8.3	6,118	5,330	6,926
0.11	0.3	50	1.8-20.0	1.2-8.3	5,680	4,935	6,444

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

^c Refer to [Table 2.3](#) for age interval-specific probabilities

^d Probabilities from 'likelihood of use' study reduced by 50% to model 50% return from Camel SNUS use to smoking ('resumed smoking'); refer to [Table 2.3](#) for age interval-specific probabilities

‘Net’ population health effect of primary beneficial transition, ‘switching’, and all primary harmful transitions [refer to [Table 2.7](#)]

These analyses examined the ‘net’ population health effects of the three primary exposure transitions, ‘switching’, ‘additional initiation’ and ‘diversion from quitting’. Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Empirical data on primary beneficial and harmful transitions were based on projected purchase probabilities, as provided by the first execution of RAIS’s ‘likelihood of use’ study. Specifically, ‘switching’ to Camel SNUS use instead of continuing to use cigarettes among base case smokers was projected to range from 2.3% to 16.5%, depending on age category (refer to [Table 2.3](#)). The probability that base case never tobacco users would initiate Camel SNUS use instead of remaining never users (‘additional initiation’) was projected to be 0.3% (refer to [Table 2.2](#)); this transition occurs in the first three age categories. Finally, the probability that base case smokers would switch to using Camel SNUS instead of quitting tobacco use (‘diversion from quitting’) was projected to range from 1.8%-20.0%, depending on the age category (refer to [Table 2.3](#)).

For ERRs of 0.08 and 0.11, the ‘net’ population health effect for ‘switching’, ‘additional initiation’ and ‘diversion from quitting’ combined was a survival benefit in the counterfactual scenario, estimated to be about 12,000 and 11,300 additional survivors, respectively (refer to [Table 3.3](#)).

Table 3.3: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of ‘additional initiation’, ‘diversion from quitting’, and ‘switching’

ERR	Additional Initiation ^a (%)	Diversion from Quitting ^b (%)	Switching ^b (%)	Mean	95% PI	
0.08	0.3	1.8-20.0	2.3-16.5	12,025	10,570	13,501
0.11	0.3	1.8-20.0	2.3-16.5	11,288	9,907	12,699

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years

^b Refer to [Table 2.3](#) for age interval-specific probabilities

‘Tipping point’ related to the primary beneficial transition, ‘switching’, versus all primary harmful transitions and secondary harmful transition ‘gateway effect’ [refer to [Table 2.8](#)]

Beneficial and harmful transitions were also evaluated within the context of ‘tipping point’ analyses, used to estimate the magnitude of a beneficial change in tobacco exposure required to offset the population health effects of one or more harmful exposure changes. The analyses described here estimated tipping points between the primary beneficial transition of ‘switching’ and a combination of primary and secondary harmful transitions (‘additional initiation’ with ‘gateway effect’, and ‘diversion from quitting’).

Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Empirical data on primary beneficial and harmful transitions were based on projected purchase probabilities, as provided by the first execution of RAIS's 'likelihood of use' study. Specifically, the probability that base case never tobacco users would initiate Camel SNUS use instead of remaining never users ('additional initiation') was projected to be 0.3% (refer to [Table 2.2](#)); this transition occurs in the first three age categories. In the absence of empirical data on secondary harmful transitions, 'gateway effect' was evaluated using an extreme scenario, whereby 50% of Camel SNUS initiators transition to cigarette smoking in the next age category (in age categories 18-22, 23-27 and 28-32 years). Finally, the probability that base case smokers would switch to using Camel SNUS instead of quitting tobacco use ('diversion from quitting') was projected to range from 1.8%-20.0%, depending on the age category (refer to [Table 2.3](#)).

The beneficial exposure pattern, 'switching' from cigarettes to Camel SNUS among base case current smokers who would have continued to smoke, was increased incrementally, starting in the second age category (ages 18-22 years) and continuing until the end of follow-up. For ERRs of 0.08 and 0.11, absent the beneficial primary transition of 'switching', the survival deficit in the counterfactual scenario (0.3% 'additional initiation' with 50% 'gateway effect'; and, 1.8-20.0% 'diversion from quitting', depending on age category) was estimated to be 620 and 730 fewer survivors, respectively (refer to [Table 3.4](#)). 'Tipping point' analyses indicated that for a concurrent increase in 'switching' of 0.33% and 0.42% (in each age category, ages 18+ years) for ERRs of 0.08 and 0.11, respectively, a decrease in survivors was still observed between the counterfactual scenario and base case but that the decrease was no longer statistically significant. A concurrent increase in 'switching' of 0.38% and 0.47% ERRs of 0.08 and 0.11, respectively, provided a point estimate for the difference in the number of survivors that was 'near zero'; and, a concurrent increase in 'switching' of 0.43% and 0.54% ERRs of 0.08 and 0.11, respectively, provided a population health benefit – as reflected by a statistically significant increase in the number of survivors in the counterfactual scenario (refer to [Figure 3.1](#) below and [Table F2 in Appendix F](#)). Introducing the extreme scenario of a 50% relapse to smoking among base case smoking quitters who instead switched to using Camel SNUS ('relapse', coupled to 'diversion from quitting') provided a point estimate that was 'near zero' when there was a concurrent 0.92% and 1.01% increase in 'switching' for ERRs of 0.08 and 0.11, respectively (refer to [Table F3 in Appendix F](#)).⁵⁸ Under the assumption of 50% 'resumed smoking', all tipping points for 'switching' must necessarily be doubled. This is because a 50% resumption of smoking among base case continuing smokers who switched to Camel SNUS ('resumed smoking') was modeled by reducing transition probabilities for 'switching' by 50%.

⁵⁸ Detailed results for differences in survivors are shown in [Table C6 in Appendix C](#).

Table 3.4: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

ERR	Additional Initiation ^a (%)	Gateway Effect ^b (%)	Diversion from Quitting ^c (%)	Switching ^d (%)	Mean	95% PI	
0.08	0.3	50	1.8-20.0	0.0	-616	-641	-592
				0.5	193	98	292
				1.0	984	797	1,176
				1.5	1,758	1,478	2,044
				2.0	2,514	2,145	2,894
				2.5	3,255	2,796	3,724
				3.0	3,979	3,434	4,537
				3.5	4,687	4,057	5,331
				4.0	5,380	4,665	6,109
0.11	0.3	50	1.8-20.0	0.0	-733	-768	-700
				0.5	39	-48	130
				1.0	794	619	975
				1.5	1,532	1,270	1,801
				2.0	2,254	1,905	2,611
				2.5	2,960	2,527	3,404
				3.0	3,651	3,136	4,181
				3.5	4,327	3,732	4,938
				4.0	4,988	4,312	5,680

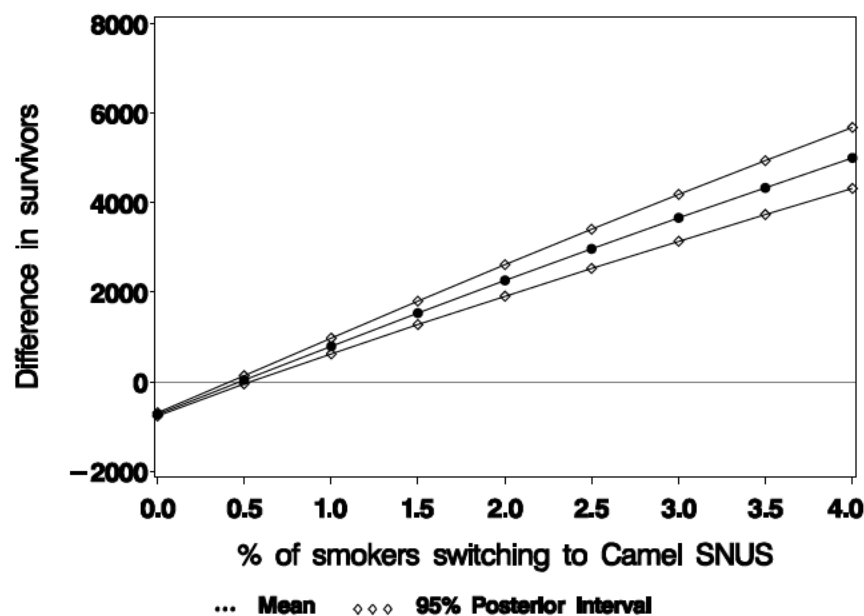
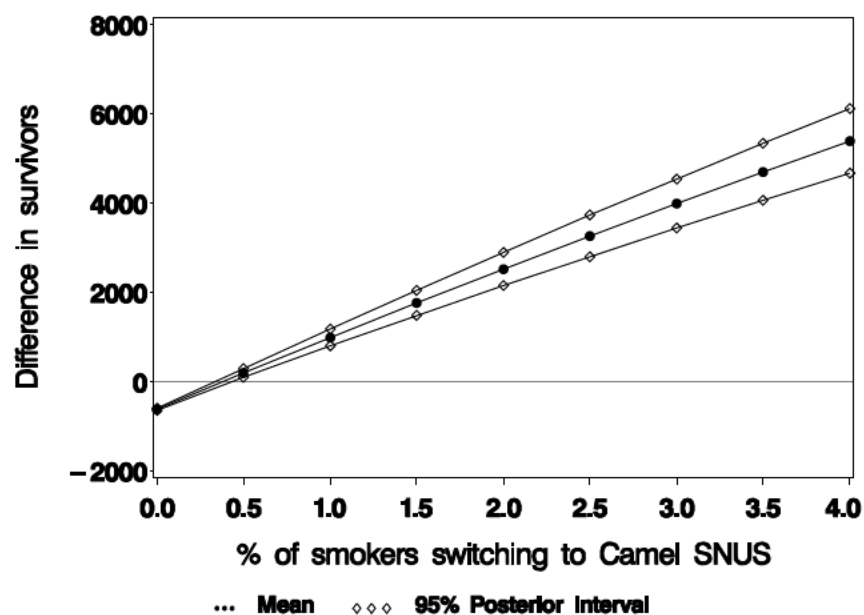
^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

^c Refer to [Table 2.3](#) for age interval-specific probabilities

^d Probability applied to age intervals 18+ years

Figure 3.1: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting' (top: ERR=0.08; bottom: ERR=0.11)



Population health effects due to individual beneficial and harmful transitions

The next series of DPM(+1)-based analyses addressed the **second objective**, to more closely assess the influence of specific changes in tobacco exposure patterns - expected to result from Camel SNUS and its proposed modified-risk messaging - on the overall 'net' population health effect. This objective was achieved by examining the population-level effects of changes in beneficial and harmful tobacco exposure patterns, individually and in limited combinations, using population survival as a surrogate for population health. Primary exposure transitions for the current analyses (described in detail, [Section 2.3](#) and [Tables 2.9-2.15](#)) were based on the first execution of RAIS's 'likelihood of use' study.⁵⁹ Secondary transitions were not directly investigated by RAIS's 'likelihood of use' study, and were thus modeled using hypothetical probabilities that, in many instances, represented extreme scenarios ([Section 2.3](#) and [Tables 2.9-2.15](#)). Analyses were conducted using ERRs of 0.08 and 0.11, to define the mortality risk of Camel SNUS use relative to cigarette smoking. The results for the difference in survivors between the counterfactual scenarios and the base case at the end of age category 68-72 years are presented in [Tables 3.5-3.11](#).⁶⁰

Population health effect of primary beneficial transition, 'alternative initiation' [refer to [Table 2.9](#)]

These analyses evaluated the 'net' population health effect if some base case never tobacco users who would have initiated cigarette use instead initiate Camel SNUS use. Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Empirical data on this primary beneficial transition were based on projected purchase probabilities, as provided by the first execution of RAIS's 'likelihood of use' study. Specifically, the probability that base case cigarette initiators would instead initiate tobacco use with Camel SNUS ('alternative initiation') was projected to be 0.5% (refer to [Table 2.2](#)); this transition occurs in the first three age categories. Irrespective of the ERR used for the analysis (0.08 or 0.11), the survival benefit in the counterfactual scenario compared to the base case was estimated to be small (<100 additional survivors; [Table 3.5](#)). The small effect is due to the very small number of base case cigarette initiators who become Camel SNUS users in the counterfactual scenario.

Table 3.5: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on the transition of 'alternative initiation'

ERR	Alternative	Mean	95% PI	
	Initiation ^a (%)			
0.08	0.5	91	78	105
0.11	0.5	80	68	93

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years

⁵⁹ "Camel SNUS Modified Risk Messaging: Likelihood of Use among Tobacco Users and Non-Users - *First Execution of Consumer Testing* - Amended Final Report", dated October 4, 2016. Analyses based on the other two executions of RAIS's 'likelihood of use' study, with different modified-risk messaging, are reported separately.

⁶⁰ Results for LE and QALE are presented in [Tables D3.5-D3.11](#) in [Appendix D](#). The total numbers of survivors in the counterfactual scenario and the base case, and the differences between them are shown for all age categories in [Tables E3.5-E3.11](#) in [Appendix E](#).

Population health effect of primary beneficial transition, ‘switching’ [refer to [Table 2.10](#)]

These analyses evaluated the population health effect if some base case current cigarette smokers who would have continued to use cigarettes instead switch completely to Camel SNUS use (‘switching’). Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Among the primary beneficial and harmful transitions, as projected by RAIS’s ‘likelihood of use’ study, only ‘switching’ demonstrated a sizable population-level effect. Based on transition probabilities for ‘switching’, which were projected to range from 2.3% to 16.5% and generally decreased from younger to older age categories, the survival benefit in the counterfactual scenario compared to the base case was estimated to be almost 12,400 additional survivors for an ERR of 0.08, and nearly 11,800 additional survivors for an ERR of 0.11 (refer to [Table 3.6](#)).

Table 3.6: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on the transition of ‘switching’

ERR	Switching ^a (%)	Mean	95% PI	
0.08	2.3-16.5	12,381	10,909	13,863
0.11	2.3-16.5	11,774	10,372	13,192

^a Refer to [Table 2.3](#) for age interval-specific probabilities

Population health effect of primary harmful transition, ‘additional initiation’ [refer to [Table 2.11](#)]

These analyses evaluated the population health effect if some base case never tobacco users initiate Camel SNUS use instead of remaining never tobacco users. Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Empirical data on this primary harmful transition were based on projected purchase probabilities, as provided by the first execution of RAIS’s ‘likelihood of use’ study. Specifically, the probability that base case never tobacco users would initiate tobacco use with Camel SNUS instead of remaining never users (‘additional initiation’) was projected to be 0.3% (refer to [Table 2.2](#)); this transition occurs in the first three age categories. The survival deficit in the counterfactual scenario compared to the base case was estimated to be less than 150 fewer survivors for an ERR of 0.08, and near 200 fewer survivors for an ERR of 0.11 (refer to [Table 3.7](#)). The small effect is due to the small increase in risk among Camel SNUS users compared to never tobacco users, as reflected by the small ERRs, which in turn affects a moderate number of base case never tobacco users who initiate Camel SNUS use. In addition, Camel SNUS initiation among base case never tobacco users in a particular age category reduces slightly the pool of those available to initiate tobacco use with cigarettes in the next age category.

Table 3.7: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on the transition of 'additional initiation'

ERR	Additional initiation ^a (%)	Mean	95% PI	
0.08	0.3	-145	-155	-134
0.11	0.3	-205	-217	-193

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years

Population health effect of primary harmful transition, 'diversion from quitting', with sensitivity analyses for 'relapse' [refer to [Table 2.12](#)]

These analyses evaluated the population health effect if some base case current cigarette smokers switch to Camel SNUS use instead of quitting tobacco use. Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Empirical data on this primary harmful transition were based on projected purchase probabilities, as provided by the first execution of RAIS's 'likelihood of use' study. Specifically, the probability that base case current cigarette smokers would switch to Camel SNUS instead of quitting ('diversion from quitting') was projected to range from 1.8% to 20.0% and generally decreased from younger to older age categories (refer to [Table 2.3](#)). The survival deficit in the counterfactual scenario compared to the base case was estimated to near 240 fewer survivors for an ERR of 0.08, and near 320 fewer survivors for an ERR of 0.11 (refer to [Table 3.8](#)). Analyses examining the secondary harmful transition of 50% 'relapse', whereby 50% of those who switched to Camel SNUS instead of quitting tobacco use ('diversion from quitting') subsequently relapsed to smoking in the same age interval, suggested a survival deficit in the counterfactual scenario of nearly 1,140 fewer survivors for an ERR of 0.08, and nearly 1,180 fewer survivors for an ERR of 0.11 (refer to [Table C5 in Appendix C](#)).

Table 3.8: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on the transition of 'diversion from quitting'

ERR	Diversion from Quitting ^a (%)	Mean	95% PI	
0.08	1.8-20.0	-235	-266	-204
0.11	1.8-20.0	-318	-362	-277

^a Refer to [Table 2.3](#) for age interval-specific probabilities

Population health effect of the primary harmful transition, ‘additional initiation’, combined with the secondary harmful transition, ‘gateway effect’ [refer to [Table 2.13](#)]

These analyses evaluated the population health effect if some base case never tobacco users initiate Camel SNUS use instead of remaining never tobacco users, and then some of these Camel SNUS initiators switch to cigarette smoking in the next age category. Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Based on empirical data from RAIS’s ‘likelihood of use’ study, the probability that base case never tobacco users would initiate tobacco use with Camel SNUS instead of remaining never users (‘additional initiation’) was projected to be 0.3% (refer to [Table 2.2](#)); this transition occurs in the first three age categories. In the absence of empirical data on the secondary harmful transition of ‘gateway effect’, the probability that some portion of ‘additional initiation’ Camel SNUS users would transition to cigarette use during the next age interval was modeled based on an extreme scenario of 50% (ages 18-22, 23-27 and 28-32 years). The survival deficit in the counterfactual scenario compared to the base case was estimated to be less than 400 fewer survivors for an ERR of 0.08, and near 420 fewer survivors for an ERR of 0.11 (refer to [Table 3.9](#)).

Table 3.9: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on the transitions of ‘additional initiation’ and ‘gateway effect’

ERR	Additional Initiation ^a (%)	Gateway Effect ^b (%)	Mean	95% PI	
0.08	0.3	50	-382	-400	-364
0.11	0.3	50	-415	-435	-397

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

Population health effect of primary beneficial transition, ‘alternative initiation’, combined with the secondary harmful transition, ‘delayed smoking’ [refer to [Table 2.14](#)]

These analyses evaluated the population health effect if some base case never tobacco users initiate tobacco use with Camel SNUS instead of cigarettes, and some of those Camel SNUS initiators subsequently switch to cigarette use in the next age category. Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Based on empirical data from RAIS's 'likelihood of use' study, the probability that base case cigarette initiators would instead initiate tobacco use with Camel SNUS ('alternative initiation') was projected to be 0.5% (refer to [Table 2.2](#)); this transition occurs in the first three age categories. In the absence of empirical data on the secondary harmful transition of 'delayed smoking', the probability that some portion of those base case cigarette initiators who instead initiated tobacco use with Camel SNUS would subsequently transition to cigarette use during the next age interval was modeled based on an extreme scenario of 50% (ages 18-22, 23-27 and 28-32 years). The survival benefit in the counterfactual scenario compared to the base case was estimated to be 50 additional survivors, irrespective of the ERR (0.08 or 0.11) used for the analysis (refer to [Table 3.10](#)). Differences between the counterfactual scenario and base case are small because only a very small number of base case cigarette initiators become Camel SNUS users in the counterfactual scenario; and, because few Camel SNUS users are available to switch to smoking.

Table 3.10: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on the transitions of 'alternative initiation' and 'delayed smoking'

ERR	Alternative Initiation ^a (%)	Delayed Smoking ^b (%)	Mean	95% PI	
0.08	0.5	50	51	41	61
0.11	0.5	50	45	36	55

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

Population health effect of primary harmful transition, 'switching', combined with the secondary harmful transition, 'resumed smoking' [refer to [Table 2.15](#)]

These analyses evaluated the population health effect if some base case current smokers switch to Camel SNUS instead of continuing to smoke, and some of those Camel SNUS switchers resume cigarette use in the same age category. Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Empirical data on the primary beneficial transition of 'switching', were based on projected purchase probabilities, as provided by the first execution of RAIS's 'likelihood of use' study. Specifically, 'switching' to the use of Camel SNUS instead of continuing to use cigarettes among base case smokers was projected to range from 2.3% to 16.5%, depending on age category (refer to [Table 2.3](#)). In the absence of empirical data on secondary harmful transitions from RAIS's 'likelihood of use' studies, the effect of 'resumed smoking' was evaluated using a scenario whereby 50% of those smokers who switched to using Camel SNUS instead of continuing to smoke subsequently resumed cigarette use. Under the assumption that 'resumed smoking' would likely occur in the same 5-year age category as 'switching', this transition was modeled by reducing the transition probabilities for 'switching' from smoking to Camel SNUS by 50%. The survival benefit in the counterfactual scenario compared to the base case was estimated to be approximately 6,700 additional survivors for an ERR of 0.08, and near 6,400 additional survivors for an ERR of 0.11 (refer to [Table 3.11](#)).

Table 3.11: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on the transitions of 'switching' and 'resumed smoking'

ERR	Switching ^a (%)	Mean	95% PI	
0.08	1.2-8.3	6,722	5,924	7,530
0.11	1.2-8.3	6,394	5,635	7,167

^a Probabilities from 'likelihood of use' study reduced by 50% to model 50% return from Camel SNUS use to smoking ('resumed smoking'); refer to [Table 2.3](#) for age interval-specific probabilities

Population health effects based on 'switching' combined with extreme scenarios for harmful transitions

DPM(+1)-based analyses also addressed a **third objective**, assessing whether Camel SNUS and its proposed modified-risk messaging is likely to have a beneficial effect on population health, or at a minimum is unlikely to have an adverse effect on population health, even if unintended changes in tobacco exposure transitions are extreme. These assessments were based on a series of analyses that estimated the proportion of current smokers who must completely switch to using Camel SNUS instead of continuing to smoke ('switching') to fully offset any unintended population harm that may occur due to extreme scenarios for the primary harmful transitions of 'additional initiation' and 'diversion from quitting', and the secondary harmful transition of 'gateway effect'. Population survival was used as a surrogate for population health. The analyses were conducted using ERRs of 0.08 and 0.11, to define the mortality risk of Camel SNUS use relative to cigarette smoking. The results for the difference in survivors between the counterfactual scenarios and the base case at the end of age category 68-72 years are presented in [Tables 3.12-3.14](#).⁶¹

'Tipping point' related to primary beneficial transition, 'switching', versus an extreme scenario for primary harmful transition, 'additional initiation' [refer to [Table 2.16](#)]

These analyses evaluated what proportion of current cigarette smokers must switch completely to Camel SNUS use instead of continuing to smoke ('switching') to fully offset the population harm expected from an extreme scenario whereby a large proportion of never tobacco users initiate Camel SNUS use instead of remaining non-tobacco users ('additional initiation'). Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario). For the extreme scenario of 'additional initiation', the probability that base case never tobacco users instead initiated tobacco use with Camel SNUS was set equal to cigarette smoking initiation rates (ages 13-17, 18-22 and 23-27 years; refer to [Tables 2.2](#)). The probability that base case current smokers who would have continued to smoke instead switch completely to using Camel SNUS ('switching') was increased incrementally, starting in the second age category (ages 18-22 years) and continuing until the end of follow-up.

⁶¹ Results for LE and QALE are presented in [Tables D3.12-D3.14](#) in Appendix D. The total numbers of survivors in the counterfactual scenario and the base case, and the differences between them are shown for all age categories in [Tables E3.12-E3.14](#) in Appendix E.

For an ERR of 0.08, absent the beneficial primary transition of 'switching', the survival deficit in a counterfactual scenario that included an extreme scenario for 'alternative initiation' was estimated to be about 3,800 fewer survivors (refer to [Table 3.12](#)). 'Tipping point' analyses indicated that a concurrent increase in 'switching' of 2.09% (in each age category, ages 18+ years) provided a decrease in survivors between the counterfactual scenario and base case that was no longer statistically significant; a concurrent increase in 'switching' of 2.60% provided a point estimate for the difference in the number of survivors that was 'near zero'; and, a concurrent increase in 'switching' of 3.23% provided a population health benefit – as reflected by a statistically significant increase in the number of survivors in the counterfactual scenario (refer to [Figure 3.2](#) below and [Table F2 in Appendix F](#)).

For an ERR of 0.11, absent the beneficial primary transition of 'switching', the survival deficit in a counterfactual scenario that included the same extreme scenario for 'alternative initiation' was estimated to be near 5,560 fewer survivors (refer to [Table 3.12](#)). 'Tipping point' analyses indicated that a concurrent increase in 'switching' of 3.39% (in each age category, ages 18+ years) provided a decrease in survivors between the counterfactual scenario and base case that was no longer statistically significant; a concurrent increase in 'switching' of 4.12% provided a point estimate for the difference in the number of survivors that was 'near zero'; and, a concurrent increase in 'switching' of 5.05% provided a population health benefit – as reflected by a statistically significant increase in the number of survivors in the counterfactual scenario (refer to [Figure 3.2](#) below and [Table F2 in Appendix F](#)).

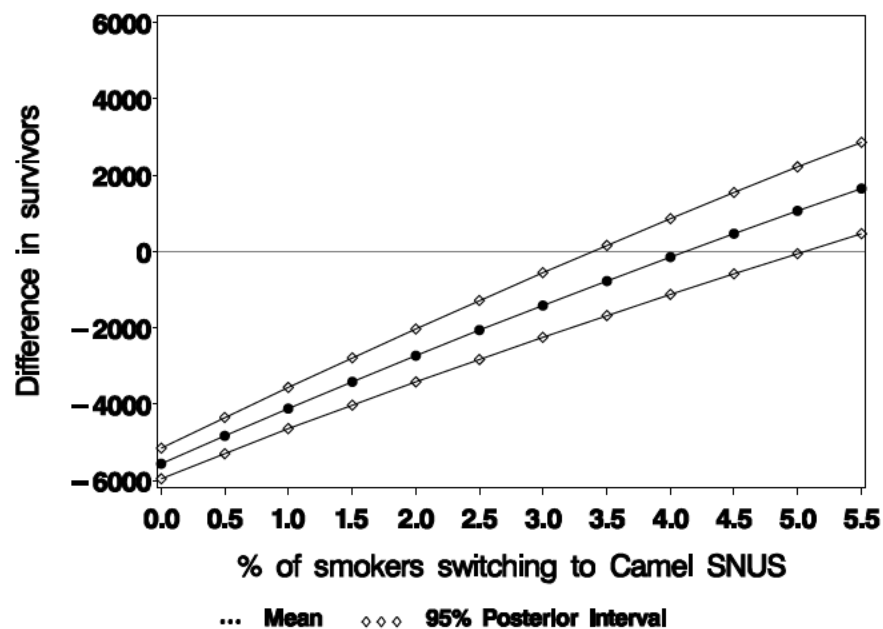
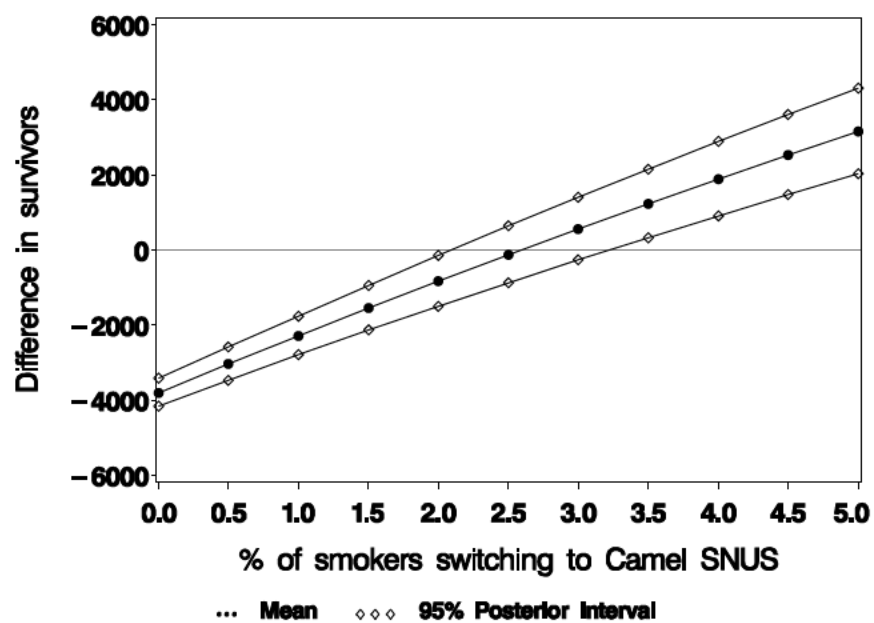
Table 3.12: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on the transitions of 'switching' versus an extreme scenario for 'additional initiation'

ERR	Additional Initiation ^a (%)	Switching ^b (%)	Mean	95% PI	
0.08	0.0-13.75	0.0	-3,800	-4,162	-3,414
		0.5	-3,033	-3,467	-2,579
		1.0	-2,283	-2,788	-1,759
		1.5	-1,550	-2,136	-944
		2.0	-833	-1,500	-145
		2.5	-132	-878	635
		3.0	554	-269	1,400
		3.5	1,225	327	2,147
		4.0	1,881	906	2,881
		4.5	2,523	1,474	3,598
		5.0	3,151	2,029	4,300
0.11	0.0-13.75	0.0	-5,557	-5,948	-5,150
		0.5	-4,827	-5,290	-4,353
		1.0	-4,112	-4,644	-3,563
		1.5	-3,413	-4,024	-2,789
		2.0	-2,730	-3,417	-2,026
		2.5	-2,061	-2,827	-1,281
		3.0	-1,408	-2,246	-548
		3.5	-769	-1,679	161
		4.0	-144	-1,124	858
		4.5	468	-581	1,543
		5.0	1,066	-52	2,213
		5.5	1,651	466	2,864

^a Extreme scenario, whereby probabilities applied to age intervals 13-17, 18-22 and 23-27 years were 13.75, 10.00 and 1.00, respectively [refer to [Table 2.4](#)]

^b Probability applied to age intervals 18+ years

Figure 3.2: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on the transitions of 'switching' versus an extreme scenario for 'additional initiation' (top: ERR=0.08; bottom: ERR=0.11)



‘Tipping point’ related to primary beneficial transition, ‘switching’, versus a scenario with elevated rates for the primary harmful transition, ‘additional initiation’, and an extreme scenario for the secondary harmful transition, ‘gateway effect’ [refer to [Table 2.17](#)]

These analyses evaluated what proportion of current cigarette smokers must switch completely to Camel SNUS use instead of continuing to smoke (‘switching’) to fully offset the population harm expected from a scenario whereby an elevated proportion of never tobacco users initiate Camel SNUS use instead of remaining non-tobacco users (‘additional initiation’), and then some of those Camel SNUS initiators switch to cigarette smoking in the next age category (‘gateway effect’). Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

For the scenario with elevated rates for ‘additional initiation’, the probability that base case never tobacco users instead initiated tobacco use with Camel SNUS (ages 13-17, 18-22 and 23-27 years) was set equal to 3.0%, or 10 times the purchase probability projected for ‘additional initiation’ by RAIS’s ‘likelihood of use’ study (refer to [Table 2.2](#)). In the absence of empirical data on the secondary harmful transition of ‘gateway effect’, the probability that some portion of ‘additional initiation’ Camel SNUS users would transition to cigarette use during the next age interval was modeled based on an extreme scenario of 50% (in age categories 18-22, 23-27 and 28-32 years). Finally, the probability that base case current smokers who would have continued to smoke instead switch completely to using Camel SNUS (‘switching’) was increased incrementally, starting in the second age category (ages 18-22 years) and continuing until the end of follow-up.

For an ERR of 0.08, absent the beneficial primary transition of ‘switching’, the survival deficit in a counterfactual scenario that included extreme scenarios for ‘alternative initiation’ and ‘gateway effect’ was estimated to be near 3,700 fewer survivors at the end of age category 68-72 years (refer to [Table 3.13](#)). ‘Tipping point’ analyses indicated that a concurrent increase in ‘switching’ of 2.06% (in each age category, ages 18+ years) provided a decrease in survivors between the counterfactual scenario and base case that was no longer statistically significant; a concurrent increase in ‘switching’ of 2.43% provided a point estimate for the difference in the number of survivors that was ‘near zero’; and, a concurrent increase in ‘switching’ of 2.90% provided a population health benefit – as reflected by a statistically significant increase in the number of survivors in the counterfactual scenario (refer to [Figure 3.3](#) below and [Table F2 in Appendix F](#)).

For an ERR of 0.11, absent the beneficial primary transition of ‘switching’, the survival deficit in a counterfactual scenario that included the same extreme scenarios for ‘alternative initiation’ and ‘gateway effect’ was estimated to be near 4,050 fewer survivors (refer to [Table 3.13](#)). ‘Tipping point’ analyses indicated that a concurrent increase in ‘switching’ of 2.37% (in each age category, ages 18+ years) provided a decrease in survivors between the counterfactual scenario and base case that was no longer statistically significant; a concurrent increase in ‘switching’ of 2.80% provided a point estimate for the difference in the number of survivors that was ‘near zero’; and, a concurrent increase in ‘switching’ of 3.35% provided a population health benefit – as reflected by a statistically significant increase in the number of survivors in the counterfactual scenario (refer to [Figure 3.3](#) below and [Table F2 in Appendix F](#)).

Table 3.13: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on the transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

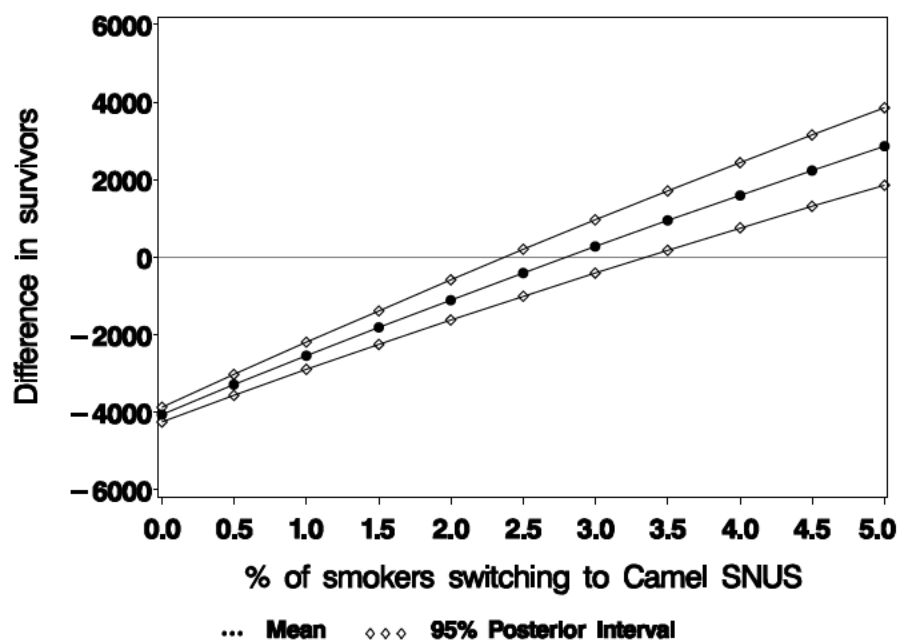
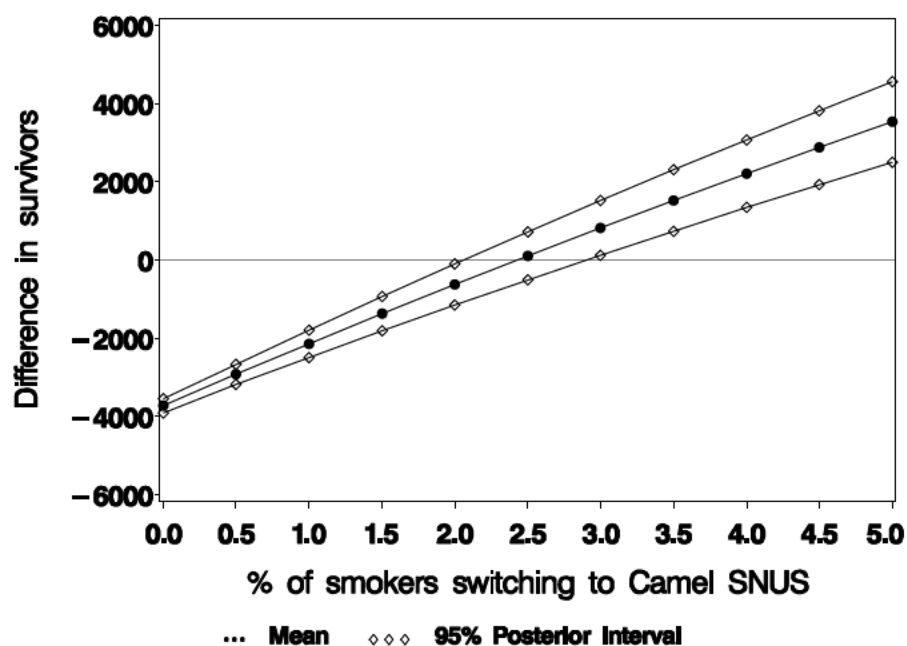
ERR	Additional Initiation ^a (%)	Gateway Effect ^b (%)	Switching ^c (%)	Mean	95% PI	
0.08	3.0	50	0.0	-3,720	-3,901	-3,546
			0.5	-2,922	-3,182	-2,662
			1.0	-2,141	-2,487	-1,790
			1.5	-1,377	-1,811	-939
			2.0	-630	-1,153	-102
			2.5	101	-513	719
			3.0	816	121	1,519
			3.5	1,515	732	2,300
			4.0	2,199	1,335	3,066
			4.5	2,868	1,921	3,813
			5.0	3,523	2,497	4,544
0.11	3.0	50	0.0	-4,049	-4,237	-3,866
			0.5	-3,287	-3,552	-3,022
			1.0	-2,543	-2,890	-2,192
			1.5	-1,814	-2,246	-1,379
			2.0	-1,102	-1,617	-581
			2.5	-406	-1,005	199
			3.0	275	-406	962
			3.5	942	181	1,708
			4.0	1,593	752	2,437
			4.5	2,231	1,312	3,150
			5.0	2,854	1,860	3,845

^a Elevated probability applied to age intervals 13-17, 18-22 and 23-27 years

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

^c Probabilities applied to age intervals 18+ years

Figure 3.3: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on the transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and extreme scenario for 'gateway effect' (top: ERR=0.08; bottom: ERR=0.11)



‘Tipping point’ related to primary beneficial transition, ‘switching’, versus an extreme scenario for primary harmful transition, ‘diversion from quitting’ [refer to [Table 2.18](#)]

These analyses evaluated what proportion of current cigarette smokers must switch completely to Camel SNUS use instead of continuing to smoke (‘switching’) to fully offset the population harm expected from an extreme scenario whereby a large proportion of base case current smokers switch to Camel SNUS use instead of quitting tobacco use (‘diversion from quitting’). Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

For the extreme scenario of ‘diversion from quitting’, the probability that base case current cigarette smokers would switch to Camel SNUS use instead of quitting tobacco use was set equal to 50% (quitting among base case smokers was reduced by 50%, beginning in age category 18-22 years and continuing until the end of follow-up; refer to [Table 2.4](#)). The probability that base case current smokers who would have continued to smoke instead switch completely to using Camel SNUS (‘switching’) was increased incrementally, starting in the second age category (ages 18-22 years) and continuing until the end of follow-up.

For an ERR of 0.08, absent the beneficial primary transition of ‘switching’, the survival deficit in a counterfactual scenario that included extreme scenarios for ‘alternative initiation’ and ‘gateway effect’ was estimated to be near 1,500 fewer survivors (refer to [Table 3.14](#)). ‘Tipping point’ analyses indicated that a concurrent increase in ‘switching’ of 0.82% (in each age category, ages 18+ years) provided a decrease in survivors between the counterfactual scenario and base case that was no longer statistically significant; a concurrent increase in ‘switching’ of 0.90% provided a point estimate for the difference in the number of survivors that was ‘near zero’; and, a concurrent increase in ‘switching’ of 0.99% provided a population health benefit – as reflected by a statistically significant increase in the number of survivors in the counterfactual scenario (refer to [Figure 3.4](#) below and [Table F2 in Appendix F](#)).

For an ERR of 0.11, absent the beneficial primary transition of ‘switching’, the survival deficit in a counterfactual scenario that included the same extreme scenarios for ‘alternative initiation’ and ‘gateway effect’ was estimated to be near 2,000 fewer survivors (refer to [Table 3.14](#)). ‘Tipping point’ analyses indicated that a concurrent increase in ‘switching’ of 1.17% (in each age category, ages 18+ years) provided a decrease in survivors between the counterfactual scenario and base case that was no longer statistically significant; a concurrent increase in ‘switching’ of 1.29% provided a point estimate for the difference in the number of survivors that was ‘near zero’; and, a concurrent increase in ‘switching’ of 1.41% provided a population health benefit – as reflected by a statistically significant increase in the number of survivors in the counterfactual scenario (refer to [Figure 3.4](#) below and [Table F2 in Appendix F](#)).

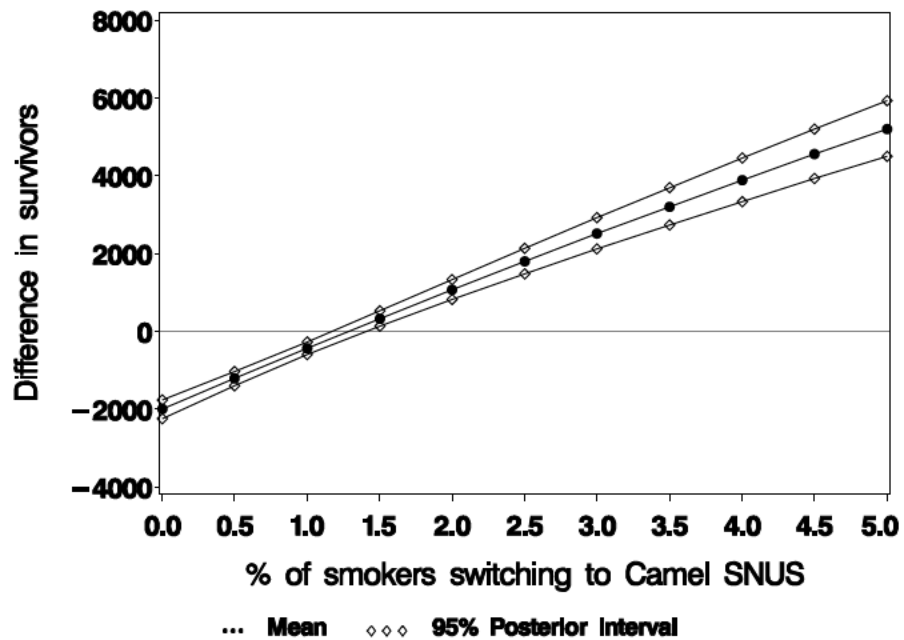
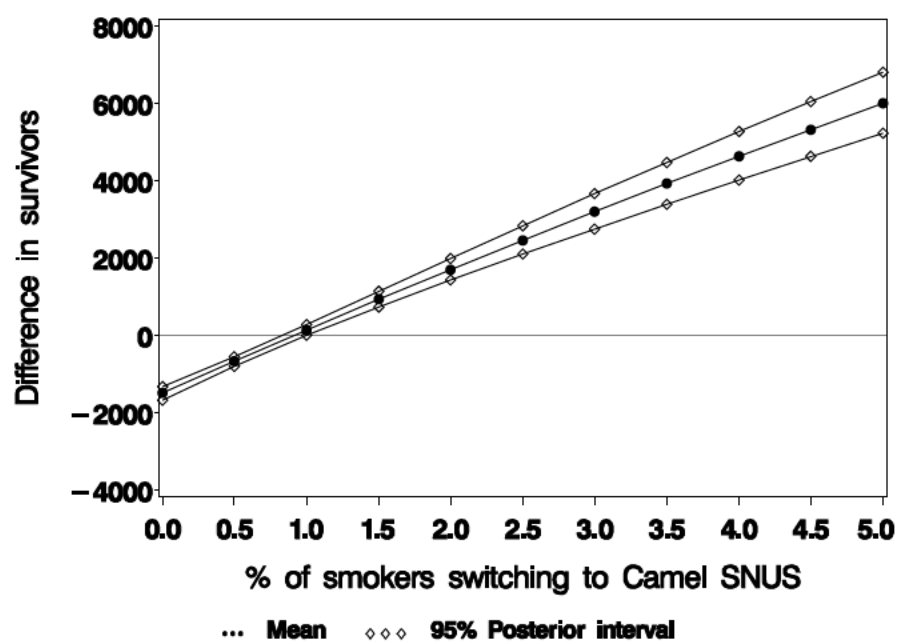
Table 3.14: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on the transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

ERR	Diversion from Quitting ^a (%)	Switching ^b (%)	Mean	95% PI	
0.08	50	0.0	-1,477	-1,655	-1,303
		0.5	-652	-781	-534
		1.0	155	19	293
		1.5	944	749	1,151
		2.0	1,716	1,442	2,007
		2.5	2,471	2,113	2,846
		3.0	3,210	2,765	3,675
		3.5	3,934	3,406	4,486
		4.0	4,641	4,033	5,278
		4.5	5,333	4,641	6,053
		5.0	6,010	5,238	6,809
0.11	50	0.0	-2,002	-2,244	-1,766
		0.5	-1,209	-1,397	-1,037
		1.0	-433	-599	-272
		1.5	326	136	522
		2.0	1,069	824	1,329
		2.5	1,795	1,478	2,131
		3.0	2,505	2,113	2,919
		3.5	3,201	2,730	3,692
		4.0	3,881	3,330	4,455
		4.5	4,546	3,920	5,201
		5.0	5,197	4,496	5,931

^a Extreme probability applied to age intervals 18+ years

^b Probability applied to age intervals 18+ years

Figure 3.4: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on the transitions of 'switching' versus an extreme scenario for 'diversion from quitting' (top: ERR=0.08; bottom: ERR=0.11)



Population health effects based on systematically increased first age category of Camel SNUS use

The impact of Camel SNUS and its proposed modified-risk messaging on population health, in particular among current smokers of different ages, was assessed by examining the effect of the primary beneficial transitions of 'alternative initiation' and 'switching', the primary harmful transitions of 'additional initiation' and 'diversion from quitting' and the secondary harmful transitions of 'gateway effect'/'delayed smoking' and 'resumed smoking' while systematically increasing the first age category in which these transitions could occur. These analyses were conducted using multiple birth cohorts and with ERRs of 0.08 and 0.11 to define the mortality risk of Camel SNUS use relative to cigarette smoking.

“Net” population health effect of all primary beneficial and harmful transitions, and secondary harmful transitions of ‘gateway effect’/'delayed smoking' and resumed smoking, combined [refer to [Table 2.5](#)]; results from multiple birth cohorts with systematic increase in first age category of Camel SNUS use

These analyses evaluated the population health effects on birth cohorts for which Camel SNUS becomes available at different ages. The first age category where the primary beneficial transitions of 'alternative initiation' and 'switching', the primary harmful transitions of 'additional initiation' and 'diversion from quitting' and the secondary harmful transition of 'resumed smoking' are allowed to occur was systematically increased. Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Empirical data on primary beneficial and harmful transitions were based on projected purchase probabilities, as provided by the first execution of RAIS's 'likelihood of use' study. Specifically, the probability that base case cigarette initiators would instead initiate tobacco use with Camel SNUS ('alternative initiation') was projected to be 0.5% (refer to [Table 2.2](#)); this transition occurs in the first three age categories. 'Switching' to the use of Camel SNUS instead of continuing to use cigarettes among base case current smokers was projected to range from 2.3% to 16.5%, depending on age category (refer to [Table 2.3](#)). The probability that base case never tobacco users would initiate use of Camel SNUS instead of remaining never users ('additional initiation') was projected to be 0.3% (refer to [Table 2.2](#)); similar to 'alternative initiation', this transition occurs in the first three age categories. Finally, the probability that base case current smokers would switch to using Camel SNUS instead of quitting tobacco use ('diversion from quitting') was projected to range from 1.8%-20.0%, depending on the age category (refer to [Table 2.3](#)).

In the absence of empirical data on secondary harmful transitions from RAIS's 'likelihood of use' studies, the effect of these unintended changes in tobacco exposure patterns were evaluated using hypothetical and, in many instances, extreme scenarios. Specifically, both 'gateway effect' (the probability that some portion of 'additional initiation' Camel SNUS users would transition to cigarette use) and 'delayed smoking' (the probability that some portion of 'alternative initiation' Camel SNUS users would transition to cigarette use) were evaluated using scenarios whereby 50% of all Camel SNUS initiators transition to cigarette smoking in the age category following initiation (ages 18-22, 23-27 and 28-32 years). In addition, the secondary harmful transition of 'resumed smoking' was evaluated using a scenario whereby 50% of those smokers who switched to using Camel SNUS instead of continuing to smoke subsequently resumed cigarette use. Under the assumption that 'resumed smoking' would likely occur in the same 5-year age category as 'switching', this transition was modeled by reducing the transition probabilities for 'switching' from smoking to Camel SNUS use by 50%.

For a birth cohort for which Camel SNUS is available starting in age category 13-17, 'additional initiation' and 'alternative initiation' can begin in age category 13-17 years; however, because 'switching', 'resumed smoking' and 'diversion from quitting' follow smoking initiation, these transitions cannot begin until age category 18-22 years. With age category-specific transition probabilities as projected by RAIS's 'likelihood of use' study, the survival benefit in the counterfactual scenario was estimated to be about 6,140 additional survivors for an ERR of 0.08, and about 5,700 additional survivors for an ERR of 0.11 (refer to [Table 3.15](#)); this result corresponds to the difference in survivors presented in [Table 3.1](#). For a birth cohort for which Camel SNUS is available starting in age category 18-22, all transitions can occur in age category 18-22 years and thereafter. With age category-specific transition probabilities as projected by RAIS's 'likelihood of use' study, the survival benefit in the counterfactual scenario was estimated to be about 6,270 additional survivors for an ERR of 0.08, and about 5,850 additional survivors for an ERR of 0.11. As the first age category of MRTP use was systematically increased, the survival benefit in the counterfactual scenario decreased, becoming negligible for birth cohorts for which MRTP use began after age 60 years.

Table 3.15: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on purchase probability projections for the 'Master model': Increasing age category at MRTP availability

ERR	First Age Category of Camel SNUS availability		Mean	95% PI	
	For 'Alternative initiation' and 'additional initiation' ^a	For 'switching' ^b and 'diversion from quitting' ^c			
0.08	13-17	18-22	6,137	5,345	6,948
	18-22	18-22	6,273	5,488	7,078
	23-27	23-27	4,606	4,028	5,192
	N/A	28-32	2,997	2,619	3,389
	N/A	33-37	1,821	1,590	2,062
	N/A	38-42	1,159	1,011	1,315
	N/A	43-47	658	573	747
	N/A	48-52	298	259	340
	N/A	53-57	124	108	142
	N/A	58-62	59	51	67
	N/A	63-67	15	13	17
0.11	13-17	18-22	5,695	4,946	6,461
	18-22	18-22	5,847	5,104	6,606
	23-27	23-27	4,312	3,765	4,868
	N/A	28-32	2,818	2,458	3,188
	N/A	33-37	1,715	1,496	1,944
	N/A	38-42	1,092	951	1,239
	N/A	43-47	623	541	708
	N/A	48-52	283	245	322
	N/A	53-57	119	103	135
	N/A	58-62	56	49	65
	N/A	63-67	14	12	16

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years

^b Probabilities from 'likelihood of use' study reduced by 50% to model 50% return from Camel SNUS use to smoking ('resumed smoking'); refer to [Table 2.3](#) for age interval-specific probabilities

^c Refer to [Table 2.3](#) for age interval-specific probabilities

4. Conclusions

The DPM(+1)-based analyses described in the current report addressed three primary objectives. The first objective was to estimate the 'net' population health effect of changes in tobacco exposure patterns expected to result from Camel SNUS and its proposed marketing as a modified-risk tobacco product. This objective was addressed by collectively examining all primary and secondary exposure transitions, intended and unintended, based largely on empirical data from RAIS's 'likelihood of use' study. The second objective was to more closely assess the influence of specific changes in tobacco exposure patterns - expected to result from Camel SNUS and its proposed modified-risk messaging - on the overall 'net' population health effect. This objective was achieved by examining the population-level effects of changes in beneficial and harmful tobacco exposure patterns, individually and in limited combinations. The third objective was to assess whether Camel SNUS and its proposed modified-risk messaging is likely to have a beneficial effect on population health, or at a minimum is unlikely to have an adverse effect on population health, even if unintended changes in tobacco exposure patterns are extreme. This last objective was addressed by undertaking a series of analyses that estimated the proportion of current smokers who must completely switch to using Camel SNUS instead of continuing to smoke to fully offset any unintended population harm that may occur due to extreme scenarios for unintended, harmful tobacco exposure patterns. For all three objectives, population survival was used as a surrogate for population health.

With regard to the first objective, DPM(+1)-based analyses for the 'master model' demonstrated that the 'net' population health effect of all primary beneficial transitions ('alternative initiation' and 'switching'), all primary harmful transitions ('additional initiation' and 'diversion from quitting') and the secondary harmful transitions of 'gateway effect', 'delayed smoking' and 'resumed smoking' was a survival benefit in the counterfactual scenario at the end of age category 68-72 years, of about 6,000 additional survivors. Excluding the primary beneficial transition of 'alternative initiation' had a nominal effect on the estimated number of survivors, while the additional exclusion of all secondary harmful transitions increased the survival benefit in the counterfactual scenario to about 12,000 additional survivors. 'Tipping point' analyses – based on the 'master model' but excluding 'alternative initiation' - indicated that a nominal level of switching (about 0.5% in each age category, ages 18+ years) from cigarettes to a tobacco product that presents significantly less risk than cigarettes among current smokers who would have continued to smoke provided a population health benefit, as reflected by a statistically significant increase in the number of survivors in the counterfactual scenario.⁶²

In the 'master model', the primary beneficial transition of 'switching' reduced the pool of continuing smokers in the counterfactual scenario, as smokers switched to Camel SNUS use in each age category. Specifically, the number of current smokers remaining at the end of age category 68-72 years was reduced by about 27% (16,576 remaining current smokers in the 'master model' compared to 22,690 remaining current smokers in a model equivalent to the 'master model' but without 'switching') (refer to [Tables G1 and G2](#) (for ERRs of 0.08 and 0.11, respectively) in [Appendix G](#)).⁶³ Under the assumption of no 'resumed smoking',

⁶² While the results presented here were based on mortality rates for men, tipping points for 'switching' were almost identical for men and women. Using mortality rates for women in the 'master model' (with or without 'alternative initiation'), the 'net' population effect was about 20% lower than for men. Detailed results are shown in [Appendix H](#).

⁶³ [Appendix G](#) provides detailed results for the cumulative effect of 'switching' on the numbers of current and former smokers and current Camel SNUS users at the end of age category 68-72 years ([Tables G1](#) (ERR=0.08) and [G2](#) (ERR=0.11)); the cumulative effect of 'diversion from quitting' on the numbers of current and former smokers and current Camel SNUS users at the end of age category 68-72 years ([Tables G3](#) (ERR=0.08) and [G4](#) (ERR=0.11)); and, the cumulative effect of 'additional initiation' on the total number of current and former tobacco users at the end of age category 68-72 years ([Tables G5](#) (ERR=0.08) and [G6](#) (ERR=0.11)) for all relevant counterfactual scenarios.

'switching' reduced the number of remaining current smokers at the end of age category 68-72 years by almost 47%.

Sensitivity analyses for the 'master model' that additionally included the secondary harmful transition of 'relapse' showed a smaller survival benefit in the counterfactual scenario of about 5,000 additional survivors. Reduction of all primary beneficial and harmful transition probabilities within the 'master model' by 75% – while retaining at 100% the probabilities for all secondary harmful transitions – still resulted in a survival benefit, with about 1,500 additional survivors in the counterfactual scenario at the end of age category 68-72 years. Additional sensitivity analyses indicated that ERRs for Camel SNUS relative to cigarettes of 0.48 or lower would provide a 'net' population health benefit. This was the case even though smoking cessation was allowed to occur throughout life (based on U.S. cessation rates) but MRTP cessation was suspended and, as a result, 'switching' replaced smokers, some of whom eventually became former smokers in the base case, with MRTP users who could not quit.

DPM(+1)-based analyses used to address the second objective demonstrated that 'switching', whereby some current smokers switch completely to the use of a tobacco product that presents significantly less risk than cigarettes instead of continuing to smoke, is the most influential transition that might occur within a population; this is based on magnitude, and thus likelihood, of shifts in tobacco exposure patterns needed to produce a population benefit or harm. 'Switching' exerted a beneficial effect on population health; when modeled by itself, 'switching' resulted in a survival benefit of about 12,000 additional survivors. Analyses examining the secondary harmful transition of 50% 'resumed smoking', whereby 50% of those current smokers who switched to Camel SNUS instead of continuing to smoke subsequently returned to smoking in the same age interval, suggested a survival benefit in the counterfactual scenario of about 6,500 additional survivors. For 'alternative initiation', whereby some base case cigarette initiators instead initiate tobacco use with Camel SNUS, the survival benefit in the counterfactual scenario was small with less than 100 additional survivors. A greater population health impact for 'switching' compared to 'alternative initiation' is due to the consideration that tobacco initiation rarely occurs beyond young adulthood, whereas continuing smokers exist in all subsequent age categories. Thus, there is more time for smokers to switch to Camel SNUS use than there is for non-users of tobacco to initiate tobacco use with Camel SNUS rather than cigarettes.

DPM(+1)-based analyses used to address the second objective further demonstrated that for 'diversion from quitting', whereby some base case current smokers switch to Camel SNUS use instead of quitting tobacco use, the survival deficit in the counterfactual scenario was about 300 fewer survivors. Analyses examining the secondary harmful transition of 50% 'relapse', whereby 50% of those who switched to Camel SNUS instead of quitting tobacco use ('diversion from quitting') subsequently relapsed to smoking in the same age interval, suggested a survival deficit in the counterfactual scenario of about 1,200 fewer survivors. For 'additional initiation', whereby some base case never tobacco users initiate Camel SNUS use instead of remaining never users, the survival deficit in the counterfactual scenario was about 200 fewer survivors with no 'gateway effect' and about 400 fewer survivors under the assumption of a 50% 'gateway effect'. 'Diversion from quitting' has a more influential impact than 'additional initiation' because tobacco initiation rarely occurs beyond young adulthood, whereas smoking cessation occurs all subsequent age categories. As a result, there is more time for smoking quitters to switch to Camel SNUS use than there is for non-users of tobacco to initiate tobacco use with Camel SNUS rather than remaining non-users.

'Tipping point' analyses used to address the third objective demonstrated that for an extreme scenario of 'additional initiation' (age interval-specific initiation rates for Camel SNUS set equal to U.S. smoking initiation rates), concurrent 'switching' of about 2.6% and 4.1% for ERRs of 0.08 and 0.11, respectively, resulted in a point estimate for the difference in the number of survivors between the counterfactual scenario and base case that was 'near zero'. Concurrent 'switching' of about 3.2% and 5.1% for ERRs of 0.08 and

0.11, respectively, provided a population health benefit as reflected by a statistically significant increase in the number of survivors in the counterfactual scenario.

For a scenario with elevated rates for the primary harmful transition of 'additional initiation' (rates for Camel SNUS initiation set to 10-fold as high as projected from the 'likelihood of use' study), and an extreme scenario for the secondary harmful transition of 'gateway effect' (50%), concurrent 'switching' of about 2.4% and 2.8% for ERRs of 0.08 and 0.11, respectively, resulted in a point estimate for the difference in the number of survivors between the counterfactual scenario and base case that was 'near zero'. Concurrent 'switching' of about 2.9% and 3.4% for ERRs of 0.08 and 0.11, respectively, provided a statistically significant population health benefit.

Sensitivity analyses also assessed the population health impact of Camel SNUS and its proposed modified-risk messaging among birth cohorts for which Camel SNUS is available at increasing ages. As would be expected, systematically increasing the first age category in which Camel SNUS use could occur in the 'master model' had a considerable impact on the population health benefit. For birth cohorts for which Camel SNUS was available in age categories 13-17 years or 18-22 years, the survival benefit in the counterfactual scenario was estimated to be more than 6,000 additional survivors for an ERR of 0.08, and more than 5,600 additional survivors for an ERR of 0.11. The survival benefit in the counterfactual scenario decreased as the first age category in which Camel SNUS became available increased, and became negligible when Camel SNUS was introduced late in life (after age 60 years).

We developed the DPM(+1) to assess the effects of different tobacco exposure scenarios, with the goal of informing regulatory decision-making as outlined in the FSPTCA regarding MRTPs.⁶⁴ Models are useful in this context to predict the magnitude, and thus likelihood, of changes in exposure patterns needed to produce a population benefit and/or likely to produce a population harm. While reducing a harmful exposure in individuals (due to product switching to an MRTP) logically should lead to reduced population harm, increases in population harm might nonetheless occur if more people begin using tobacco and/or if fewer people stop using tobacco because of the availability of the MRTP. The DPM(+1) can be used to explore what would happen to a hypothetical population at different attained ages, under different counterfactual exposure scenarios. A range of probabilities can be modeled for each transition of interest to determine the potential magnitude, and thus likelihood, of a population benefit or harm.

Modeling results are highly dependent on the input data selected by the analyst. For these analyses, transition probabilities for the base case were selected based on U.S. cigarette smoking initiation rates from 2009 and U.S. smoking cessation rates for 2005-2008, with age- and tobacco exposure-specific all-cause mortality risks proportional to those of males who participated in the Kaiser-Permanente Cohort Study⁶⁵. More current smoking cessation estimates have been published, but they include as former smokers individuals who quit smoking less than one year in the past, i.e., they include quit attempts. This definition is incompatible with the mortality data for successful smoking quitters (i.e., those who were former smokers for at least 2 years) from the Kaiser-Permanente Cohort Study. Therefore, the DPM(+1) was calibrated using the 2005-2008 U.S. smoking cessation rates, which are based on successful cessation defined as lasting at least one year. While net results based on mortality rates for women differed from those for men

⁶⁴ Family Smoking Prevention and Tobacco Control Act of 2009. Public Law 111-31 [H.R. 1256 (2009).

⁶⁵ Friedman G, Tekawa IS, Sadler M, Sidney S. Smoking and mortality: the Kaiser Permanente experience. In: Shopland DR, Burns DM, Garfinkel L, Samet J, editors. Changes in Cigarette-Related Disease Risks and Their Implication for Prevention and Control. Rockville, MD: US Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute. 1997; 477-99.

due to different mortality risks for men and women in the Kaiser-Permanente cohort, 'tipping point' estimates for the 'master model' were almost identical for both genders.

A 'likelihood of use' study conducted by RAIS served to provide projected purchase probabilities for Camel SNUS with modified-risk messaging, based on cross-sectional surveys of U.S. adult tobacco users and non-users. Data were collected from never regular tobacco users who reported whether or not they were likely to initiate tobacco use, which in turn were used as 'best estimates' for 'alternative initiation' (likely to initiate tobacco use) and 'additional initiation' (not likely to initiate tobacco use). Data were also collected from current regular cigarette users who reported whether or not they were likely to quit smoking; these data were used as 'best estimates' for 'switching' (unlikely to quit tobacco use) and 'diversion from quitting' (likely to quit tobacco use). The purchase probabilities from the 'likelihood of use' study were also used as starting points for sensitivity analyses. Secondary harmful transitions were not directly investigated by RAIS's 'likelihood of use' studies, and were thus modeled using hypothetical probabilities that, in many instances, represented extreme scenarios.

Like all models, the DPM(+1) is built on simplifying assumptions, as follows: (1) it compares the effects of using only two types of tobacco products; (2) it assumes that the rates of risk reduction associated with quitting different types of tobacco use (e.g., cigarettes and MRTP) are proportional; for the current analyses, MRTP cessation was suspended; (3) mortality rates are dependent on the overall duration of product use or quitting, but not on either the amount of each product used or on the sequence of products used; (4) only the direct effects of exposure to higher- and lower-risk tobacco products are considered; hence, the current analyses do not account for changes to second-hand smoke exposures, for example, that are due to changes in the proportions of cigarette smokers in the population; and, (5) the model requires the analyst to specify values of the relevant input data. Because the outcome measures depend on the precision of the input data, precision is estimated for differences in the numbers of survivors in the base case and counterfactual scenarios by way of 95% posterior intervals. Additionally, the DPM(+1) uses population survival as a surrogate for population health.

The main strengths of the DPM(+1) are its flexibility, its ability to account for uncertainty in the model inputs and output, its comprehensiveness, and its demonstrated validity.⁶⁶ All model inputs can be changed by the analyst, and the level of uncertainty in model inputs can be specified and is accounted for by the posterior intervals around the estimated differences in the output measures. There are no restrictions on age, time of initiation, or time of cessation of exposure.

The key benefit of using models, such as the DPM(+1), is their ability to hold constant all assumptions and factors other than the distribution of exposure or the comparative risk estimates. The model outputs can thus be used to test hypotheses regarding the possible magnitude of benefit or harm that might follow from specified exposure distributions under conditions that are otherwise the same. Analyses based on the DPM(+1) do not provide absolute predictions of differences in survival due to changes in tobacco exposure patterns, but they do show the magnitude of behavior changes that must occur in order to result in either benefit or harm to a population. They also allow for researchers and policy makers to rank the likelihood, and thus the importance for promotion and/or prevention, of various intended and/or unintended consequences. DPM(+1)-based analyses presented in the current report support a determination that the proposed marketing of Camel SNUS as a modified-risk tobacco product is likely to result in a population health benefit, even when taking into account the potential for unintended changes in tobacco exposures.

⁶⁶ Bachand AM, Sulsky SI. A dynamic population model for estimating all-cause mortality due to lifetime exposure history. *Regul Toxicol Pharmacol*. 2013. doi: S0273-2300(13)00120-7 [pii];10.1016/j.yrtph.2013.08.003 [doi].

Appendix A: Complete Descriptions of Transition Probabilities (by Research Question) for Replication of Analyses

Note: Only values for age categories 28-32, 33-37, 38-42, 43-47, 48-52, 53-57, 58-62, 63-67, 68+ for Question 14b were changed in tables [A2.5](#), [A2.5_2](#), [A.2.5_3](#), [A2.6](#), [A2.6_2](#), [A2.7](#), [A2.10](#), and [A2.15](#)

Table A2.5: Research question and corresponding transition probabilities for assessing the 'net' population health effect of all primary transitions and the secondary transitions 'gateway effect'/'delayed smoking' and 'resumed smoking', combined

Question	Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	Smoking initiation	Ages 13-17	13.75	Table 2.4
			Ages 18-22	10.00	
			Ages 23-27	1.00	
			Ages 28+	0.00	
2	Base case: Among smokers,	Smoking cessation	Ages 13-17	No quitting	Table 2.4
			Ages 18-22	9.00	
			Ages 23-27	9.50	
			Ages 28+	14.00	
3	Base case: Among former smokers,	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	Additional initiation	Ages 13-17	0.30	Table 2.2
			Ages 18-22	0.30	
			Ages 23-27	0.30	
			Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	Alternative initiation	Ages 13-17	0.50	Table 2.2
			Ages 18-22	0.50	
			Ages 23-27	0.50	
			Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	Gateway effect / Delayed smoking among new MRTP users, next age category	Ages 13-17	No switching	Scenario assumption
			Ages 18-22	50.00	
			Ages 23-27	50.00	
			Ages 28-32	50.00	
			Ages 33+	0.00	
	7c	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
	7d	MRTP cessation	Ages 13-17 Ages 18+	No cessation 0.00	Scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use	8b	What proportion switch to smoking?	Gateway effect / Delayed smoking among continuing MRTP users, all age categories	Ages 13-22 Ages 23+	No switching 0.00	Scenario assumption
		8c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-22 Ages 23+	No dual use 0.00	Scenario assumption
		8d	What proportion quit MRTP use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use	Ages 13-22 Ages 23+	No return 0.00	Scenario assumption
		9c	What proportion quit all tobacco use?	Smoking cessation	Ages 13-22 Ages 23-27 Ages 28+	No quitting 9.50 14.00	Table 2.4
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18-22 Ages 23-27	No switching 8.3 5.5	Table 2.3 / scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
					Ages 28-32	4.3	
					Ages 33-37	3.0	
					Ages 38-42	3.0	
					Ages 43-47	2.9	
					Ages 48-52	2.1	
					Ages 53-57	1.3	
					Ages 58-62	1.7	
					Ages 63-67	1.7	
					Ages 68+	1.2	
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18-22 Ages 23-27 Ages 28-32 Ages 33-37 Ages 38-42 Ages 43-47 Ages 48-52 Ages 53-57 Ages 58-62 Ages 63-67 Ages 68+	No switching 20.0 8.6 6.5 4.5 7.4 5.4 5.5 2.9 1.8 2.1 2.1	Table 2.3
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+	No relapse 0.00	Scenario assumption
		17c	What proportion quit all tobacco use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	

Table A2.5_2: Research question and corresponding transition probabilities for assessing the 'net' population health effect of all primary transitions and the secondary transitions 'gateway effect'/'delayed smoking' and 'resumed smoking', combined. Transition probabilities are reduced by 75% to model considerably lower transition probabilities than suggested by the 'likelihoods of use' study

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	Smoking initiation	Ages 13-17	13.75	Table 2.4
				Ages 18-22	10.00	
				Ages 23-27	1.00	
				Ages 28+	0.00	
2	Base case: Among smokers,	2a	Smoking cessation	Ages 13-17	No quitting	Table 2.4
				Ages 18-22	9.00	
				Ages 23-27	9.50	
				Ages 28+	14.00	
3	Base case: Among former smokers,	3a	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	Additional initiation	Ages 13-17	0.08	Table 2.4 / Scenario assumption
				Ages 18-22	0.08	
				Ages 23-27	0.08	
				Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	Alternative initiation	Ages 13-17	0.13	Table 2.2 / Scenario assumption
				Ages 18-22	0.13	
				Ages 23-27	0.13	
				Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	Gateway effect / Delayed smoking among new MRTP users, next age category	Ages 13-17	No switching	Scenario assumption
				Ages 18-22	50.00	
				Ages 23-27	50.00	
				Ages 28-32	50.00	
				Ages 33+	0.00	
		7c	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
		7d	MRTP cessation	Ages 13-17 Ages 18+	No cessation 0.00	

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use	8b	What proportion switch to smoking?	Gateway effect / Delayed smoking among continuing MRTP users, all age categories	Ages 13-22 Ages 23+	No switching 0.00	Scenario assumption
		8c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-22 Ages 23+	No dual use 0.00	Scenario assumption
		8d	What proportion quit MRTP use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use	Ages 13-22 Ages 23+	No return 0.00	Scenario assumption
		9c	What proportion quit all tobacco use?	Smoking cessation	Ages 13-22 Ages 23-27 Ages 28+	No quitting 9.50 14.00	Table 2.4
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18-22 Ages 23-27	No switching 2.06 1.36	Table 2.3 / scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
smoking and continued smoking in the base case,					Ages 28-32	1.08	
					Ages 33-37	0.75	
					Ages 38-42	0.75	
					Ages 43-47	0.71	
					Ages 48-52	0.51	
					Ages 53-57	0.31	
					Ages 58-62	0.43	
					Ages 63-67	0.41	
					Ages 68+	0.29	
	14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption	
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18-22 Ages 23-27 Ages 28-32 Ages 33-37 Ages 38-42 Ages 43-47 Ages 48-52 Ages 53-57 Ages 58-62 Ages 63-67 Ages 68+	No switching 5.00 2.15 1.63 1.13 1.85 1.35 1.38 0.73 0.45 0.53 0.53	Table 2.3 / scenario assumption
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+	No relapse 0.00	Scenario assumption
		17c	What proportion quit all tobacco use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	

Table A2.5_3: Research question and corresponding transition probabilities for assessing the 'net' population health effect of all primary transitions and the secondary transitions 'gateway effect'/'delayed smoking' and 'resumed smoking', combined. The effect of a 50% return to smoking among base case smoking quitters who switched to Camel SNUS use in the counterfactual scenario ('relapse') is investigated

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	What proportion initiate smoking?	Smoking initiation	Ages 13-17	13.75	Table 2.4
					Ages 18-22	10.00	
					Ages 23-27	1.00	
					Ages 28+	0.00	
2	Base case: Among smokers,	2a	What proportion quit smoking?	Smoking cessation	Ages 13-17	No quitting	Table 2.4, scenario assumption
					Ages 18-22	8.10	
					Ages 23-27	9.10	
					Ages 28-32	13.50	
					Ages 33-37	13.70	
					Ages 38-42	13.50	
					Ages 43-47	13.60	
					Ages 48-52	13.60	
					Ages 53-57	13.80	
					Ages 58-62	13.90	
					Ages 63-67	13.90	
					Ages 68+	13.90	
3	Base case: Among former smokers,	3a	What proportion-relapse to smoking?	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	What proportion quit smoking again?	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	What proportion instead initiate MRTP in the counterfactual?	Additional initiation	Ages 13-17	0.30	Table 2.2
					Ages 18-22	0.30	
					Ages 23-27	0.30	
					Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	What proportion instead initiate MRTP in the counterfactual?	Alternative initiation	Ages 13-17	0.50	Table 2.2
					Ages 18-22	0.50	
					Ages 23-27	0.50	
					Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	What proportion switch to smoking?	Gateway effect / Delayed smoking among new MRTP users, next age category	Ages 13-17	No switching	Scenario assumption
					Ages 18-22	50.00	
					Ages 23-27	50.00	
					Ages 28-32	50.00	
					Ages 33+	0.00	

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
		7c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-17 Ages 18+ No dual use 0.00	Scenario assumption
		7d	What proportion quit MRTP use?	MRTP cessation	Ages 13-17 Ages 18+ No cessation 0.00	Scenario assumption
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use	8b	What proportion switch to smoking?	Gateway effect / Delayed smoking among continuing MRTP users, all age categories	Ages 13-22 Ages 23+ No switching 0.00	Scenario assumption
		8c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-22 Ages 23+ No dual use 0.00	Scenario assumption
		8d	What proportion quit MRTP use?	MRTP cessation	Ages 13-22 Ages 23+ No cessation 0.00	Scenario assumption
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use	Ages 13-22 Ages 23+ No return 0.00	Scenario assumption
		9c	What proportion quit all tobacco use?	Smoking cessation	Ages 13-22 Ages 23-27 Ages 28+ No quitting 9.50 14.00	Table 2.4
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation	Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco	Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP	Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit	13a	What proportion quit MRTP use?	MRTP cessation	Transition not modeled	

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
	MRTP use but subsequently restarted MRTP use,						
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17	No switching	Table 2.3, scenario assumption
					Ages 18-22	8.22	
					Ages 23-27	5.48	
					Ages 28-32	4.28	
					Ages 33-37	2.99	
					Ages 38-42	2.98	
					Ages 43-47	2.89	
					Ages 48-52	2.09	
					Ages 53-57	1.30	
					Ages 58-62	1.70	
					Ages 63-67	1.70	
					Ages 68+	1.20	
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17	No dual use	Scenario assumption
					Ages 18+	0.00	
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17	No switching	Table 2.3, scenario assumption
					Ages 18-22	11.1	
					Ages 23-27	4.5	
					Ages 28-32	3.4	
					Ages 33-37	2.3	
					Ages 38-42	3.8	
					Ages 43-47	2.8	
					Ages 48-52	2.8	
					Ages 53-57	1.5	
					Ages 58-62	0.9	
					Ages 63-67	1.1	
					Ages 68+	1.1	
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+	No relapse 0.00	Scenario assumption
		17c	What proportion quit all tobacco use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation	Transition not modeled	

Table A2.6: Research question and corresponding transition probabilities for assessing the 'net' population health effect of the primary transitions 'additional initiation', 'switching' and 'diversion from quitting' and the secondary transitions 'gateway effect' and 'resumed smoking', combined

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	Smoking initiation	Ages 13-17	13.75	Table 2.4
				Ages 18-22	10.00	
				Ages 23-27	1.00	
				Ages 28+	0.00	
2	Base case: Among smokers,	2a	Smoking cessation	Ages 13-17	No quitting	Table 2.4
				Ages 18-22	9.00	
				Ages 23-27	9.50	
				Ages 28+	14.00	
3	Base case: Among former smokers,	3a	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	Additional initiation	Ages 13-17	0.30	Table 2.2
				Ages 18-22	0.30	
				Ages 23-27	0.30	
				Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	Alternative initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	Gateway effect among new MRTP users, next age category	Ages 13-17	No switching	Scenario assumption
				Ages 18-22	50.00	
				Ages 23-27	50.00	
				Ages 28-32	50.00	
				Ages 33+	0.00	
		7c	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
		7d	MRTP cessation	Ages 13-17 Ages 18+	No cessation 0.00	Scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use	8b	What proportion switch to smoking?	Gateway effect among continuing MRTP users, all age categories	Ages 13-22 Ages 23+	No switching 0.00	Scenario assumption
		8c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-22 Ages 23+	No dual use 0.00	Scenario assumption
		8d	What proportion quit MRTP use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use	Ages 13-22 Ages 23+	No return 0.00	Scenario assumption
		9c	What proportion quit all tobacco use?	Smoking cessation	Ages 13-22 Ages 23-27 Ages 28+	No quitting 9.50 14.00	Table 2.4
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18-22 Ages 23-27 Ages 28-32	No switching 8.3 5.5 4.3	Table 2.3 / scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
					Ages 33-37	3.0	
					Ages 38-42	3.0	
					Ages 43-47	2.9	
					Ages 48-52	2.1	
					Ages 53-57	1.3	
					Ages 58-62	1.7	
					Ages 63-67	1.7	
					Ages 68+	1.2	
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18-22 Ages 23-27 Ages 28-32 Ages 33-37 Ages 38-42 Ages 43-47 Ages 48-52 Ages 53-57 Ages 58-62 Ages 63-67 Ages 68+	No switching 20.0 8.6 6.5 4.5 7.4 5.4 5.5 2.9 1.8 2.1 2.1	Table 2.3
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+	No relapse 0.00	Scenario assumption
		17c	What proportion quit all tobacco use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking.	18a	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	

Table A2.6_2: Research question and corresponding transition probabilities for assessing the 'net' population health effect of the primary transitions 'additional initiation', 'switching' and 'diversion from quitting' and the secondary transitions 'gateway effect' and 'resumed smoking', combined. The effect of a 50% return to smoking among base case smoking quitters who switched to Camel SNUS use in the counterfactual scenario ('relapse') is investigated

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	Smoking initiation	Ages 13-17	13.75	Table 2.4
				Ages 18-22	10.00	
				Ages 23-27	1.00	
				Ages 28+	0.00	
2	Base case: Among smokers,	2a	Smoking cessation	Ages 13-17	No quitting	Table 2.4, scenario assumption
				Ages 18-22	8.10	
				Ages 23-27	9.10	
				Ages 28-32	13.50	
				Ages 33-37	13.70	
				Ages 38-42	13.50	
				Ages 43-47	13.60	
				Ages 48-52	13.60	
				Ages 53-57	13.80	
				Ages 58-62	13.90	
3	Base case: Among former smokers,	3a	Relapse quit to smoking	Ages 13-22	No relapse	Scenario assumption
				Ages 22+	0.00	
4	Base case: Among former smokers, who relapsed to smoking,	4a	What proportion quit smoking again?	Second time smoking cessation	Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	Additional initiation	Ages 13-17	0.30	Table 2.2
				Ages 18-22	0.30	
				Ages 23-27	0.30	
				Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	Alternative initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	Gateway effect among new MRTP users, next age category	Ages 13-17	No switching	Scenario assumption
				Ages 18-22	50.00	
				Ages 23-27	50.00	
				Ages 28-32	50.00	
				Ages 33+	0.00	

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
		7c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-17 Ages 18+ No dual use 0.00	Scenario assumption
		7d	What proportion quit MRTP use?	MRTP cessation	Ages 13-17 Ages 18+ No cessation 0.00	Scenario assumption
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use	8b	What proportion switch to smoking?	Gateway effect among continuing MRTP users, all age categories	Ages 13-22 Ages 23+ No switching 0.00	Scenario assumption
		8c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-22 Ages 23+ No dual use 0.00	Scenario assumption
		8d	What proportion quit MRTP use?	MRTP cessation	Ages 13-22 Ages 23+ No cessation 0.00	Scenario assumption
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use	Ages 13-22 Ages 23+ No return 0.00	Scenario assumption
		9c	What proportion quit all tobacco use?	Smoking cessation	Ages 13-22 Ages 23-27 Ages 28+ No quitting 9.50 14.00	Table 2.4
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation	Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco	Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP	Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with	13a	What proportion quit MRTP use?	MRTP cessation	Transition not modeled	

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
	the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,						
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17	No switching	Table 2.3, scenario assumption
					Ages 18-22	8.22	
					Ages 23-27	5.48	
					Ages 28-32	4.28	
					Ages 33-37	2.99	
					Ages 38-42	2.98	
					Ages 43-47	2.89	
					Ages 48-52	2.09	
					Ages 53-57	1.30	
					Ages 58-62	1.70	
					Ages 63-67	1.70	
					Ages 68+	1.20	
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17	No dual use	Scenario assumption
					Ages 18+	0.00	
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17	No switching	Table 2.3, scenario assumption
					Ages 18-22	11.1	
					Ages 23-27	4.5	
					Ages 28-32	3.4	
					Ages 33-37	2.3	
					Ages 38-42	3.8	
					Ages 43-47	2.8	
					Ages 48-52	2.8	
					Ages 53-57	1.5	
					Ages 58-62	0.9	
					Ages 63-67	1.1	
					Ages 68+	1.1	
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+	No relapse 0.00	Scenario assumption

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
		17c	What proportion quit all tobacco use?	M RTP cessation	Ages 13-22 Ages 23+ No cessation 0.00	Scenario assumption
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to M RTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation	Transition not modeled	

Table A2.7: Research question and corresponding transition probabilities for assessing the 'net' population health effect of the primary transitions 'additional initiation', 'switching' and 'diversion from quitting'

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	Smoking initiation	Ages 13-17	13.75	Table 2.4
				Ages 18-22	10.00	
				Ages 23-27	1.00	
				Ages 28+	0.00	
2	Base case: Among smokers,	2a	Smoking cessation	Ages 13-17	No quitting	Table 2.4
				Ages 18-22	9.00	
				Ages 23-27	9.50	
				Ages 28+	14.00	
3	Base case: Among former smokers,	3a	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	Additional initiation	Ages 13-17	0.30	Table 2.2
				Ages 18-22	0.30	
				Ages 23-27	0.30	
				Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	Alternative initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	Gateway effect among new MRTP users, next age category	Ages 13-17 Ages 18+	No switching 0.00	Scenario assumption
		7c	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
		7d	MRTP cessation	Ages 13-17 Ages 18+	No cessation 0.00	Scenario assumption
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use	8b	Gateway effect among continuing	Ages 13-22 Ages 23+	No switching 0.00	Scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
	and neither switched to smoking nor quit all tobacco use	8c	What proportion add smoking (i.e. start dual use)?	MRTP users, all age categories Dual use	Ages 13-22 Ages 23+	No dual use 0.00	Scenario assumption
		8d	What proportion quit MRTP use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use		Transition not modeled	
		9c	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18-22 Ages 23-27 Ages 28-32 Ages 33-37 Ages 38-42 Ages 43-47 Ages 48-52 Ages 53-57	No switching 16.5 10.9 8.6 6.0 6.0 5.7 4.1 2.5	Table 2.3

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
					Ages 58-62	3.4	
					Ages 63-67	3.3	
					Ages 68+	2.3	
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18-22 Ages 23-27 Ages 28-32 Ages 33-37 Ages 38-42 Ages 43-47 Ages 48-52 Ages 53-57 Ages 58-62 Ages 63-67 Ages 68+	No switching 20.0 8.6 6.5 4.5 7.4 5.4 5.5 2.9 1.8 2.1 2.1	Table 2.3
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+	No relapse 0.00	Scenario assumption
		17c	What proportion quit all tobacco use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	

Table A2.8: Research question and corresponding transition probabilities for determining the ‘tipping point’ related to the primary beneficial transition, ‘switching’, versus the primary transitions ‘additional initiation’, ‘switching’ and ‘diversion from quitting’ and the secondary transition ‘gateway effect’, combined

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	Smoking initiation	Ages 13-17	13.75	Table 2.4
				Ages 18-22	10.00	
				Ages 23-27	1.00	
				Ages 28+	0.00	
2	Base case: Among smokers,	2a	Smoking cessation	Ages 13-17	No quitting	Table 2.4
				Ages 18-22	9.00	
				Ages 23-27	9.50	
				Ages 28+	14.00	
3	Base case: Among former smokers,	3a	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	Additional initiation	Ages 13-17	0.30	Table 2.2
				Ages 18-22	0.30	
				Ages 23-27	0.30	
				Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	Alternative initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	Gateway effect among new MRTP users, next age category	Ages 13-17	No switching	Scenario assumption
				Ages 18-22	50.00	
				Ages 23-27	50.00	
				Ages 28-32	50.00	
				Ages 33+	0.00	
		7c	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
		7d	MRTP cessation	Ages 13-17 Ages 18+	No cessation 0.00	

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use	8b	What proportion switch to smoking?	Gateway effect among continuing MRTP users, all age categories	Ages 13-22 Ages 23+	No switching 0.00	Scenario assumption
		8c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-22 Ages 23+	No dual use 0.00	Scenario assumption
		8d	What proportion quit MRTP use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use	Ages 13-22 Ages 23+	No return 0.00	Scenario assumption
		9c	What proportion quit all tobacco use?	Smoking cessation	Ages 13-22 Ages 23-27 Ages 28+	No quitting 9.50 14.00	Table 2.4
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18+	No switching Varied to find tipping point	

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18-22 Ages 23-27 Ages 28-32 Ages 33-37 Ages 38-42 Ages 43-47 Ages 48-52 Ages 53-57 Ages 58-62 Ages 63-67 Ages 68+	No switching 20.0 8.6 6.5 4.5 7.4 5.4 5.5 2.9 1.8 2.1 2.1	Table 2.3
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+	No relapse 0.00	Scenario assumption
		17c	What proportion quit all tobacco use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	

Table A2.9: Research question and corresponding transition probabilities for assessing the expected population health effect of the primary beneficial transition, 'alternative initiation'

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	Smoking initiation	Ages 13-17	13.75	Table 2.4
				Ages 18-22	10.00	
				Ages 23-27	1.00	
				Ages 28+	0.00	
2	Base case: Among smokers,	2a	Smoking cessation	Ages 13-17	No quitting	Table 2.4
				Ages 18-22	9.00	
				Ages 23-27	9.50	
				Ages 28+	14.00	
3	Base case: Among former smokers,	3a	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	Additional initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	Alternative initiation	Ages 13-17	0.50	Table 2.2
				Ages 18-22	0.50	
				Ages 23-27	0.50	
				Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	Delayed smoking among new MRTP users, next age category	Ages 13-17 Ages 18+	No switching 0.00	Scenario assumption
		7c	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
		7d	MRTP cessation	Ages 13-17 Ages 18+	No cessation 0.00	Scenario assumption
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use	8b	Delayed smoking among continuing	Ages 13-22 Ages 23+	No switching 0.00	Scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
	and neither switched to smoking nor quit all tobacco use	8c	What proportion add smoking (i.e. start dual use)?	MRTP users, all age categories Dual use	Ages 13-22 Ages 23+	No dual use 0.00	Scenario assumption
		8d	What proportion quit MRTP use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use		Transition not modeled	
		9c	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18+	No switching 0.0	Scenario assumption
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18+	No switching 0.0	Scenario assumption
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking		Transition not modeled	
		17c	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	

Table A2.10: Research question and corresponding transition probabilities for assessing the expected population health effect of the primary beneficial transition, 'switching'

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	Smoking initiation	Ages 13-17	13.75	Table 2.4
				Ages 18-22	10.00	
				Ages 23-27	1.00	
				Ages 28+	0.00	
2	Base case: Among smokers,	2a	Smoking cessation	Ages 13-17	No quitting	Table 2.4
				Ages 18-22	9.00	
				Ages 23-27	9.50	
				Ages 28+	14.00	
3	Base case: Among former smokers,	3a	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	Additional initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	Alternative initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	Gateway effect / Delayed smoking among new MRTP users, next age category		Transition not modeled	
		7c	Dual use		Transition not modeled	
		7d	MRTP cessation		Transition not modeled	
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use	8b	Gateway effect / Delayed smoking among continuing		Transition not modeled	

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
	and neither switched to smoking nor quit all tobacco use	8c	What proportion add smoking (i.e. start dual use)?	MRTP users, all age categories Dual use		Transition not modeled	
		8d	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use		Transition not modeled	
		9c	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18-22 Ages 23-27 Ages 28-32 Ages 33-37 Ages 38-42 Ages 43-47 Ages 48-52 Ages 53-57 Ages 58-62	No switching 16.5 10.9 8.6 6.0 6.0 5.7 4.1 2.5 3.4	Table 2.3

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
					Ages 63-67 Ages 68+	3.3 2.3	
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18+	No switching 0.0	Scenario assumption
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+	No relapse 0.00	Scenario assumption
		17c	What proportion quit all tobacco use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	

Table A2.11: Research question and corresponding transition probabilities for assessing the expected population health effect of the primary harmful transition, 'additional initiation'

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	What proportion initiate smoking?	Smoking initiation	Ages 13-17	13.75	Table 2.4
					Ages 18-22	10.00	
					Ages 23-27	1.00	
					Ages 28+	0.00	
2	Base case: Among smokers,	2a	What proportion quit smoking?	Smoking cessation	Ages 13-17	No quitting	Table 2.4
					Ages 18-22	9.00	
					Ages 23-27	9.50	
					Ages 28+	14.00	
3	Base case: Among former smokers,	3a	What proportion-relapse to smoking?	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	What proportion quit smoking again?	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	What proportion instead initiate MRTP in the counterfactual?	Additional initiation	Ages 13-17	0.30	Table 2.2
					Ages 18-22	0.30	
					Ages 23-27	0.30	
					Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	What proportion instead initiate MRTP in the counterfactual?	Alternative initiation	Ages 13-17	0.00	Scenario assumption
					Ages 18-22	0.00	
					Ages 23-27	0.00	
					Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	What proportion switch to smoking?	Gateway effect among new MRTP users, next age category	Ages 13-17 Ages 18+	No switching 0.00	Scenario assumption
		7c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
		7d	What proportion quit MRTP use?	MRTP cessation	Ages 13-17 Ages 18+	No cessation 0.00	Scenario assumption
8	Counterfactual: Among persons who initiated tobacco use with	8b	What proportion switch to smoking?	Gateway effect among continuing	Ages 13-22 Ages 23+	No switching	Scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
	the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use			MRTP users, all age categories		0.00	
		8c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-22 Ages 23+	No dual use 0.00	Scenario assumption
		8d	What proportion quit MRTP use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use		Transition not modeled	
		9c	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18+	No switching 0.0	Scenario assumption
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18+	No switching 0.0	Scenario assumption
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking		Transition not modeled	
		17c	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	

Table A2.12: Research question and corresponding transition probabilities for assessing the expected population health effect of the primary harmful transition, 'diversion from quitting'

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	Smoking initiation	Ages 13-17	13.75	Table 2.4
				Ages 18-22	10.00	
				Ages 23-27	1.00	
				Ages 28+	0.00	
2	Base case: Among smokers,	2a	Smoking cessation	Ages 13-17	No quitting	Table 2.4
				Ages 18-22	9.00	
				Ages 23-27	9.50	
				Ages 28+	14.00	
3	Base case: Among former smokers,	3a	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	Additional initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	Alternative initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	Gateway effect / Delayed smoking among new MRTP users, next age category Gateway effect among new MRTP users, next age category		Transition not modeled	
		7c	What proportion add smoking (i.e. start dual use)?	Dual use	Transition not modeled	
		7d	What proportion quit MRTP use?	MRTP cessation	Transition not modeled	

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use	8b	What proportion switch to smoking?	Gateway effect / Delayed smoking among continuing MRTP users, all age categories		Transition not modeled	
		8c	What proportion add smoking (i.e. start dual use)?	Dual use		Transition not modeled	
		8d	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use		Transition not modeled	
		9c	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18+	No switching 0.0	Scenario assumption
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17	No switching	Table 2.3
					Ages 18-22	20.0	
					Ages 23-27	8.6	
					Ages 28-32	6.5	
					Ages 33-37	4.5	
					Ages 38-42	7.4	
					Ages 43-47	5.4	
					Ages 48-52	5.5	
					Ages 53-57	2.9	
					Ages 58-62	1.8	
					Ages 63-67	2.1	
					Ages 68+	2.1	
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+	No relapse 0.00	Scenario assumption
		17c	What proportion quit all tobacco use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	

Table A2.12_2: Research question and corresponding transition probabilities for assessing the expected population health effect of the primary harmful transition, 'diversion from quitting'. The effect of a 50% return to smoking among base case smoking quitters who switched to Camel SNUS use in the counterfactual scenario ('relapse') is investigated

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	What proportion initiate smoking?	Smoking initiation	Ages 13-17	13.75	Table 2.4
					Ages 18-22	10.00	
					Ages 23-27	1.00	
					Ages 28+	0.00	
2	Base case: Among smokers,	2a	What proportion quit smoking?	Smoking cessation	Ages 13-17	No quitting	Table 2.4, scenario assumption
					Ages 18-22	8.10	
					Ages 23-27	9.10	
					Ages 28-32	13.50	
					Ages 33-37	13.70	
					Ages 38-42	13.50	
					Ages 43-47	13.60	
					Ages 48-52	13.60	
					Ages 53-57	13.80	
					Ages 58-62	13.90	
					Ages 63-67	13.90	
					Ages 68+	13.90	
3	Base case: Among former smokers,	3a	What proportion-relapse to smoking?	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	What proportion quit smoking again?	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	What proportion instead initiate MRTP in the counterfactual?	Additional initiation	Ages 13-17	0.00	Scenario assumption
					Ages 18-22	0.00	
					Ages 23-27	0.00	
					Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	What proportion instead initiate MRTP in the counterfactual?	Alternative initiation	Ages 13-17	0.00	Scenario assumption
					Ages 18-22	0.00	
					Ages 23-27	0.00	
					Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	What proportion switch to smoking?	Gateway effect / Delayed smoking among new MRTP users, next age category		Transition not modeled	

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
		7c	What proportion add smoking (i.e. start dual use)?	Dual use	Transition not modeled	
		7d	What proportion quit MRTP use?	MRTP cessation	Transition not modeled	
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use	8b	What proportion switch to smoking?	Gateway effect / Delayed smoking among continuing MRTP users, all age categories	Transition not modeled	
		8c	What proportion add smoking (i.e. start dual use)?	Dual use	Transition not modeled	
		8d	What proportion quit MRTP use?	MRTP cessation	Transition not modeled	
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use	Transition not modeled	
		9c	What proportion quit all tobacco use?	Smoking cessation	Transition not modeled	
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation	Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco	Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP	Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation	Transition not modeled	

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18+	No switching 0.0	Scenario assumption
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17	No switching	Table 2.3, scenario assumption
					Ages 18-22	11.1	
					Ages 23-27	4.5	
					Ages 28-32	3.4	
					Ages 33-37	2.3	
					Ages 38-42	3.8	
					Ages 43-47	2.8	
					Ages 48-52	2.8	
					Ages 53-57	1.5	
					Ages 58-62	0.9	
					Ages 63-67	1.1	
					Ages 68+	1.1	
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+	No relapse 0.00	Scenario assumption
		17c	What proportion quit all tobacco use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	

Table A2.13: Research question and corresponding transition probabilities for assessing the expected population health effect of the primary harmful transition, 'additional initiation', combined with the secondary harmful transition, 'gateway effect'

Question	Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	Smoking initiation	Ages 13-17	13.75	Table 2.4
			Ages 18-22	10.00	
			Ages 23-27	1.00	
			Ages 28+	0.00	
2	Base case: Among smokers,	Smoking cessation	Ages 13-17	No quitting	Table 2.4
			Ages 18-22	9.00	
			Ages 23-27	9.50	
			Ages 28+	14.00	
3	Base case: Among former smokers,	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	Additional initiation	Ages 13-17	0.30	Table 2.2
			Ages 18-22	0.30	
			Ages 23-27	0.30	
			Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	Alternative initiation	Ages 13-17	0.00	Scenario assumption
			Ages 18-22	0.00	
			Ages 23-27	0.00	
			Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	Gateway effect among new MRTP users, next age category	Ages 13-17	No switching	Scenario assumption
			Ages 18-22	50.00	
			Ages 23-27	50.00	
			Ages 28-32	50.00	
			Ages 33+	0.00	
	7c	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
	7d	MRTP cessation	Ages 13-17 Ages 18+	No cessation 0.00	Scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use	8b	What proportion switch to smoking?	Gateway effect among continuing MRTP users, all age categories	Ages 13-22 Ages 23+	No switching 0.00	Scenario assumption
		8c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-22 Ages 23+	No dual use 0.00	Scenario assumption
		8d	What proportion quit MRTP use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use	Ages 13-22 Ages 23+	No return 0.00	Scenario assumption
		9c	What proportion quit all tobacco use?	Smoking cessation	Ages 13-22 Ages 23-27 Ages 28+	No quitting 9.50 14.00	Table 2.4
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18+	No switching 0.0	Scenario assumption

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+ No dual use 0.00	Scenario assumption
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18+ No switching 0.0	Scenario assumption
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco	Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Transition not modeled	
		17c	What proportion quit all tobacco use?	MRTP cessation	Transition not modeled	
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation	Transition not modeled	

Table A2.14: Research question and corresponding transition probabilities for assessing the expected population health effect of the primary beneficial transition, 'alternative initiation', combined with the secondary harmful transition, 'delayed smoking'

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	Smoking initiation	Ages 13-17	13.75	Table 2.4
				Ages 18-22	10.00	
				Ages 23-27	1.00	
				Ages 28+	0.00	
2	Base case: Among smokers,	2a	Smoking cessation	Ages 13-17	No quitting	Table 2.4
				Ages 18-22	9.00	
				Ages 23-27	9.50	
				Ages 28+	14.00	
3	Base case: Among former smokers,	3a	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	Additional initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	Alternative initiation	Ages 13-17	0.50	Scenario assumption
				Ages 18-22	0.50	
				Ages 23-27	0.50	
				Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	Delayed smoking among new MRTP users, next age category	Ages 13-17	No switching	Scenario assumption
				Ages 18-22	50.00	
				Ages 23-27	50.00	
				Ages 28-32	50.00	
				Ages 33+	0.00	
		7c	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
		7d	MRTP cessation	Ages 13-17 Ages 18+	No cessation 0.00	Scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use	8b	What proportion switch to smoking?	Delayed smoking among continuing MRTP users, all age categories	Ages 13-22 Ages 23+	No switching 0.00	Scenario assumption
		8c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-22 Ages 23+	No dual use 0.00	Scenario assumption
		8d	What proportion quit MRTP use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use	Ages 13-22 Ages 23+	No return 0.00	Scenario assumption
		9c	What proportion quit all tobacco use?	Smoking cessation	Ages 13-22 Ages 23-27 Ages 28+	No quitting 9.50 14.00	Table 2.4
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18+	No switching 0.0	Scenario assumption

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+ No dual use 0.00	Scenario assumption
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18+ No switching 0.0	Scenario assumption
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco	Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Transition not modeled	
		17c	What proportion quit all tobacco use?	MRTP cessation	Transition not modeled	
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation	Transition not modeled	

Table A2.15: Research question and corresponding transition probabilities for assessing the expected population health effect of the primary harmful transition, 'switching', combined with the secondary harmful transition, 'resumed smoking'

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	Smoking initiation	Ages 13-17	13.75	Table 2.4
				Ages 18-22	10.00	
				Ages 23-27	1.00	
				Ages 28+	0.00	
2	Base case: Among smokers,	2a	Smoking cessation	Ages 13-17	No quitting	Table 2.4
				Ages 18-22	9.00	
				Ages 23-27	9.50	
				Ages 28+	14.00	
3	Base case: Among former smokers,	3a	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	Additional initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	Alternative initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	Gateway effect / Delayed smoking among new MRTP users, next age category		Transition not modeled	
		7c	Dual use		Transition not modeled	
		7d	MRTP cessation		Transition not modeled	
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use	8b	Gateway effect / Delayed smoking among continuing		Transition not modeled	

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
	and neither switched to smoking nor quit all tobacco use	8c	What proportion add smoking (i.e. start dual use)?	M RTP users, all age categories Dual use		Transition not modeled	
		8d	What proportion quit MR TP use?	MR TP cessation		Transition not modeled	
9	Counterfactual: Among persons who initiated tobacco use with the MR TP and eventually switched to smoking	9b	What proportion switch back to MR TP?	Return smoking to MR TP use		Transition not modeled	
		9c	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	
10	Counterfactual: Among persons who initiated tobacco use with the MR TP, eventually switched to smoking and subsequently switched back to the MR TP,	10a	What proportion quit all tobacco use?	MR TP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MR TP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MR TP but eventually quit MR TP use,	12a	What proportion relapse to MR TP use?	Relapse, quit to MR TP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MR TP, eventually quit MR TP use but subsequently restarted MR TP use,	13a	What proportion quit MR TP use?	MR TP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MR TP in the counterfactual?	Switching	Ages 13-17 Ages 18-22 Ages 23-27 Ages 28-32 Ages 33-37 Ages 38-42 Ages 43-47 Ages 48-52 Ages 53-57 Ages 58-62	No switching 8.3 5.5 4.3 3.0 3.0 2.9 2.1 1.3 1.7	Table 2.3

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
					Ages 63-67 Ages 68+	1.7 1.2	
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18+	No switching 0.0	Scenario assumption
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+	No relapse 0.00	Scenario assumption
		17c	What proportion quit all tobacco use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	

Table A2.16: Research question and corresponding transition probabilities for determining the ‘tipping point’ related to ‘switching’ versus an extreme scenario for the primary harmful transition, ‘additional initiation’

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	Smoking initiation	Ages 13-17	13.75	Table 2.4
				Ages 18-22	10.00	
				Ages 23-27	1.00	
				Ages 28+	0.00	
2	Base case: Among smokers,	2a	Smoking cessation	Ages 13-17	No quitting	Table 2.4
				Ages 18-22	9.00	
				Ages 23-27	9.50	
				Ages 28+	14.00	
3	Base case: Among former smokers,	3a	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	What proportion quit smoking again?	Second time smoking cessation	Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	Additional initiation	Ages 13-17	13.75	Table 2.2
				Ages 18-22	10.00	
				Ages 23-27	1.00	
				Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	Alternative initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	Gateway effect among new MRTP users, next age category	Ages 13-17 Ages 18+	No switching 0.00	Scenario assumption
		7c	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
		7d	MRTP cessation	Ages 13-17 Ages 18+	No cessation 0.00	Scenario assumption

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use	8b	What proportion switch to smoking?	Gateway effect among continuing MRTP users, all age categories	Ages 13-22 Ages 23+	No switching 0.00	Scenario assumption
		8c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-22 Ages 23+	No dual use 0.00	Scenario assumption
		8d	What proportion quit MRTP use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use		Transition not modeled	
		9c	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17	No switching	

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
	smoking and continued smoking in the base case,				Ages 18+	Varied to find tipping point	
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18+	No switching 0.0	Scenario assumption
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+	No relapse 0.00	Scenario assumption
		17c	What proportion quit all tobacco use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	

Table A2.17: Research question and corresponding transition probabilities for determining the ‘tipping point’ related to ‘switching’ versus an extreme scenario for the primary harmful transition, ‘additional initiation’, combined with the secondary harmful transition, ‘gateway effect’

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	What proportion initiate smoking?	Smoking initiation	Ages 13-17	13.75	Table 2.4
					Ages 18-22	10.00	
					Ages 23-27	1.00	
					Ages 28+	0.00	
2	Base case: Among smokers,	2a	What proportion quit smoking?	Smoking cessation	Ages 13-17	No quitting	Table 2.4
					Ages 18-22	9.00	
					Ages 23-27	9.50	
					Ages 28+	14.00	
3	Base case: Among former smokers,	3a	What proportion-relapse to smoking?	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	What proportion quit smoking again?	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	What proportion instead initiate MRTP in the counterfactual?	Additional initiation	Ages 13-17	3.00	Table 2.2; scenario assumption
					Ages 18-22	3.00	
					Ages 23-27	3.00	
					Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	What proportion instead initiate MRTP in the counterfactual?	Alternative initiation	Ages 13-17	0.00	Scenario assumption
					Ages 18-22	0.00	
					Ages 23-27	0.00	
					Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTP in the previous age category,	7b	What proportion switch to smoking?	Gateway effect among new MRTP users, next age category	Ages 13-17	No switching	Scenario assumption
					Ages 18-22	50.00	
					Ages 23-27	50.00	
					Ages 28-32	50.00	
					Ages 33+	0.00	
		7c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
		7d	What proportion quit MRTP use?	MRTP cessation	Ages 13-17 Ages 18+ No cessation 0.00	Scenario assumption
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use	8b	What proportion switch to smoking?	Gateway effect among continuing MRTP users, all age categories	Ages 13-22 Ages 23+ No switching 0.00	Scenario assumption
		8c	What proportion add smoking (i.e. start dual use)?	Dual use	Ages 13-22 Ages 23+ No dual use 0.00	Scenario assumption
		8d	What proportion quit MRTP use?	MRTP cessation	Ages 13-22 Ages 23+ No cessation 0.00	Scenario assumption
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use	Ages 13-22 Ages 23+ No return 0.00	Scenario assumption
		9c	What proportion quit all tobacco use?	Smoking cessation	Ages 13-22 Ages 23-27 Ages 28+ No quitting 9.50 14.00	Table 2.4
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation	Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco	Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP	Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit	13a	What proportion quit MRTP use?	MRTP cessation	Transition not modeled	

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
	MRTP use but subsequently restarted MRTP use,						
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18+	No switching Varied to find tipping point	
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+	No dual use 0.00	Scenario assumption
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18+	No switching 0.0	Scenario assumption
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+	No relapse 0.00	Scenario assumption
		17c	What proportion quit all tobacco use?	MRTP cessation	Ages 13-22 Ages 23+	No cessation 0.00	Scenario assumption
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	

Table A2.18: Research question and corresponding transition probabilities for determining the ‘tipping point’ related to ‘switching’ versus an extreme scenario for the primary harmful transition, ‘diversion from quitting’

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
1	Base case: In the study population,	1a	Smoking initiation	Ages 13-17	13.75	Table 2.4
				Ages 18-22	10.00	
				Ages 23-27	1.00	
				Ages 28+	0.00	
2	Base case: Among smokers,	2a	Smoking cessation	Ages 13-17	No quitting	Table 2.4
				Ages 18-22	9.00	
				Ages 23-27	9.50	
				Ages 28+	14.00	
3	Base case: Among former smokers,	3a	Relapse quit to smoking	Ages 13-22 Ages 22+	No relapse 0.00	Scenario assumption
4	Base case: Among former smokers, who relapsed to smoking,	4a	Second time smoking cessation		Transition not modeled	
5	Counterfactual: Among persons who remained never tobacco users in the base case,	5a	Additional initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
6	Counterfactual: Among persons who initiated smoking in the base case,	6a	Alternative initiation	Ages 13-17	0.00	Scenario assumption
				Ages 18-22	0.00	
				Ages 23-27	0.00	
				Ages 28+	0.00	
7	Counterfactual: Among persons who initiated tobacco use with the MRTTP in the previous age category,	7b	Gateway effect / Delayed smoking among new MRTTP users, next age category		Transition not modeled	
		7c	What proportion add smoking (i.e. start dual use)?	Dual use	Transition not modeled	
		7d	What proportion quit MRTTP use?	MRTTP cessation	Transition not modeled	

Question		Sub-question		Transition	Age category	DPM(+1) transition probability (%)	Source
8	Counterfactual: Among persons who initiated tobacco use with the MRTP, continued MRTP use and neither switched to smoking nor quit all tobacco use	8b	What proportion switch to smoking?	Gateway effect / Delayed smoking among continuing MRTP users, all age categories		Transition not modeled	
		8c	What proportion add smoking (i.e. start dual use)?	Dual use		Transition not modeled	
		8d	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
9	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually switched to smoking	9b	What proportion switch back to MRTP?	Return smoking to MRTP use		Transition not modeled	
		9c	What proportion quit all tobacco use?	Smoking cessation		Transition not modeled	
10	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually switched to smoking and subsequently switched back to the MRTP,	10a	What proportion quit all tobacco use?	MRTP cessation		Transition not modeled	
11	Counterfactual: Among persons who initiated tobacco use with the MRTP and eventually added smoking (i.e. started dual use),	11a	What proportion quit all tobacco use?	Cessation, all tobacco		Transition not modeled	
12	Counterfactual: Among persons who initiated tobacco use with the MRTP but eventually quit MRTP use,	12a	What proportion relapse to MRTP use?	Relapse, quit to MRTP		Transition not modeled	
13	Counterfactual: Among persons who initiated tobacco use with the MRTP, eventually quit MRTP use but subsequently restarted MRTP use,	13a	What proportion quit MRTP use?	MRTP cessation		Transition not modeled	
14	Counterfactual: Among persons who initiated tobacco use with smoking and continued smoking in the base case,	14b	What proportion instead switch to MRTP in the counterfactual?	Switching	Ages 13-17 Ages 18+	No switching Varied to find tipping point	Scenario assumption

Question		Sub-question	Transition	Age category	DPM(+1) transition probability (%)	Source
		14c	What proportion instead add MRTP (i.e. start dual use) in the counterfactual?	Dual use	Ages 13-17 Ages 18+ No dual use 0.00	Scenario assumption
15	Counterfactual: Among persons who initiated tobacco use with smoking but quit smoking in the base case,	15a	What proportion switch to MRTP in the counterfactual instead of quitting?	Diversion from quitting	Ages 13-17 Ages 18+ No switching 50.0	Scenario assumption
16	Counterfactual: Among persons who initiated tobacco use with smoking and eventually added MRTP use (i.e. started dual use),	16a	What proportion quit all tobacco use?	Cessation, all tobacco	Transition not modeled	
17	Counterfactual: Among persons who initiated tobacco use with smoking and eventually switched to MRTP use,	17b	What proportion switch to smoking?	Relapse MRTP to smoking	Ages 13-22 Ages 23+ No relapse 0.00	Scenario assumption
		17c	What proportion quit all tobacco use?	MRTP cessation	Ages 13-22 Ages 23+ No cessation 0.00	Scenario assumption
18	Counterfactual: Among persons who initiated tobacco use with smoking, eventually switched to MRTP use, but subsequently switched back to smoking,	18a	What proportion quit all tobacco use?	Smoking cessation	Transition not modeled	

Appendix B: Adjusting U.S. Smoking Initiation and Cessation Rates and Mortality Rates from the
Kaiser-Permanente Cohort Study for Use in the DPM(+1)

Estimation of base case transition probabilities

Exposure transition probabilities in the base case consist of base case product initiation and cessation rates as well as relapse rates from former use to current use.

Age-specific cigarette smoking initiation was based on 2009 cigarette smoking initiation rates published by the Substance Abuse and Mental Health Services Administration's (SAMHSA) National Surveys on Drug Use and Health, 2009¹. To align the 5-year age categories we chose to use in the DPM with those used by NHSDA, we slightly adjusted the population smoking initiation rates (*Table B1*). To obtain initiation rates for 5-year periods, we multiplied each annual rate by 2.5 to provide a conservative estimate of the average person-time at risk of smoking initiation in each 5-year age category.

Table B1: Cigarette smoking initiation (%), US 2009 (males and females, any race)

SAMHSA age category	NHSDA initiation (%)	DPM age category	Corrected initiation (%)	Correction and reason for correction	Corrected 5-year initiation (%)
12-17	5.1	13-17	5.5	Increased initiation rate • 12 year olds (lower initiation rates) are part of SAMHSA age category but are not part of model age category	13.75
18-20	6.9	18-22	4.0	Decreased initiation rate • 21 and 22 year olds (lower initiation rates) are not part of SAMHSA age category but are part of model age category	10.00
21-25	1.0	23-27	0.4	Decreased initiation rate • 21 and 22 year olds (higher initiation rates) are part of SAMHSA age category but are not part of model age category • 26 and 27 year olds (lower initiation rates) are not part of SAMHSA age category but are part of model age category	1.00
Above 25	0.1	28-32	0.0	Decreased initiation rate • 26 and 27 year olds (higher initiation rates) are part of SAMHSA age category but are not part of model age category	0.00
		Above 32	0.0		0.00

¹ <http://www.samhsa.gov/data/NSDUH/2k10ResultsTables/NSDUHTables2010R/HTM/Sect4peTabs1to16.htm#Tab4>.
3B

Annual age-specific cigarette smoking cessation rates for 2005-2008 were based on cigarette smoking cessation rates published by SAMHSA's National Surveys on Drug Use and Health, 2005-2008 ². More current smoking cessation estimates have been published, but they include as former smokers individuals who quit smoking less than one year in the past, i.e., they include quit attempts. This definition is incompatible with the mortality data for successful smoking quitters (i.e., those who were former smokers for at least 2 years) from the Kaiser-Permanente Cohort Study. Therefore, the DPM(+1) was calibrated using the 2005-2008 U.S. smoking cessation rates, which are based on successful cessation defined as lasting at least one year. Rates were adjusted to match the age categories used in the DPM, and multiplied by 2.5 to estimate initiation rates over a 5-year period (i.e., to provide a conservative estimate of the average person-time at risk of smoking cessation in each 5-year age category; *Table B2*).

Table B2: Cigarette smoking cessation (%), US 2005-2008 (white males and females)

SAMHSA age category	NHSDA cessation (%)	DPM age category	Corrected cessation (%)	Correction and reason for correction	Corrected 5-year cessation (%)
12-17	3.8	13-17	3.8	None	9.5
18-25	3.6	18-22	3.6	None	9.0
		23-27	3.8	Increased cessation rate • 26 and 27 year olds (higher cessation rates) are not part of SAMHSA age category but are part of model age category	9.5
26-34	5.6	28-32	5.6	None	14.00
Above 34	3.8	Above 32	5.6	Increased cessation rate 32 and 33 year olds (higher cessation rates) are not part of SAMHSA age category but are part of model age category	14.00

To our knowledge, there are no US population data on rates of relapse to smoking among former smokers. For simplicity, we treated smoking cessation as final and assumed no relapse to smoking.

² <http://www.samhsa.gov/data/2k10/172/172smokingcessation.htm>

Estimation of mortality rates for the base case

A Poisson model embedded within the DPM estimates the number of deaths among persons with a particular exposure history involving only the base case product. The estimates are based on person-years and deaths by age, years of exposure and years since cessation of exposure as entered by the model user. Only survivors move on to the next age category.

Mortality rates for the base case - men

To estimate mortality rates, the DPM user must supply age- and exposure-specific numbers of person-years and numbers of deaths for a relevant population. To calibrate the DPM, we used data from the Kaiser Permanente (KP) cohort study, which included about 24,000 men ages 35 and older, who entered the cohort between 1979 and 1986 and were followed for mortality through 1987. Published data provided person-years and deaths stratified separately by a) categories of age and years of smoking; and b) categories of age and years since quitting smoking (Friedman et al., 1997)³. For the prior distributions of the core Poisson model coefficients, we used non-informative normal distributions with mean 0 and standard deviation 100. While the KP data were used to develop the structure of the Poisson model, mortality data by age, years of exposure (in this example, to smoking) and years since exposure cessation (i.e., quitting smoking) from any population can be used in the DPM.

To use the KP data with the DPM, some adjustments were necessary. The published KP data are shown in [Table B3](#). We substituted zero person-years for current smokers aged 65-74 and >75 years with <20 years of smoking. There were small numbers of person-years and deaths in these categories in the KP, and it seemed unreasonable to require the DPM to account for the unusual situation of persons over the age of 45 initiating tobacco use.

³ Friedman G, Tekawa IS, Sadler M, Sidney S. Smoking and mortality: the Kaiser Permanente experience. In: Shopland DR, Burns DM, Garfinkel L, Samet J, editors. *Changes in Cigarette-Related Disease Risks and Their Implication for Prevention and Control*. Rockville, MD: US Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute. 1997; 477-99.

Table B3: Age-specific person-years, deaths and mortality rates in never smokers and current smokers by duration of smoking, based on data for men who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years smoked	Person-years	Number of deaths	Mortality rate
35-49	Never	-	29,916	49	163.8
	Current	<20	5,940	16	269.4
	Current	20-39	14,563	48	329.6
50-64	Never	-	24,020	97	403.8
	Current	<20	1,174	7	596.3
	Current	20-39	10,205	80	783.9
	Current	40+	4,367	74	1694.5
65-74	Never	-	11,466	161	1404.2
	Current	<20	212 ^a	0	0.0
	Current	20-39	963	23	2388.4
	Current	40+	3,285	80	2435.3
75+	Never	-	4,486	203	4525.2
	Current	<20	90 ^b	0	0.0
	Current	20-39	138	12	8695.7
	Current	40+	740	42	5675.7

^a Few men aged 65-74 will have smoked for <20 years; the category only contained 212 person-years and no deaths. For the DPM input, we substituted zero person-years.

^b Few men aged 75+ will have smoked for <20 years; the category only contained 90 person-years and no deaths. For the DPM input, we substituted zero person-years.

[Table B4](#) shows the KP data by age and categories of years since quitting smoking as published by Friedman et al. For the DPM input, we adjusted inconsistencies in the mortality rates for two categories as described in the footnotes, below.

Table B4: Age-specific person-years, deaths and mortality rates in never smokers and former smokers by duration of quitting, based on data for men who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years quit	Person-years	Number of deaths	Mortality rate
35-49	Never	-	29,916	49	163.8
	Former	2-10	5,571	12	215.4
	Former	11-20	6,210	5 (9 ^a)	80.5 (144.9 ^a)
	Former	>20	1,149	3 (2 ^b)	261.1 (174.1 ^b)
50-64	Never	-	24,020	97	403.8
	Former	2-10	3,625	26	717.2
	Former	11-20	6,107	29	474.9
	Former	>20	4,670	19	406.9
65-74	Never	-	11,466	161	1404.2
	Former	2-10	977	14	1433.0
	Former	11-20	2,548	52	2040.8
	Former	>20	3,507	43	1226.1
75+	Never	-	4,486	203	4525.2
	Former	2-10	253	16	6324.1
	Former	11-20	671	40	5961.3
	Former	>20	1,442	67	4646.3

^a Friedman et al. reported 5 deaths (mortality rate = 80.5). However, this rate among former smokers of 11-20 years is much lower than the mortality rate among never smokers in the same age category. For DPM input, we increased the number of deaths to 9.

^b Friedman et al. reported 3 deaths (mortality rate = 261.1). However, this rate among former smokers of > 20 years is much higher than the mortality rate among former smokers of < 20 years in the same age category. For DPM input, we decreased the number of deaths to 2.

To create narrower age categories, we divided each of the first two age categories (35-49 and 50-64 years) along the respective category midpoints. The resulting categories were 35-42, 43-49, 50-56 and 57-64. Additionally, we divided the “years of smoking” categories (2-10 and 11-20 and >20 years) into smaller intervals along the respective category midpoints (1-10; 11-19; 20-29 and 30-39 years). The results are shown in [Table B5](#). With a few exceptions (see footnotes to [Table B5](#)), we allocated 40% of deaths to the younger age and shorter duration of smoking categories, and 60% of deaths to the older age and longer duration of smoking categories.

Table B5: Age-specific person-years and deaths in never smokers and current smokers by duration of smoking (divided age and smoking categories), based on data for men who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years smoked	Person-years	Number of deaths
35-42	Never	-	14,958.0	19.6
	Current	1-10 ^a	-	-
	Current	11-19 ^a	2,970.0	6.4
	Current	20-29 ^b	7,281.5	19.2
	Current	30-39 ^b	-	-
43-49	Never	-	14,958.0	29.4
	Current	1-10 ^a	-	-
	Current	11-19 ^a	2970.0	9.6
	Current	20-29 ^b	7,281.5	28.8
	Current	30-39 ^b	-	-
50-56	Never	-	12,010.0	38.8
	Current	1-10 ^c	-	-
	Current	11-19 ^{c,d}	1,174.0	7.0
	Current	20-29 ^e	5,102.5	32.0
	Current	30-39	2551.3	19.2
	Current	40+	-	-
57-64	Never	-	12,010.0	58.2
	Current	1-10 ^c	-	-
	Current	11-19 ^{c,d}	-	-
	Current	20-29 ^e	-	-
	Current	30-39	2551.3	28.8
	Current	40+	4,367.0	74.0
65-74	Never	-	11,466.0	161.0
	Current	1-10	-	-
	Current	11-19	-	-
	Current	20-29 ^f	-	-
	Current	30-39 ^f	963.0	23.0
	Current	40+	3,285.0	80.0
75+	Never	-	4,486.0	203.0
	Current	1-10	-	-
	Current	11-19	-	-
	Current	20-29 ^f	-	-
	Current	30-39 ^f	138.0	12.0
	Current	40+	740.0	42.0

^a Person-years and deaths not divided between "years of smoking" categories 1-10 and 11-19. We assigned all to "years of smoking" category 11-19 years because few 35-49 year old men will have smoked for 10 or fewer years.

^b Person-years and deaths not divided between "years of smoking" categories 20-29 and 30-39. We assigned all to "years of smoking" category 20-29 years because few 35-49 year old men will have smoked for 30 or more years.

^c Person-years and deaths not divided between "years of smoking" categories 1-10 and 11-19. We assigned all to "years of smoking" category 11-19 years because few men aged 50-56 will have smoked for 10 or fewer years.

^d Person-years and deaths not divided between age categories 50-56 and 57-64. We assigned all to age category 50-56 because few 57-64 year old men will have smoked for less than 20 years.

^e Person-years and deaths not divided between age categories 50-56 and 57-64. We assigned all to age category 50-56 because few 57-64 year old men will have smoked for less than 30 years.

^f Person-years and deaths not divided between "years of smoking" categories 20-29 and 30-39. We assigned all to "years of smoking" category 30-39 years because few men aged 65 or above will have smoked for only 20-29 years.

To match age categories among current and former smokers, we also divided each of the first two age categories (35-49 and 50-64 years) along the respective category midpoints for the table containing results for former smokers. The results are shown in *Table B6*. With one exception (see footnote to *Table B6*), we allocated 40% of deaths to the younger age categories, and 60% of deaths to the older age categories.

Table B6: Age-specific person-years and deaths in never smokers and former smokers by duration of quitting (divided age categories), based on data for men who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years quit	Person-years	Number of deaths
35-42	Never	-	14,958.0	19.6
	Former	2-10	2,785.5	4.8
	Former	11-20	3,105.0	3.6
	Former	>20 ^a	-	-
43-49	Never	-	14,958.0	29.4
	Former	2-10	2,785.5	7.2
	Former	11-20	3,105.0	5.4
	Former	>20 ^A	1,149.0	2.0
50-56	Never	-	12,010.0	38.8
	Former	2-10	1,812.5	10.4
	Former	11-20	3,053.5	11.6
	Former	>20	2,335.0	7.6
57-64	Never	-	12,010.0	58.2
	Former	2-10	1,812.5	15.6
	Former	11-20	3,053.5	17.4
	Former	>20	2,335.0	11.4
65-74	Never	-	11,466.0	161.0
	Former	2-10	977.0	14.0
	Former	11-20	2,548.0	52.0
	Former	>20	3,507.0	43.0
75+	Never	-	4,486.0	203.0
	Former	2-10	253.0	16.0
	Former	11-20	671.0	40.0
	Former	>20	1,442.0	67.0

^a Person-years and deaths not divided between age categories 35-42 and 43-49; we assigned all to age category 43-49 because few 35-42 year old men will have quit for more than 20 years.

The KP data were not stratified by age-, duration of smoking- *and* years since quitting smoking. Therefore, we did the following:

- Excluded hypothetical category combinations that were likely to contain very few person-years or were impossible (shown as strikethroughs in [Table B7](#)). For example, a person who had smoked for 40+ years and had quit for more than 20 years could not be in the youngest age category.
- Within each remaining age and “years since quit” category, at most two categories of duration of smoking were likely or possible. If only one category of duration of smoking was possible, all deaths and person-years were counted toward that category. Otherwise, we split person-years evenly and allocated 40% of deaths to the shorter duration of smoking category and 60% of deaths to the longer duration of smoking category.
- Within each remaining category of age and “years since quit”, at most two age categories were likely or possible. If only one age category was possible, all deaths and person-years were counted toward that category. Otherwise, we split person-years evenly and allocated 40% of deaths to the younger age category and 60% of deaths to the older age category.
- For age, smoking duration and “years since quit” categories with upper bounds in the KP data, we entered the category midpoints.
- For the open-ended age category (75+ years) in the KP data, we entered age 80. This was because the life expectancy for US men who had reached the age of 75 in 2006 was 10 years; we used half that number as the category “midpoint”.
- The KP data included one open-ended category for duration of smoking, 40+ years. We omitted this category for persons aged <57 years. For age category 57-64 years, we used 45 years of smoking in the DPM; for age category 65-74 we used 50 years of smoking; and for ages 75+ we used 55 years of smoking, because men in the oldest age group are likely to have smoked for more than 40 years.
- For the open-ended “years since quitting” category in the KP data (>20 years), we used 26 years in the DPM.

Table B7: Age-specific person-years and deaths in never smokers and current smokers by age, duration of smoking *and* duration of quitting, (divided age and smoking categories, unlikely categories omitted^a), based on data for men who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years smoked	Years quit	Person-years	Number of deaths
35-42	Never	-	-	14,958.0	19.6
	Current	1-10	-	-	-
	Former		2-10	1,392.8	1.9
	Former		11-20	3105.0	3.6
	Former		>20	-	-
	Current	11-19	-	2,970.0	6.4
	Former		2-10	1,392.8	2.9
	Former		11-20	-	-
	Former		>20	-	-
	Current	20-29	-	7,281.5	19.2
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	30-39	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
43-49	Never	-	-	14,958.0	29.4
	Current	1-10	-	-	-
	Former		2-10	1,392.8	2.9
	Former		11-20	3,105.0	5.4
	Former		>20	1,149.0	2.0
	Current	11-19	-	2,970.0	9.6
	Former		2-10	1,392.8	4.3
	Former		11-20	-	-
	Former		>20	-	-
	Current	20-29	-	7,281.5	28.8
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	30-39	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
50-56	Never	-	-	12,010.0	38.8
	Current	1-10	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	11-19	-	1,174.0	7.0
	Former		2-10	-	-
	Former		11-20	1,526.8	4.6
	Former		>20	2,335.0	7.6

^a Crossed out categories were not used as input for the DPM.

Table B7, cont.: Age-specific person-years and deaths in never smokers and current smokers by age, duration of smoking *and* duration of quitting, (divided age and smoking categories, unlikely categories omitted^a), based on data for men who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years smoked	Years quit	Person-years	Number of deaths
50-56	Current	20-29	-	5,102.5	32.0
	Former		2-10	906.3	4.2
	Former		11-20	1526.8	7.0
	Former		>20	-	-
	Current	30-39	-	2,551.3	19.2
	Former		2-10	906.3	6.2
	Former		11-20	-	-
	Former		>20	-	-
	Current	40+	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
57-64	Never	-	-	12,010.0	58.2
	Current	1-10	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	11-19	-	-	-
	Former		2-10	-	-
	Former		11-20	1,526.8	7.0
	Former		>20	2,335.0	11.4
	Current	20-29	-	-	-
	Former		2-10	906.3	6.2
	Former		11-20	1,526.8	10.4
	Former		>20	-	-
	Current	30-39	-	2551.3	28.8
	Former		2-10	906.3	9.4
	Former		11-20	-	-
	Former		>20	-	-
	Current	40+	-	4,367.0	74.0
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
65-74	Never	-	-	11,466.0	161.0
	Current	1-10	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	11-19	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-

^a Crossed out categories were not used as input for the DPM.

Table B7, cont.: Age-specific person-years and deaths in never smokers and current smokers by age, duration of smoking *and* duration of quitting, (divided age and smoking categories, unlikely categories omitted^a), based on data for men who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years smoked	Years quit	Person-years	Number of deaths
75+	Current	20-29	-	-	-
	Former		2-10	-	-
	Former		11-20	1,274.0	20.8
	Former		>20	3,507.0	43.0
	Current	30-39	-	963.0	23.0
	Former		2-10	977.0	14.0
	Former		11-20	1,274.0	31.2
	Former		>20	-	-
	Current	40+	-	3,285.0	80.0
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Never	-	-	4,486.0	203.0
	Current	1-10	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	11-19	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	20-29	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	30-39	-	138.0	12.0
	Former		2-10	-	-
	Former		11-20	335.5	16.0
	Former		>20	1,442.0	67.0
	Current	40+	-	740.0	42.0
	Former		2-10	253.0	16.0
	Former		11-20	335.5	24.0
	Former		>20	-	-

^a Crossed out categories were not used as input for the DPM.

Follow-up in the KP cohort study was short, and age-specific mortality rates were low compared to age-specific mortality rates reported by the US Census for 2000⁴. To adjust for this, we calculated the ratio of the US and KP-based mortality rates in each age category (*Table B8*). Within each age category, we multiplied all smoking-specific deaths by the resulting factor as follows: For the first 3 age categories, we used a common value of 1.7 as the multiplier; for the last age category we used the actual value of 1.2.

Table B8: US and KP-based age-specific mortality rates and their ratio for men

US		KP		US rates for KP age categories		Ratio of US mortality rates (for KP categories) to KP-based mortality rates
Age	Mortality rate (per 100,000)	Age	Mortality rate (per 100,000) ^a	Age	Mortality rate (per 100,000)	
25-44	269.8					
		35-49	214.7	35-49	488.0 ^b	2.3
45-64	924.5	50-64	612.9	50-64	1,100.0 ^c	1.8
		65-74	1,639.9	65-74	2835.3 ^d	1.7
65+	5,670.6	75+	4,915.9	75+	5,670.6 ^e	1.2

^a Based on deaths and person-years from *Table B7* (136/63,349.2=214.7 per 100,000; 332/54,168.5=612.9 per 100,000; 373/22,746=1,639.9 per 100,000; 380/7,730=4,915.8 per 100,000)

^b KP age category 35-49 overlaps with US age categories 25-44 and 45-64; we used the weighted average of US mortality rates 269.8 and 924.5 with weights proportional to the time of overlap ($10 \times 269.8 + 5 \times 924.5$)/15=488).

^c KP category 50-64 does not include ages 45-49, where mortality rates are lower; we increased the US mortality rate of 924.5 by ≈20%.

^d US category 65+ includes persons older than 74 with higher mortality rates; we used 50% of the US mortality rate of 5,670.6.

^e We used the US mortality rate of 5,670.6 for KP category 75+.

Table B9 shows the final adjusted KP-based data set used as input to calculate mortality rates for the base case in the DPM.

⁴ http://www.allcountries.org/uscensus/129_death_and_death_rates_by_age.html

Table B9: DPM input data for men: Deaths from [Table B7](#) increased by 170% for age categories 35-49, 50-64 and 65-74 and 120% for age categories 65-74 and 75+

Age (years)	Cigarette smoking status	Years smoked	Years quit	Person-years	Number of deaths
39.0	Never	0	0	14,958.0	33.3
	Former	5	6	1,392.8	3.2
	Former	5	16	3,105.0	6.1
	Current	15	0	2,970.0	10.9
	Former	15	6	1,392.8	4.9
	Current	25	0	7,281.5	32.6
46.5	Never	0	0	14,958.0	50.0
	Former	5	6	1,392.8	4.9
	Former	5	16	3,105.0	9.2
	Former	5	26	1,149.0	3.4
	Current	15	0	2,970.0	16.3
	Former	15	6	1,392.8	7.3
	Current	25	0	7,281.5	49.0
53.5	Never	0	0	12,010.0	66.0
	Current	15	0	1,174.0	11.9
	Former	15	16	1,526.8	7.8
	Former	15	26	2,335.0	12.9
	Current	25	0	5,102.5	54.4
	Former	25	6	906.3	7.1
	Former	25	16	1,526.8	11.9
	Current	35	0	2,551.3	32.6
	Former	35	6	906.3	10.5
61.0	Never	0	0	12,010.0	98.9
	Former	15	16	1,526.8	11.9
	Former	15	26	2,335.0	19.4
	Former	25	6	906.3	10.5
	Former	25	16	1,526.8	17.7
	Current	35	0	2,551.3	49.0
	Former	35	6	906.3	16.0
	Current	45	0	4,367.0	125.8
70.0	Never	0	0	11,466.0	273.7
	Former	25	16	1,274.0	35.4
	Former	25	26	3,507.0	73.1
	Current	35	0	963.0	39.1
	Former	35	6	977.0	23.8
	Former	35	16	1,274.0	53.0
	Current	50	0	3,285.0	136.0
80.0	Never	0	0	4,486.0	243.6
	Current	35	0	138.0	14.4
	Former	35	16	335.5	19.2
	Former	35	26	1,442.0	80.4
	Current	55	0	740.0	50.4
	Former	55	6	253.0	19.2
	Former	55	16	335.5	28.8

Mortality rates for the base case – women

To calibrate the DPM for women, we used data from the Kaiser Permanente (KP) cohort study, which included about 36,000 women ages 35 and older, who entered the cohort between 1979 and 1986 and were followed for mortality through 1987. Published data provided person-years and deaths stratified separately by a) categories of age and years of smoking; and b) categories of age and years since quitting smoking (Friedman et al., 1997)⁵. For the prior distributions of the core Poisson model coefficients, we again used non-informative normal distributions with mean 0 and standard deviation 100. As a reminder, while the KP data were used to develop the structure of the Poisson model, mortality data by age, years of exposure (in this example, to smoking) and years since exposure cessation (i.e., quitting smoking) from any population can be used in the DPM.

As for men, to use the KP data for women with the DPM, some adjustments were necessary. The published KP data are shown in [Table B10](#) and our adjustments are described in the footnotes.

⁵ Friedman G, Tekawa IS, Sadler M, Sidney S. Smoking and mortality: the Kaiser Permanente experience. In: Shopland DR, Burns DM, Garfinkel L, Samet J, editors. Changes in Cigarette-Related Disease Risks and Their Implication for Prevention and Control. Rockville, MD: US Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute. 1997; 477-99.

Table B10: Age-specific person-years, deaths and mortality rates in never smokers and current smokers by duration of smoking, based on data for women who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years smoked	Person-years	Number of deaths	Mortality rate (per 100,000)
35-49	Never	-	45,768.0	37	80.8
	Current	<20	8,962.0	8	89.3
	Current	20-39	15,162.0	28	184.7
50-64	Never	-	49,744.0	118	237.2
	Current	<20	2,454.0	5 (6 ^a)	203.7 (244.5)
	Current	20-39	14,115.0	56	396.7
	Current	40+	3,761.0	40	1063.5
65-74	Never	-	24,159.0	171	707.8
	Current	<20	502.0	6	1,195.2
	Current	20-39	2,125.0	39	1,835.3
	Current	40+	4,236.0	64	1,510.9
75+	Never	-	12,285.0	299	2,433.9
	Current	<20	100.0	3	3,000.0
	Current	20-39	366.0	10	2,732.2
	Current	40+	830.0	30	3,614.5

^a Friedman et al. reported 5 deaths (mortality rate=203.7). However, this rate among current smokers of <20 years is lower than the mortality rate among never smokers in the same age category. For DPM input, we increased the number of deaths to 6 resulting in a mortality rate of 244.5.

[Table B11](#) shows the KP data for women by age and categories of years since quitting smoking as published by Friedman et al. For the DPM input, we adjusted inconsistencies in the mortality rates for several categories as described in the footnotes, below.

Table B11: Age-specific person-years, deaths and mortality rates in never smokers and former smokers by duration of quitting, based on data for women who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years quit	Person-years	Number of deaths	Mortality rate (per 100,000)
35-49	Never	-	45,768.0	37	80.8
	Former	2-10	5,493.0	0 (4 ^a)	0 (72.8)
	Former	11-20	6,027.0	4 (5 ^b)	66.4 (83.0)
	Former	>20	1,279.0	2 (1 ^c)	156.4 (78.2)
50-64	Never	-	49,744.0	118	237.2
	Former	2-10	3,750.0	15	400.0
	Former	11-20	5,467.0	16	292.7
	Former	>20	4,405.0	7 (11 ^d)	158.9 (249.7)
65-74	Never	-	24,159.0	171	707.8
	Former	2-10	1,572.0	15	954.2
	Former	11-20	2,505.0	21	838.3
	Former	>20	2,641.0	20	757.3
75+	Never	-	12,285.0	299	2,433.9
	Former	2-10	394.0	15	3,807.1
	Former	11-20	722.0	23	3,185.6
	Former	>20	852.0	27	3,169.0

^a Friedman et al. reported 0 deaths. However, this rate among former smokers of 2-10 years is lower than the mortality rate among never smokers in the same age category. For DPM input, we increased the number of deaths to 4.

^b Friedman et al. reported 4 deaths (mortality rate=66.4). However, this rate among former smokers of 11-20 years is lower than the mortality rate among former smokers of >20 years in the same age category. For DPM input, we increased the number of deaths to 5.

^c Friedman et al. reported 2 deaths (mortality rate=156.4). However, this rate among former smokers of >20 years is much higher than the mortality rate among former smokers of 2-10 years in the same age category. For DPM input, we decreased the number of deaths to 1.

^d Friedman et al. reported 7 deaths (mortality rate=158.9). However, this rate among former smokers of >20 years is lower than the mortality rate among never smokers in the same age category. For DPM input, we increased the number of deaths to 11.

As for the men, to create narrower age categories for the women, we divided each of the first two age categories along the respective category midpoints. Additionally, we divided the “years of smoking” categories into smaller intervals along the respective category midpoints. The results are shown in [Table B12](#). With a few exceptions (see footnotes to [Table B12](#)), we allocated 40% of deaths to the younger age and shorter duration of smoking categories, and 60% of deaths to the older age and longer duration of smoking categories.

Table B12: Age-specific person-years and deaths in never smokers and current smokers by duration of smoking (divided age and smoking categories), based on data for women who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years smoked	Person-years	Number of deaths
35-42	Never	-	22,884.0	14.8
	Current	1-10 ^a	-	-
	Current	11-19 ^a	4,481.0	3.2
	Current	20-29 ^b	7,581.0	11.2
	Current	30-39 ^b	-	-
43-49	Never	-	22,884.0	22.2
	Current	1-10 ^a	-	-
	Current	11-19 ^a	4,481.0	4.8
	Current	20-29 ^b	7,581.0	16.8
	Current	30-39 ^b	-	-
50-56	Never	-	24,872.0	47.2
	Current	1-10 ^c	-	-
	Current	11-19 ^{c,d}	2,454.0	6.0
	Current	20-29 ^e	7,057.5	22.4
	Current	30-39	3,528.8	13.4
	Current	40+	-	-
57-64	Never	-	24,872.0	70.8
	Current	1-10 ^c	-	-
	Current	11-19 ^{c,d}	-	-
	Current	20-29 ^e	-	-
	Current	30-39	3,528.8	20.2
	Current	40+	3,761.0	40.0
65-74	Never	-	24,159.0	171.0
	Current	1-10 ^f	-	-
	Current	11-19 ^{f,g}	502.0	6.0
	Current	20-29 ^h	-	-
	Current	30-39 ^h	2,125.0	39.0
	Current	40+	4,236.0	64.0
75+	Never	-	12,285.0	299.0
	Current	1-10 ^f	-	-
	Current	11-19 ^{f,g}	100.0	3.0
	Current	20-29 ^h	-	-
	Current	30-39 ^h	366.0	10.0
	Current	40+	830.0	30.0

^a Person-years and deaths not divided between "years of smoking" categories 1-10 and 11-19. We assigned all to "years of smoking" category 11-19 years because few 35-49 year old women will have smoked for 10 or fewer years.

^b Person-years and deaths not divided between "years of smoking" categories 20-29 and 30-39. We assigned all to "years of smoking" category 20-29 years because few 35-49 year old women will have smoked for 30 or more years.

^c Person-years and deaths not divided between "years of smoking" categories 1-10 and 11-19. We assigned all to "years of smoking" category 11-19 years because few 50-56 year old women will have smoked for 10 or fewer years.

^d Person-years and deaths not divided between age categories 50-56 and 57-64. We assigned all age category 50-56 because few 57-64 year old women will have smoked for less than 20 years.

^e Person-years and deaths not divided between age categories 50-56 and 57-64. We assigned all age category 50-56 because few 57-64 year old women will have smoked for less than 30 years.

^f Person-years and deaths not divided between "years of smoking" categories 1-10 and 11-19. We assigned all to "years of smoking" category 11-19 years because few women aged 65 or above will have smoked for only 1-10 years.

^g Very few person years and deaths; very unlikely for older women to have only smoked for 11-20 years; person years and deaths are not used for DPM.

^h Person-years and deaths not divided between "years of smoking" categories 20-29 and 30-39. We assigned all to "years of smoking" category 30-39 years because few women aged 65 or above will have smoked for only 20-29 years.

To match age categories among current and former smokers, we also divided each of the first two age categories (35-49 and 50-64 years) along the respective category midpoints for the table containing results for former smokers. The results are shown in [Table B13](#). With one exception (see footnote to [Table B13](#)), we allocated 40% of deaths to the younger age categories, and 60% of deaths to the older age categories.

Table B13: Age-specific person-years and deaths in never smokers and former smokers by duration of quitting (divided age categories), based on data for women who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years quit	Person-years	Number of deaths
35-42	Never	-	22,884.0	14.8
	Former	2-10	2,746.5	1.6
	Former	11-20	3,013.5	2.0
	Former	>20 ^a	-	-
43-49	Never	-	22,884.0	22.2
	Former	2-10	2,746.5	2.4
	Former	11-20	3,013.5	3.0
	Former	>20 ^a	1,279.0	1.0
50-56	Never	-	24,872.0	47.2
	Former	2-10	1,875.0	6.0
	Former	11-20	2,733.5	6.4
	Former	>20	2,202.5	4.4
57-64	Never	-	24,872.0	70.8
	Former	2-10	1,875.0	9.0
	Former	11-20	2,733.5	9.6
	Former	>20	2,202.5	6.6
65-74	Never	-	24,159.0	171.0
	Former	2-10	1,572.0	15.0
	Former	11-20	2,505.0	21.0
	Former	>20	2,641.0	20.0
75+	Never	-	12,285.0	299.0
	Former	2-10	394.0	15.0
	Former	11-20	722.0	23.0
	Former	>20	852.0	27.0

^a Person-years and deaths not divided between age categories 35-42 and 43-49. We assigned all to age category 43-49 because few 35-42 year old women will have quit for more than 20 years.

The KP data for women were not stratified by age-, duration of smoking- *and* years since quitting smoking. As for the men, we did the following for the women:

- Excluded hypothetical category combinations that were likely to contain very few person-years or were impossible (shown as strikethroughs in [Table B14](#)). For example, a person who had smoked for 40+ years and had quit for more than 20 years could not be in the youngest age category.
- Within each remaining age and “years since quit” category, at most two categories of duration of smoking were likely or possible. If only one category of duration of smoking was possible, all deaths and person-years were counted toward that category. Otherwise, we split person-years evenly and allocated 40% of deaths to the shorter duration of smoking category and 60% of deaths to the longer duration of smoking category.
- Within each remaining category of age and “years since quit”, at most two age categories were likely or possible. If only one age category was possible, all deaths and person-years were counted toward that category. Otherwise, we split person-years evenly and allocated 40% of deaths to the younger age category and 60% of deaths to the older age category.
- For age, smoking duration and “years since quit” categories with upper bounds in the KP data, we entered the category midpoints.
- For the open-ended age category (75+ years) in the KP data, we entered age 80. This was because the life expectancy for US men who had reached the age of 75 in 2006 was 10 years; we used half that number as the category “midpoint”.
- The KP data included one open-ended category for duration of smoking, 40+ years. We omitted this category for persons aged <57 years. For age category 57-64 years, we used 45 years of smoking in the DPM; for age category 65-74 we used 50 years of smoking; and for ages 75+ we used 55 years of smoking, because men in the oldest age group are likely to have smoked for more than 40 years.
- For the open-ended “years since quitting” category in the KP data (>20 years), we used 26 years in the DPM.

Table B14: Age-specific person-years and deaths in never smokers and current smokers by age, duration of smoking *and* duration of quitting (divided age and smoking categories, unlikely categories omitted^a), based on data for women who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years smoked	Years quit	Person-years	Number of deaths
35-42	Never	-	-	22,884.0	14.8
	Current	1-10	-	-	-
	Former		2-10	1,373.3	0.6
	Former		11-20	3,013.5	2.0
	Former		>20	-	-
	Current	11-19	-	4,481.0	3.2
	Former		2-10	1,373.3	1.0
	Former		11-20	-	-
	Former		>20	-	-
	Current	20-29	-	7,581.0	11.2
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	30-39	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
43-49	Never	-	-	22,884.0	22.2
	Current	1-10	-	-	-
	Former		2-10	1,373.3	1.0
	Former		11-20	3,013.5	3.0
	Former		>20	1,279.0	1.0
	Current	11-19	-	4,481.0	4.8
	Former		2-10	1,373.3	1.4
	Former		11-20	-	-
	Former		>20	-	-
	Current	20-29	-	7,581.0	16.8
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	30-39	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-

^a Crossed out categories were not used as input for the DPM.

Table B14 cont.: Age-specific person-years and deaths in never smokers and current smokers by age, duration of smoking *and* duration of quitting (divided age and smoking categories, unlikely categories omitted^a), based on data for women who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years smoked	Years quit	Person-years	Number of deaths
50-56	Never	-	-	24,872.0	47.2
	Current	1-10	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	11-19	-	2,454.0	6.0
	Former		2-10	-	-
	Former		11-20	1,366.8	2.6
	Former		>20	2,202.5	4.4
	Current	20-29	-	7,057.5	22.4
	Former		2-10	937.5	2.4
	Former		11-20	1,366.8	3.8
	Former		>20	-	-
	Current	30-39	-	3,528.8	13.4
	Former		2-10	937.5	3.6
	Former		11-20	-	-
	Former		>20	-	-
	Current	40+	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
57-64	Never	-	-	24,872.0	70.8
	Current	1-10	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	11-19	-	-	-
	Former		2-10	-	-
	Former		11-20	1,366.8	3.8
	Former		>20	2,202.5	6.6
	Current	20-29	-	-	-
	Former		2-10	937.5	3.6
	Former		11-20	1,366.8	5.8
	Former		>20	-	-

^a Crossed out categories were not used as input for the DPM.

Table B14 cont.: Age-specific person-years and deaths in never smokers and current smokers by age, duration of smoking *and* duration of quitting (divided age and smoking categories, unlikely categories omitted^a), based on data for women who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years smoked	Years quit	Person-years	Number of deaths
57-64	Current	30-39	-	3,528.8	20.2
	Former		2-10	937.5	5.4
	Former		11-20	-	-
	Former		>20	-	-
	Current	40+	-	3,761.0	40.0
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
65-74	Never	-	-	24,159.0	171.0
	Current	1-10	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	11-19	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	20-29	-	-	-
	Former		2-10	-	-
	Former		11-20	1,252.5	8.4
	Former		>20	2,641.0	20.0
	Current	30-39	-	2,125.0	39.0
	Former		2-10	1,572.0	15.0
	Former		11-20	1,252.5	12.6
	Former		>20	-	-
	Current	40+	-	4,236.0	64.0
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
75+	Never	-	-	12,285.0	299.0
	Current	1-10	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-

^a Crossed out categories were not used as input for the DPM.

Table B14 cont.: Age-specific person-years and deaths in never smokers and current smokers by age, duration of smoking *and* duration of quitting (divided age and smoking categories, unlikely categories omitted^a), based on data for women who participated in the Kaiser-Permanente (KP) cohort study

Age (years)	Cigarette smoking status	Years smoked	Years quit	Person-years	Number of deaths
75+	Current	11-19	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	20-29	-	-	-
	Former		2-10	-	-
	Former		11-20	-	-
	Former		>20	-	-
	Current	30-39	-	366.0	10.0
	Former		2-10	-	-
	Former		11-20	361.0	9.2
	Former		>20	852.0	27.0
	Current	40+	-	830.0	30.0
	Former		2-10	394.0	15.0
	Former		11-20	361.0	13.8
	Former		>20	-	-

^a Crossed out categories were not used as input for the DPM.

Follow-up in the KP cohort study was short, and age-specific mortality rates were low compared to age-specific mortality rates reported by the US Census for 2000⁶. To adjust for this, we calculated the ratio of the US and KP-based mortality rates in each age category ([Table B15](#)). Within each age category, we initially multiplied all smoking-specific deaths by the resulting factor. However, the best model calibration (i.e. the best approximation of population life table values) was achieved for ratios of US mortality rates (for KP categories) to KP-based mortality rates of 1.6 for the first age category and 2.0 for the remaining 3 age categories. Poisson model fit was excellent based on these adjustment factors. Although these ratios are slightly different from the results shown in [Table B15](#), they were used to calculate the values in [Table B16](#).

⁶ http://www.allcountries.org/uscensus/129_death_and_death_rates_by_age.html

Table B15: US and KP-based age-specific mortality rates and their ratio

US		KP		US rates for KP age categories		Ratio of US mortality rates (for KP categories) to KP-based mortality rates
Age	Mortality rate (per 100,000)	Age	Mortality rate (per 100,000)	Age	Mortality rate (per 100,000)	
25-44	114.8					
		35-49	100.4	35-49	256.0 ^a	2.5
45-64	538.5	50-64	313.0	50-64	646.2 ^b	2.1
		65-74	886.2	65-74	2313.3 ^c	2.6
65+	4626.6	75+	2615.1	75+	4626.6 ^d	1.8

^a KP age category 35-49 overlaps with US age categories 25-44 and 45-64; we used the weighted average of US mortality rates 114.8 and 538.5 with weights proportional to the time of overlap.

^b KP age category 50-64 does not include ages 45-49, where mortality rates are lower; we increased the US mortality rate of 538.5 by ≈20%.

^c US category 65+ includes persons older than 74 with higher mortality rates; we used 50% of the US mortality rate of 4626.6. We used the US mortality rate of 4626.6 for KP category 75+

Table B16: DPM input data for women: Deaths from [Table B14](#) increased by 160% for age category 35-49 and 200% for age categories 50-64, 65-74 and 75+

Age (years)	Cigarette smoking status	Years smoked	Years quit	Person-years	Number of deaths
39.0	Never	0	0	22,884.0	23.68
	Former	5	6	1,373.3	0.96
	Former	5	16	3,013.5	3.20
	Current	15	0	4,481.0	5.12
	Former	15	6	1,373.3	1.60
	Current	25	0	7,581.0	17.92
46.5	Never	0	0	22,884.0	35.52
	Former	5	6	1,373.3	1.60
	Former	5	16	3,013.5	4.80
	Former	5	26	1,279.0	1.60
	Current	15	0	4,481.0	7.68
	Former	15	6	1,373.3	2.24
	Current	25	0	7,581.0	26.88
53.5	Never	0	0	24,872.0	94.4
	Current	15	0	2,454.0	12.0
	Former	15	16	1,366.8	5.2
	Former	15	26	2,202.5	8.8
	Current	25	0	7,057.5	44.8
	Former	25	6	937.5	4.8
	Former	25	16	1,366.8	7.6
	Current	35	0	3,528.8	26.8
	Former	35	6	937.5	7.2
61.0	Never	0	0	24,872.0	141.6
	Former	15	16	1,366.8	7.6
	Former	15	26	2,202.5	13.2
	Former	25	6	937.5	7.2
	Former	25	16	1,366.8	11.6
	Current	35	0	3,528.8	40.4
	Former	35	6	937.5	10.8
	Current	45	0	3,761.0	80.0
70.0	Never	0	0	24,159.0	342.0
	Former	25	16	1,252.5	16.8
	Former	25	26	2,641.0	40.0
	Current	35	0	2,125.0	78.0
	Former	35	6	1,572.0	30.0
	Former	35	16	1,252.5	25.2
	Current	50	0	4,236.0	128.0
80.0	Never	0	0	12,285.0	598.0
	Current	35	0	366.0	20.0
	Former	35	16	361.0	18.4
	Former	35	26	852.0	54.0
	Current	55	0	830.0	60.0
	Former	55	6	394.0	30.0
	Former	55	16	361.0	27.6

Appendix C: Methods Used for Sensitivity Analyses for the Secondary Harmful Transition 'Relapse'

Change log for Appendix C

Page number	Location
4	Narrative text
5	Narrative text
7	Table C2
8	Table C3
8	Table C4

Note: Changes were made to Tables C2, C3 and C4

Introduction

Modeling 'relapse' from MRTP use to smoking among base case smoking quitters in the same age category in which switching to MRTP use occurred is not possible in the DPM(+1). Here, we provide a brief overview of the approach we used to approximate this transition.

Methods

A portion of base case smoking quitters who instead switch to MRTP use in the counterfactual scenario may 'relapse' to smoking within the same age interval. The resulting effect on survival cannot be directly assessed within DPM(+1) models because individuals can transition between exposure states only once in each age interval. Instead, the effect can be estimated by comparing survival in two counterfactual scenarios. The first counterfactual scenario models 'relapse' by treating those base case smoking quitters who instead switch to MRTP use and then relapse to smoking within the same age category as never having quit smoking. Because the decrease in smoking cessation affects the counterfactual scenario and the base case, comparisons between them are uninformative. Instead, survival in the counterfactual scenario is compared directly to survival in a second counterfactual scenario where no 'relapse' takes place. Specifically,

- Model A: Model of interest (e.g., the master model); no 'relapse'
- Model B: Model A with 'relapse'
 - Implemented by reducing smoking cessation
 - Because smoking cessation is reduced and, therefore, the number of former smokers is decreased compared to model A, other transition probabilities must also be adjusted
 - Results for the base case and results for the difference between the counterfactual scenario and the base case are ignored
- The number of survivors is compared between the two counterfactual scenarios, model A versus model B
- In this way, the effect of 'relapse' on the results for model A is estimated
 - Note that this approach does not provide variability estimates for the comparison between the two counterfactual scenarios

Derivation of the transition probabilities for model B

Results for the counterfactual scenario in model B must approximate results from a hypothetical model run, where a portion of base case smoking quitters who switch to MRTP use in the counterfactual scenario relapse to smoking within the same age category. A simple illustration is shown below.

Illustrative example 1

This example assumes that it is possible to model switching from smoking to MRTP use among base case smoking quitters followed by relapse to smoking in the same age category. Hypothetical transition probabilities are defined for illustrative purposes.

Hypothetical transition probabilities affecting base case and counterfactual scenario

- $1 - (\text{smoking cessation}) = (\text{continued smoking}) = 0.9$

Hypothetical transition probabilities affecting only the counterfactual scenario

- ('switching') = 0.3
- ('diversion from quitting') = 0.4
- ('relapse') = 0.5¹

The following simplifying assumptions are made:

- The population is followed for three age categories
- 100,000 smokers are added in age category 1; no smokers are added in age categories 2 or 3
- There are no deaths

The results for the counterfactual scenario are shown in [Table C1](#) below. At the end of age category 2, of the $100,000 \times 0.9 = 90,000$ potential continuing smokers, 70% (63,000) continue to smoke but 30% (27,000) switch to MRTP use. Of the $100,000 \times 0.1 = 10,000$ potential smoking quitters, 60% (6,000) quit smoking, 20% (2,000) switch to MRTP use and continue MRTP use and 20% (2,000) switch to MRTP use but 'relapse' in the same age category. Therefore, there are 65,000 smokers (63,000+2,000), 6,000 former smokers, 27,000 MRTP users who would have continued to smoke in the base case and 2,000 MRTP users who would have quit smoking in the base case. At the end of age category 3, of the $0.9 \times 65,000 = 58,500$ potential continuing smokers, 70% (40,950) continue to smoke but 30% (17,550) switch to MRTP use. Of the $0.1 \times 65,000 = 6,500$ potential smoking quitters, 60% (3,900) quit smoking, 20% (1,300) switch to MRTP use and continue MRTP use and 20% (1,300) switch to MRTP use and right back to smoking. Therefore, there are 42,250 smokers (40,950+1,300), 3,900 former smokers, 17,550 MRTP users who would have continued to smoke in the base case and 1,300 MRTP users who would have quit smoking in the base case.

Illustrative example 2

This example assumes that it is not possible to model switching from smoking to MRTP use among base case smoking quitters followed by relapse to smoking in the same age category. Instead, the approach described above for model B is used to match the results from illustrative example 1. This is accomplished by reducing smoking cessation and increasing continued smoking. The same simplifying assumptions are made as in illustrative example 1 and the following transition probabilities are defined:

Hypothetical transition probabilities affecting base case and counterfactual scenario

- $1 - \tau(\text{smoking cessation}) = \tau(\text{continued smoking})$

Hypothetical transition probabilities affecting only the counterfactual scenario

- $\tau(\text{'diversion from quitting'})$
- $\tau(\text{'switching'})$

To match the number of smokers in illustrative example 1, the probability of continued smoking must incorporate

- The probability of continued smoking in illustrative example 1; and
- The probability of 'relapse' (among base case smoking quitters who diverted to MRTP use) in illustrative example 1

¹ 'Relapse' occurs in the same age category as 'diversion from quitting'

If $\hat{\pi}$ refers to transition probabilities representing illustrative example 1 and $\hat{\pi}$ refers to transition probabilities representing illustrative example 2, then the probability of continued smoking in illustrative example 2 can be expressed as

$$\hat{\pi}(\text{continued smoking}) = \hat{\pi}(\text{continued smoking}) + \hat{\pi}(\text{smoking cessation}) \times \hat{\pi}(\text{'diversion from quitting'}) \times \hat{\pi}(\text{'relapse'})$$

Using the transition probabilities from illustrative example 1,

$$\hat{\pi}(\text{continued smoking}) = 0.9 + 0.1 \times 0.4 \times 0.5 = 0.92$$

Therefore, there are $100,000 \times 0.92 = 92,000$ potential continuing smokers and $100,000 \times 0.08 = 8,000$ potential smoking quitters in age category 2. To match the results in illustrative example 1, the 8,000 potential smoking quitters must be divided into 6000 former smokers and 2,000 MRTTP users. This can be accomplished by choosing $\hat{\pi}(\text{'diversion from quitting'})$ such that

$$8,000 \times \hat{\pi}(\text{'diversion from quitting'}) = 2,000$$

or,

$$\hat{\pi}(\text{'diversion from quitting'}) = \frac{2,000}{8,000} = 0.25$$

More generally,

$$\hat{\pi}(\text{smoking cessation}) \times \hat{\pi}(\text{'diversion from quitting'}) = \hat{\pi}(\text{smoking cessation}) \times \hat{\pi}(\text{'diversion from quitting'}) \times (1 - \hat{\pi}(\text{'relapse'}))$$

which can be rewritten as

$$\hat{\pi}(\text{'diversion from quitting'}) = \frac{1}{\hat{\pi}(\text{smoking cessation})} \times [\hat{\pi}(\text{smoking cessation}) \times \hat{\pi}(\text{'diversion from quitting'}) \times (1 - \hat{\pi}(\text{'relapse'})]$$

Using the hypothetical transition probabilities defined above,

$$\hat{\pi}(\text{'diversion from quitting'}) = \frac{1}{0.08} \times [0.1 \times 0.4 \times 0.5] = 0.25$$

Therefore, there are $100,000 \times 0.08 \times 0.25 = 2,000$ MRTTP users (and 6,000 former smokers) at the end of age category 2. This matches the results in illustrative example 1.

Similarly, to match the results in illustrative example 1, the 92,000 potential continuing smokers must be divided into 65,000 continuing smokers and 27,000 MRTTP users. This can be accomplished by choosing $\hat{\pi}(\text{'switching'})$ such that

$$92,000 \times \hat{\pi}(\text{'switching'}) = 27,000$$

or,

$$\hat{\pi}(\text{'switching'}) = \frac{27,000}{92,000} \approx 0.2935$$

More generally,

$$\hat{p}(\text{continued smoking}) \times \hat{p}(\text{switching}) = p(\text{continued smoking}) \times p(\text{switching})$$

which can be rewritten as

$$\hat{p}(\text{switching}) = \frac{1}{\hat{p}(\text{continued smoking})} \times [p(\text{continued smoking}) \times p(\text{switching})]$$

Using the hypothetical transition probabilities defined above,

$$\hat{p}(\text{switching}) = \frac{1}{0.92} \times [0.9 \times 0.3] \approx 0.2935$$

Therefore, there are $100,000 \times 0.92 \times 0.2935 \approx 27,000$ MRTP users (and 65,000 continuing smokers) at the end of age category 2. This matches the results in illustrative example 1.

At the end of age category 3, of the $65,000 \times 0.92 = 59,800$ potential continuing smokers, 70.65% ($\approx 42,250$) continue to smoke but 29.35% ($\approx 17,550$) switch to MRTP use. Of the $65,000 \times 0.08 = 5,200$ potential smoking quitters, 75% (3,900) quit smoking and 25% (1,300) switch to MRTP use. This matches the results in illustrative example 1.

Using the approach in the DPM(+1)

Transition probabilities for continued smoking, 'switching' and 'diversion from quitting' were calculated based on the formulas derived above under the assumption of 50% 'relapse'² ([Table C2](#)). The resulting transition probabilities were used to estimate the effect of 50% 'relapse' on the number of survivors at the end of age category 68-72 years for the 'master model', the 'master model' without 'alternative initiation', the model containing only 'diversion from quitting' and the tipping point analysis for the 'master model' without 'alternative initiation'. The results are shown in [Tables C3-C6](#) and are interpreted below.³

For the 'master model' (no 'relapse'), for an ERR of 0.08, there were 684,631 survivors in the counterfactual scenario at the end of age category 68-72 years. After incorporating 50% 'relapse', the number of survivors decreased to 683,877 (a difference of 754 survivors). Consequently, 50% 'relapse' decreased the survival benefit of the 'master model' from 6,137 to 5,383 additional survivors ([Table C3](#)).

For an ERR of 0.11, there were 684,189 survivors in the counterfactual scenario of the 'master model' at the end of age category 68-72 years. After incorporating 50% 'relapse', the number of survivors decreased to 683,471 (a difference of 718 survivors). Consequently, 50% 'relapse' decreased the survival benefit of the 'master model' from 5,695 to 4,977 additional survivors ([Table C3](#)).

For the 'master model' without 'alternative initiation' (no relapse), for an ERR of 0.08, there were 684,612 survivors in the counterfactual scenario at the end of age category 68-72 years. After incorporating 50% 'relapse', the number of survivors decreased to 683,855 (a difference of 757 survivors). Consequently, 50% 'relapse' decreased the survival benefit of the 'master model' without 'alternative initiation' from 6,118 to 5,361 additional survivors ([Table C4](#)).

² 'Relapse' occurs in the same age category as 'diversion from quitting'

³ The numbers of survivors are shown for all age categories in [Tables E_C3-E_C6](#) in [Appendix E](#). Results for LE and QALE are available upon request.

For an ERR of 0.11, there were 684,175 survivors in the counterfactual scenario of the 'master model' without 'alternative initiation' at the end of age category 68-72 years. After incorporating 50% 'relapse', the number of survivors decreased to 683,452 (a difference of 723 survivors). Consequently, 50% 'relapse' decreased the survival benefit of the 'master model' without 'alternative initiation' from 5,680 to 4,957 ([Table C4](#)).

For the model including only 'diversion from quitting' (no 'relapse'), for an ERR of 0.08, there were 678,260 survivors in the counterfactual scenario at the end of age category 68-72 years. After incorporating 50% 'relapse', the number of survivors decreased to 677,360 (a difference of 900 survivors). Consequently, 50% 'relapse' increased the survival deficit of the model including only 'diversion from quitting' from 235 to 1,135 fewer survivors ([Table C5](#)).

For an ERR of 0.11, there were 678,176 survivors in the counterfactual scenario of the model including only 'diversion from quitting' at the end of age category 68-72 years. After incorporating 50% 'relapse', the number of survivors decreased to 677,317 (a difference of 859 survivors). Consequently, 50% 'relapse' increased the survival deficit of the model including only 'diversion from quitting' from 318 to 1,177 fewer survivors ([Table C5](#)).

For the tipping point analysis for the 'master model' without 'alternative initiation' (no relapse), for an ERR of 0.08, the number of survivors in the counterfactual scenario at the end of age category 68-72 years ranged from 677,878 for 0% 'switching' to 680,252 for 1.5% 'switching'. After incorporating 50% 'relapse', the number of survivors ranged from 676,979 for 0% 'switching' to 679,420 for 1.5% 'switching' (differences of 899 and 832, respectively). Consequently, 50% 'relapse' increased the survival deficit for 0% 'switching' from 616 to 1,515 fewer survivors and decreased the survival benefit for 1.5% 'switching' from 1,758 to 926 additional survivors ([Table C6](#)). Higher proportions of switching were not investigated because the tipping point fell below 1.5%.

For an ERR of 0.11, the number of survivors in the counterfactual scenario of the 'master model' without alternative initiation ranged from 677,761 for 0% 'switching' to 680,026 for 1.5% 'switching'. After incorporating 50% 'relapse', the number of survivors ranged from 676,903 for 0% 'switching' to 679,233 for 1.5% 'switching' (differences of 858 and 793, respectively). Consequently, 50% 'relapse' increased the survival deficit for 0% 'switching' from 733 to 1,591 fewer survivors and decreased the survival benefit for 1.5% 'switching' from 1,532 to 739 additional survivors ([Table C6](#)). Higher proportions of switching were not investigated because the tipping point fell below 1.5%.

Conclusions

We developed a method to estimate the effect of 'relapse'⁴ on 'net' population survival by comparing two counterfactual scenarios. We used this approach to estimate the effect of 50% 'relapse' in four models, the 'master model', the 'master model' without 'alternative initiation', the model containing only 'diversion from quitting' and the tipping point analysis for the 'master model' without 'alternative initiation'. 'Relapse' was modeled by treating those base case smoking quitters who switched to MRTP use in the counterfactual scenario and relapsed to smoking within the same age category as never having quit smoking. Because two different counterfactual scenarios were compared, no variability estimates were calculated.

⁴ 'In the same age category as 'diversion from quitting''

Table C1: Number of current and former smokers and number of MRTP users in Illustrative Example 1

Age category	Current smokers	MRTP users (base case smokers)	Former smokers	MRTP users (base case quitters)	MRTP users who 'relapse' (base case quitters)
1	100,000				
2	$100,000 \times p(\text{continued smoking}) \times (1-p(\text{'switching'}))$ $= 100,000 \times 0.9 \times 0.7$ $= 63,000$	$100,000 \times p(\text{continued smoking}) \times p(\text{'switching'})$ $= 100,000 \times 0.9 \times 0.3$ $= 27,000$	$100,000 \times 1-p(\text{continued smoking}) \times 1-p(\text{'diversion from quitting'})$ $= 100,000 \times 0.1 \times 0.6$ $= 6,000$	$100,000 \times 1-p(\text{continued smoking}) \times p(\text{'diversion from quitting'}) \times 1-p(\text{'relapse'})$ $= 100,000 \times 0.1 \times 0.4 \times 0.5$ $= 2,000$	$100,000 \times 1-p(\text{continued smoking}) \times p(\text{'diversion from quitting'}) \times p(\text{'relapse'})$ $= 100,000 \times 0.1 \times 0.4 \times 0.5$ $= 2,000$
3	$(63,000+2,000) \times 0.9 \times 0.7$ $= 40,950$	$(63,000+2,000) \times 0.9 \times 0.3$ $= 17,550$	$(63,000+2,000) \times 0.1 \times 0.6$ $= 3,900$	$(63,000+2,000) \times 0.1 \times 0.4 \times 0.5 = 1,300$	$(63,000+2,000) \times 0.1 \times 0.4 \times 0.5 = 1,300$

Table C2: Transition probabilities for continued smoking, 'switching' and 'diversion from quitting' used in the 'master model' (with and without 'alternative initiation'), the model containing only 'diversion from quitting' and the tipping point analysis for the 'master model' without 'alternative initiation' and corresponding adjusted transition probabilities under the assumption of 50% 'relapse'⁵

Age	Original transition probabilities			Adjusted transition probabilities ^a		
	(continued smoking)	('switching')	('diversion from quitting')	τ (continued smoking)	τ ('switching')	τ ('diversion from quitting')
13-17	-	-	-	-	-	-
18-22	0.91	0.083	0.200	0.919	0.0822	0.111
23-27	0.905	0.055	0.086	0.909	0.0548	0.045
28-32	0.86	0.043	0.065	0.865	0.0428	0.034
33-37	0.86	0.030	0.045	0.863	0.0299	0.023
38-42	0.86	0.030	0.074	0.865	0.0298	0.038
43-47	0.86	0.029	0.054	0.864	0.0289	0.028
48-52	0.86	0.021	0.055	0.864	0.0209	0.028
53-57	0.86	0.013	0.029	0.862	0.0130	0.015
58-62	0.86	0.017	0.018	0.861	0.0170	0.009
63-67	0.86	0.017	0.021	0.861	0.0170	0.011
68-72	0.86	0.012	0.021	0.861	0.0120	0.011
73+	0.86	0.012	0.021	0.861	0.0120	0.011

^a Using the formulas for τ (continued smoking), τ ('switching') and τ ('diversion from quitting') developed in Illustrative Example 2

⁵ 'Relapse' occurs in the same age category as 'diversion from quitting'

Table C3: Difference in survivors, 'master model' (no 'relapse') versus 'master model' with 50% 'relapse'

	Mean number of survivors, counterfactual		Mean difference in survivors, two counterfactuals	Mean difference in survivors, Counterfactual ^a – base case ^b	Mean difference in survivors ^c , Counterfactual ^d – base case ^e
ERR	No 'relapse'	50% 'relapse'			
0.08	684,631	683,877	754	6,137	5,383
0.11	684,189	683,471	718	5,695	4,977

^a Counterfactual scenario with no 'relapse'

^b Base case with no 'relapse'

^c Identical to the difference between 'Mean difference in survivors, counterfactual – base case' and 'Mean difference in survivors, two counterfactuals'

^d Counterfactual scenario with 50% 'relapse'

^e Base case with no 'relapse'; base case with 50% 'relapse' must be ignored

Table C4: Difference in survivors, 'master model' without 'alternative initiation' (no 'relapse') versus 'master model' without 'alternative initiation' with 50% 'relapse'

	Mean number of survivors, counterfactual		Mean difference in survivors, two counterfactuals	Mean difference in survivors, Counterfactual ^a – base case ^b	Mean difference in survivors ^c , Counterfactual ^d – base case ^e
ERR	No 'relapse'	50% 'relapse'			
0.08	684,612	683,855	757	6,118	5,361
0.11	684,175	683,452	723	5,680	4,957

^a Counterfactual scenario with no 'relapse'

^b Base case with no 'relapse'

^c Identical to the difference between 'Mean difference in survivors, counterfactual – base case' and 'Mean difference in survivors, two counterfactuals'

^d Counterfactual scenario with 50% 'relapse'

^e Base case with no 'relapse'; base case with 50% 'relapse' must be ignored

Table C5: Difference in survivors, model containing 'diversion from quitting' (no 'relapse') versus model containing 'diversion from quitting' with 50% 'relapse'

	Mean number of survivors, counterfactual		Mean difference in survivors, two counterfactuals	Mean difference in survivors, Counterfactual ^a – base case ^b	Mean difference in survivors ^c , Counterfactual ^d – base case ^e
ERR	No 'relapse'	50% 'relapse'			
0.08	678,260	677,360	900	-235	-1,135
0.11	678,176	677,317	859	-318	-1,177

^a Counterfactual scenario with no 'relapse'

^b Base case with no 'relapse'

^c Identical to the difference between 'Mean difference in survivors, counterfactual – base case' and 'Mean difference in survivors, two counterfactuals'

^d Counterfactual scenario with 50% 'relapse'

^e Base case with no 'relapse'; base case with 50% 'relapse' must be ignored

Table C6: Difference in survivors, tipping point analysis for 'master model' without 'alternative initiation' (no 'relapse') versus tipping point analysis for 'master model' without 'alternative initiation' with 50% 'relapse'

ERR	Switching (%) ^a	Mean number of survivors, counterfactual		Mean difference in survivors, two counterfactuals	Mean difference in survivors, Counterfactual ^b – base case ^c	Mean difference in survivors ^d , Counterfactual ^e – base case ^f
		No 'relapse'	50% 'relapse'			
0.08	0.0	677,878	676,979	899	-616	-1,515
	0.5	678,687	677,811	876	193	-683
	1.0	679,478	678,624	854	984	130
	1.5	680,252	679,420	832	1,758	926
0.11	0.0	677,761	676,903	858	-733	-1,591
	0.5	678,533	677,697	836	39	-797
	1.0	679,288	678,474	814	794	-20
	1.5	680,026	679,233	793	1,532	739

^a Replaces $(\tau'_{h'}) \approx (\tau'_{h'})$ in Table C2

^b Counterfactual scenario with no 'relapse'

^c Base case with no 'relapse'

^d Identical to the difference between 'Mean difference in survivors, counterfactual¹ – base case²' and 'Mean difference in survivors, two counterfactuals'

^e Counterfactual scenario with 50% 'relapse'

^f Base case with no 'relapse'; base case with 50% 'relapse' must be ignored

Appendix D: Results from Life Expectancy (LE) and Quality-Adjusted Life Expectancy (QALE) Analyses

Change log for Appendix D

Page number	Location
2	Table D3.1
2	Table D3.1_2
2, 3 & 4	Table D3.1_3
4	Table D3.2
4	Table D3.3
9	Table D3.6
11	Table D3.11
28, 29, 30, 31, 32 & 33	Table D3.15
34	Table D_H1
34	Table D_H5

Note: Changes were made to Tables D3.1, D3.1_2, all D3.1_3 tables, D3.2, D3.3, D3.6, D3.11, all D3.15 tables, D_H1 and D_H5

The choice of output measures (differences in numbers of survivors, LE or QALE) depends on the question being addressed by a given analysis. Specifically, the difference in the number of survivors under two exposure scenarios can be used as an estimate of the effect on population health. LE estimates can be used to plan for the delivery of health care, while QALE estimates provide a measure that approximates morbidity and is used by economists to choose between medical interventions competing for the same resources^{1 2 3 4}. Because the various output measures produced by the DPM(+1) are calculated from the same default output, i.e., the difference in the number of survivors, each provides a different view on the same information. Nevertheless, interpretation of the different measures requires additional attention, as a seemingly large magnitude difference in one measure (difference in survivors) may seem small when expressed another way (LE or QALE). The current analyses illustrate this issue, and the data presented here are comparable to other analyses of mortality and LE differences. For example, using U.S. data from 1995, Wagener et al. (2001) estimated that a (seemingly large) 5% reduction in age-specific mortality produced only about 0.5 additional years of LE⁵.

¹ Jia H, Lubetkin EI. The statewide burden of obesity, smoking, low income and chronic diseases in the United States. *JPublic Health (Oxf)*. 2009; 31(4): 496-505. doi: fdp012 [pii];10.1093/pubmed/fdp012 [doi].

² Jia H, Zack MM, Thompson WW. State Quality-Adjusted Life Expectancy for U.S. adults from 1993 to 2008. *QualLife Res*. 2011; 20(6): 853-63. doi: 10.1007/s11136-010-9826-y [doi].

³ Weinstein MC, Torrance G, McGuire A. QALYs: the basics. *ValueHealth*. 2009;12 (Suppl 1): S5-S9. doi: VHE515 [pii];10.1111/j.1524-4733.2009.00515.x [doi].

⁴ Feenstra T, van Baal P, Hoogenveen R, Vijgen S, Stolk E, Bemelmans W. Cost-effectiveness of interventions to reduce tobacco smoking in the netherlands. An application of the RIVM Chronic Disease Model. BA Bilthoven: 2005. Report No.: RIVM report 260601003.

⁵ Wagener DK, Molla MT, Crimmins EM, Pamuk E, Madans JH. Summary measures of population health: addressing the first goal of healthy people 2010, improving health expectancy. *Healthy People 2010 StatNotes*. 2001; (22): 1-13.

Table D3.1: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking' ('master model')

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.206	0.179	0.233	58.284	58.156	58.413	58.490	58.377	58.603	0.190	0.165	0.215	58.284	58.156	58.413	58.474	58.361	58.587
QALE	0.148	0.129	0.167	45.744	45.650	45.837	45.892	45.810	45.973	0.137	0.119	0.155	45.744	45.650	45.837	45.880	45.798	45.962

Table D3.1_2: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking'; probabilities for all primary beneficial and harmful transitions reduced by 75%, while probabilities for secondary harmful transitions retained at 100%

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.054	0.047	0.061	58.284	58.156	58.413	58.338	58.215	58.462	0.050	0.043	0.057	58.284	58.156	58.413	58.334	58.211	58.458
QALE	0.039	0.034	0.044	45.744	45.650	45.837	45.783	45.693	45.873	0.036	0.031	0.041	45.744	45.650	45.837	45.780	45.689	45.870

Table D3.1_3: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking', using different ERRs

	ERR=0.1									ERR=0.2								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.195	0.170	0.221	58.284	58.156	58.413	58.479	58.366	58.593	0.142	0.121	0.162	58.284	58.156	58.413	58.426	58.310	58.541
QALE	0.140	0.122	0.159	45.744	45.650	45.837	45.884	45.802	45.966	0.102	0.088	0.117	45.744	45.650	45.837	45.846	45.762	45.929

Table D3.1_3, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking', using different ERRs

	ERR=0.3									ERR=0.4								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.088	0.073	0.104	58.284	58.156	58.413	58.372	58.255	58.490	0.035	0.023	0.047	58.284	58.156	58.413	58.319	58.199	58.440
QALE	0.064	0.053	0.076	45.744	45.650	45.837	45.808	45.722	45.894	0.027	0.018	0.035	45.744	45.650	45.837	45.770	45.683	45.859

Table D3.1_3, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking', using different ERRs

	ERR=0.5									ERR=0.6								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.017	-0.027	-0.007	58.284	58.156	58.413	58.267	58.144	58.391	-0.069	-0.080	-0.058	58.284	58.156	58.413	58.215	58.089	58.343
QALE	-0.011	-0.018	-0.004	45.744	45.650	45.837	45.733	45.643	45.824	-0.048	-0.055	-0.040	45.744	45.650	45.837	45.696	45.604	45.789

Table D3.1_3, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking', using different ERRs

	ERR=0.7									ERR=0.8								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.119	-0.133	-0.106	58.284	58.156	58.413	58.165	58.035	58.296	-0.168	-0.186	-0.151	58.284	58.156	58.413	58.116	57.982	58.250
QALE	-0.084	-0.094	-0.074	45.744	45.650	45.837	45.660	45.565	45.755	-0.119	-0.132	-0.107	45.744	45.650	45.837	45.624	45.527	45.722

Table D3.1_3, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking', using different ERRs

	ERR=0.9									ERR=1.0								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.216	-0.238	-0.195	58.284	58.156	58.413	58.068	57.930	58.205	-0.263	-0.289	-0.237	58.284	58.156	58.413	58.021	57.881	58.162
QALE	-0.154	-0.169	-0.139	45.744	45.650	45.837	45.590	45.490	45.691	-0.187	-0.206	-0.169	45.744	45.650	45.837	45.556	45.454	45.659

Table D3.2: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'additional initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.206	0.179	0.232	58.284	58.156	58.413	58.490	58.377	58.603	0.190	0.165	0.215	58.284	58.156	58.413	58.474	58.360	58.587
QALE	0.148	0.129	0.167	45.744	45.650	45.837	45.891	45.809	45.973	0.136	0.118	0.154	45.744	45.650	45.837	45.880	45.797	45.962

Table D3.3: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'additional initiation', 'diversion from quitting', and 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.402	0.353	0.452	58.284	58.156	58.413	58.687	58.583	58.789	0.375	0.329	0.422	58.284	58.156	58.413	58.660	58.555	58.763
QALE	0.289	0.254	0.325	45.744	45.650	45.837	46.033	45.958	46.107	0.270	0.237	0.304	45.744	45.650	45.837	46.014	45.938	46.089

Table D3.4: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

0% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.019	-0.020	-0.018	58.284	58.156	58.413	58.265	58.137	58.394	-0.023	-0.025	-0.022	58.284	58.156	58.413	58.261	58.133	58.389
QALE	-0.014	-0.015	-0.013	45.744	45.650	45.837	45.730	45.636	45.824	-0.017	-0.018	-0.016	45.744	45.650	45.837	45.727	45.633	45.821

Table D3.4, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

0.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.007	0.004	0.010	58.284	58.156	58.413	58.291	58.166	58.418	0.002	-0.001	0.005	58.284	58.156	58.413	58.286	58.160	58.412
QALE	0.005	0.003	0.007	45.744	45.650	45.837	45.749	45.656	45.841	0.001	-0.001	0.003	45.744	45.650	45.837	45.745	45.652	45.837

Table D3.4, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

1% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.033	0.027	0.039	58.284	58.156	58.413	58.317	58.193	58.441	0.026	0.021	0.032	58.284	58.156	58.413	58.310	58.186	58.434
QALE	0.023	0.019	0.028	45.744	45.650	45.837	45.767	45.677	45.858	0.019	0.015	0.023	45.744	45.650	45.837	45.762	45.671	45.853

Table D3.4, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

1.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.058	0.049	0.067	58.284	58.156	58.413	58.342	58.220	58.464	0.050	0.042	0.059	58.284	58.156	58.413	58.334	58.212	58.456
QALE	0.041	0.035	0.048	45.744	45.650	45.837	45.785	45.696	45.875	0.036	0.030	0.042	45.744	45.650	45.837	45.779	45.690	45.869

Table D3.4, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

2% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.083	0.071	0.095	58.284	58.156	58.413	58.367	58.247	58.487	0.073	0.062	0.085	58.284	58.156	58.413	58.357	58.237	58.478
QALE	0.059	0.051	0.068	45.744	45.650	45.837	45.803	45.715	45.890	0.052	0.044	0.061	45.744	45.650	45.837	45.796	45.708	45.884

Table D3.4, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

2.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.107	0.092	0.122	58.284	58.156	58.413	58.391	58.273	58.510	0.096	0.082	0.111	58.284	58.156	58.413	58.380	58.262	58.500
QALE	0.076	0.066	0.087	45.744	45.650	45.837	45.820	45.734	45.906	0.069	0.059	0.079	45.744	45.650	45.837	45.812	45.726	45.899

Table D3.4, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

3% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.130	0.113	0.149	58.284	58.156	58.413	58.415	58.298	58.532	0.119	0.102	0.136	58.284	58.156	58.413	58.403	58.286	58.521
QALE	0.093	0.081	0.106	45.744	45.650	45.837	45.837	45.752	45.922	0.085	0.073	0.097	45.744	45.650	45.837	45.829	45.743	45.914

Table D3.4, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

3.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.154	0.133	0.175	58.284	58.156	58.413	58.438	58.322	58.553	0.141	0.122	0.160	58.284	58.156	58.413	58.425	58.309	58.541
QALE	0.110	0.095	0.125	45.744	45.650	45.837	45.853	45.769	45.937	0.101	0.087	0.115	45.744	45.650	45.837	45.844	45.760	45.929

Table D3.4, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

4% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.176	0.153	0.200	58.284	58.156	58.413	58.460	58.346	58.575	0.162	0.140	0.185	58.284	58.156	58.413	58.446	58.332	58.561
QALE	0.126	0.110	0.143	45.744	45.650	45.837	45.870	45.787	45.952	0.116	0.101	0.132	45.744	45.650	45.837	45.860	45.776	45.943

Table D3.5: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on the transition of 'alternative initiation'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.002	0.002	0.003	58.284	58.156	58.413	58.287	58.159	58.415	0.002	0.002	0.003	58.284	58.156	58.413	58.286	58.158	58.415
QALE	0.002	0.002	0.002	45.744	45.650	45.837	45.745	45.652	45.839	0.002	0.001	0.002	45.744	45.650	45.837	45.745	45.652	45.839

Table D3.6: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on the transition of 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.415	0.365	0.465	58.284	58.156	58.413	58.699	58.595	58.801	0.392	0.346	0.440	58.284	58.156	58.413	58.676	58.572	58.780
QALE	0.298	0.263	0.334	45.744	45.650	45.837	46.042	45.967	46.116	0.282	0.249	0.316	45.744	45.650	45.837	46.026	45.950	46.101

Table D3.7: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on the transition of 'additional initiation'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.005	-0.005	-0.004	58.284	58.156	58.413	58.279	58.152	58.408	-0.007	-0.007	-0.006	58.284	58.156	58.413	58.278	58.150	58.406
QALE	-0.003	-0.004	-0.003	45.744	45.650	45.837	45.740	45.646	45.834	-0.005	-0.005	-0.004	45.744	45.650	45.837	45.739	45.645	45.833

Table D3.8: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on the transition of 'diversion from quitting'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.009	-0.010	-0.008	58.284	58.156	58.413	58.275	58.147	58.404	-0.012	-0.014	-0.010	58.284	58.156	58.413	58.272	58.144	58.401
QALE	-0.006	-0.007	-0.005	45.744	45.650	45.837	45.737	45.644	45.832	-0.008	-0.010	-0.007	45.744	45.650	45.837	45.735	45.641	45.829

Table D3.9: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'additional initiation' and 'gateway effect'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.010	-0.011	-0.010	58.284	58.156	58.413	58.274	58.146	58.402	-0.011	-0.012	-0.011	58.284	58.156	58.413	58.273	58.145	58.401
QALE	-0.008	-0.008	-0.007	45.744	45.650	45.837	45.736	45.642	45.830	-0.008	-0.009	-0.008	45.744	45.650	45.837	45.735	45.641	45.829

Table D3.10: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'alternative initiation' and 'delayed smoking'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.001	0.001	0.002	58.284	58.156	58.413	58.286	58.158	58.414	0.001	0.001	0.002	58.284	58.156	58.413	58.285	58.158	58.414
QALE	0.001	0.001	0.001	45.744	45.650	45.837	45.745	45.651	45.838	0.001	0.001	0.001	45.744	45.650	45.837	45.745	45.651	45.838

Table D3.11: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' and 'resumed smoking'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.224	0.198	0.251	58.284	58.156	58.413	58.508	58.395	58.621	0.212	0.187	0.238	58.284	58.156	58.413	58.496	58.383	58.610
QALE	0.161	0.142	0.181	45.744	45.650	45.837	45.905	45.823	45.986	0.153	0.134	0.171	45.744	45.650	45.837	45.896	45.814	45.978

Table D3.12: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

0% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.125	-0.135	-0.114	58.284	58.156	58.413	58.159	58.037	58.281	-0.180	-0.192	-0.168	58.284	58.156	58.413	58.104	57.983	58.224
QALE	-0.089	-0.097	-0.081	45.744	45.650	45.837	45.654	45.565	45.743	-0.129	-0.137	-0.120	45.744	45.650	45.837	45.615	45.527	45.703

Table D3.12, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

0.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.100	-0.113	-0.087	58.284	58.156	58.413	58.184	58.064	58.304	-0.156	-0.170	-0.142	58.284	58.156	58.413	58.128	58.008	58.247
QALE	-0.071	-0.080	-0.062	45.744	45.650	45.837	45.672	45.585	45.760	-0.112	-0.122	-0.102	45.744	45.650	45.837	45.632	45.545	45.719

Table D3.12, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

1% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.076	-0.091	-0.060	58.284	58.156	58.413	58.208	58.090	58.326	-0.133	-0.149	-0.117	58.284	58.156	58.413	58.151	58.033	58.268
QALE	-0.054	-0.065	-0.043	45.744	45.650	45.837	45.690	45.604	45.776	-0.095	-0.107	-0.083	45.744	45.650	45.837	45.648	45.563	45.734

Table D3.12, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

1.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.052	-0.070	-0.034	58.284	58.156	58.413	58.232	58.116	58.348	-0.111	-0.129	-0.092	58.284	58.156	58.413	58.173	58.058	58.289
QALE	-0.037	-0.050	-0.023	45.744	45.650	45.837	45.707	45.622	45.792	-0.079	-0.092	-0.065	45.744	45.650	45.837	45.665	45.580	45.749

Table D3.12, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

2% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.029	-0.049	-0.008	58.284	58.156	58.413	58.256	58.141	58.370	-0.089	-0.110	-0.067	58.284	58.156	58.413	58.196	58.081	58.309
QALE	-0.020	-0.035	-0.005	45.744	45.650	45.837	45.724	45.640	45.807	-0.063	-0.078	-0.048	45.744	45.650	45.837	45.680	45.597	45.763

Table D3.12, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

2.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.006	-0.029	0.018	58.284	58.156	58.413	58.278	58.164	58.391	-0.067	-0.090	-0.043	58.284	58.156	58.413	58.217	58.104	58.330
QALE	-0.004	-0.020	0.013	45.744	45.650	45.837	45.740	45.657	45.822	-0.048	-0.065	-0.030	45.744	45.650	45.837	45.696	45.614	45.778

Table D3.12, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

3% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.017	-0.009	0.043	58.284	58.156	58.413	58.301	58.188	58.412	-0.046	-0.071	-0.019	58.284	58.156	58.413	58.238	58.126	58.349
QALE	0.012	-0.006	0.031	45.744	45.650	45.837	45.756	45.674	45.837	-0.032	-0.051	-0.014	45.744	45.650	45.837	45.711	45.630	45.792

Table D3.12, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

3.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.039	0.011	0.067	58.284	58.156	58.413	58.323	58.212	58.433	-0.025	-0.053	0.004	58.284	58.156	58.413	58.259	58.148	58.369
QALE	0.028	0.008	0.049	45.744	45.650	45.837	45.772	45.691	45.851	-0.018	-0.038	0.003	45.744	45.650	45.837	45.726	45.645	45.806

Table D3.12, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

4% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.060	0.030	0.091	58.284	58.156	58.413	58.344	58.234	58.453	-0.005	-0.035	0.027	58.284	58.156	58.413	58.280	58.170	58.388
QALE	0.044	0.022	0.066	45.744	45.650	45.837	45.787	45.707	45.866	-0.003	-0.025	0.019	45.744	45.650	45.837	45.741	45.661	45.819

Table D3.12, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

4.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.081	0.048	0.115	58.284	58.156	58.413	58.365	58.257	58.473	0.015	-0.017	0.049	58.284	58.156	58.413	58.299	58.191	58.407
QALE	0.059	0.035	0.083	45.744	45.650	45.837	45.802	45.723	45.880	0.011	-0.012	0.035	45.744	45.650	45.837	45.755	45.676	45.833

Table D3.12, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors		Number of survivors, base case			Number of survivors, counterfactual			
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	Mean	95% PI		Mean	95% PI		
LE	0.102	0.066	0.138	58.284	58.156	58.413	58.386	58.278	58.493	0.035	0.071	58.284	58.156	58.413	58.319	58.212	58.425	
QALE	0.073	0.048	0.099	45.744	45.650	45.837	45.817	45.739	45.894	0.025	0.051	45.744	45.650	45.837	45.769	45.691	45.846	

Table D3.12, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

5.5% 'switching'

	ERR=0.08						ERR=0.11								
	Difference in survivors		Number of survivors, base case		Number of survivors, counterfactual		Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI	Mean	95% PI	Mean	95% PI	Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	N/A						0.054	0.017	0.092	58.284	58.156	58.413	58.338	58.232	58.444
QALE							0.039	0.012	0.066	45.744	45.650	45.837	45.783	45.705	45.859

Table D3.13: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

0% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.102	-0.108	-0.096	58.284	58.156	58.413	58.182	58.057	58.307	-0.112	-0.118	-0.106	58.284	58.156	58.413	58.172	58.047	58.296
QALE	-0.075	-0.079	-0.071	45.744	45.650	45.837	45.669	45.578	45.760	-0.082	-0.087	-0.078	45.744	45.650	45.837	45.661	45.570	45.752

Table D3.13, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

0.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.076	-0.084	-0.067	58.284	58.156	58.413	58.208	58.085	58.331	-0.088	-0.096	-0.079	58.284	58.156	58.413	58.197	58.074	58.319
QALE	-0.056	-0.062	-0.050	45.744	45.650	45.837	45.687	45.597	45.777	-0.065	-0.071	-0.059	45.744	45.650	45.837	45.679	45.589	45.769

Table D3.13, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

1% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.050	-0.062	-0.039	58.284	58.156	58.413	58.234	58.113	58.355	-0.064	-0.075	-0.052	58.284	58.156	58.413	58.221	58.100	58.341
QALE	-0.038	-0.046	-0.030	45.744	45.650	45.837	45.705	45.617	45.794	-0.048	-0.056	-0.039	45.744	45.650	45.837	45.696	45.607	45.785

Table D3.13, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

1.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.026	-0.040	-0.011	58.284	58.156	58.413	58.259	58.138	58.379	-0.040	-0.054	-0.026	58.284	58.156	58.413	58.244	58.124	58.364
QALE	-0.020	-0.030	-0.010	45.744	45.650	45.837	45.723	45.636	45.810	-0.031	-0.041	-0.021	45.744	45.650	45.837	45.713	45.625	45.800

Table D3.13, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

2% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.001	-0.018	0.016	58.284	58.156	58.413	58.283	58.165	58.401	-0.017	-0.033	0.000	58.284	58.156	58.413	58.267	58.149	58.386
QALE	-0.003	-0.015	0.009	45.744	45.650	45.837	45.741	45.655	45.827	-0.014	-0.026	-0.002	45.744	45.650	45.837	45.729	45.643	45.816

Table D3.13, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

2.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.023	0.003	0.043	58.284	58.156	58.413	58.307	58.190	58.424	0.006	-0.013	0.025	58.284	58.156	58.413	58.290	58.173	58.407
QALE	0.014	0.000	0.028	45.744	45.650	45.837	45.758	45.673	45.842	0.002	-0.012	0.016	45.744	45.650	45.837	45.746	45.661	45.831

Table D3.13, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

3% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.046	0.024	0.069	58.284	58.156	58.413	58.330	58.215	58.445	0.028	0.006	0.050	58.284	58.156	58.413	58.312	58.196	58.427
QALE	0.031	0.015	0.047	45.744	45.650	45.837	45.774	45.691	45.858	0.018	0.002	0.034	45.744	45.650	45.837	45.761	45.677	45.845

Table D3.13, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

3.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.069	0.044	0.094	58.284	58.156	58.413	58.353	58.239	58.466	0.049	0.025	0.074	58.284	58.156	58.413	58.334	58.219	58.447
QALE	0.047	0.029	0.065	45.744	45.650	45.837	45.791	45.708	45.873	0.033	0.016	0.051	45.744	45.650	45.837	45.777	45.694	45.859

Table D3.13, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

4% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.091	0.063	0.119	58.284	58.156	58.413	58.375	58.262	58.487	0.071	0.044	0.098	58.284	58.156	58.413	58.355	58.242	58.467
QALE	0.063	0.043	0.083	45.744	45.650	45.837	45.807	45.725	45.888	0.049	0.029	0.068	45.744	45.650	45.837	45.792	45.710	45.873

Table D3.13, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

4.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.113	0.083	0.144	58.284	58.156	58.413	58.397	58.285	58.509	0.091	0.062	0.121	58.284	58.156	58.413	58.376	58.263	58.487
QALE	0.079	0.057	0.101	45.744	45.650	45.837	45.823	45.741	45.903	0.063	0.042	0.085	45.744	45.650	45.837	45.807	45.726	45.887

Table D3.13, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.135	0.102	0.168	58.284	58.156	58.413	58.419	58.307	58.529	0.112	0.080	0.144	58.284	58.156	58.413	58.396	58.285	58.506
QALE	0.094	0.071	0.118	45.744	45.650	45.837	45.838	45.758	45.917	0.078	0.055	0.101	45.744	45.650	45.837	45.822	45.741	45.901

Table D3.14: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

0% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.054	-0.061	-0.047	58.284	58.156	58.413	58.230	58.099	58.361	-0.073	-0.083	-0.064	58.284	58.156	58.413	58.211	58.079	58.343
QALE	-0.038	-0.043	-0.033	45.744	45.650	45.837	45.705	45.609	45.802	-0.052	-0.058	-0.045	45.744	45.650	45.837	45.692	45.595	45.789

Table D3.14, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

0.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.027	-0.033	-0.022	58.284	58.156	58.413	58.257	58.128	58.386	-0.047	-0.055	-0.040	58.284	58.156	58.413	58.237	58.107	58.367
QALE	-0.019	-0.023	-0.016	45.744	45.650	45.837	45.725	45.631	45.819	-0.033	-0.039	-0.028	45.744	45.650	45.837	45.710	45.615	45.806

Table D3.14, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

1% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.001	-0.006	0.004	58.284	58.156	58.413	58.283	58.157	58.410	-0.022	-0.029	-0.016	58.284	58.156	58.413	58.262	58.135	58.390
QALE	0.000	-0.004	0.003	45.744	45.650	45.837	45.743	45.651	45.836	-0.015	-0.020	-0.011	45.744	45.650	45.837	45.728	45.636	45.822

Table D3.14, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

1.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.025	0.018	0.031	58.284	58.156	58.413	58.309	58.185	58.434	0.002	-0.004	0.009	58.284	58.156	58.413	58.286	58.162	58.413
QALE	0.018	0.014	0.023	45.744	45.650	45.837	45.762	45.671	45.853	0.003	-0.002	0.007	45.744	45.650	45.837	45.746	45.655	45.838

Table D3.14, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

2% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.050	0.041	0.059	58.284	58.156	58.413	58.334	58.212	58.457	0.026	0.018	0.035	58.284	58.156	58.413	58.311	58.188	58.435
QALE	0.036	0.030	0.043	45.744	45.650	45.837	45.780	45.691	45.870	0.020	0.014	0.026	45.744	45.650	45.837	45.763	45.673	45.854

Table D3.14, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

2.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.075	0.063	0.086	58.284	58.156	58.413	58.359	58.239	58.480	0.050	0.040	0.061	58.284	58.156	58.413	58.334	58.213	58.457
QALE	0.054	0.046	0.062	45.744	45.650	45.837	45.798	45.710	45.886	0.037	0.030	0.044	45.744	45.650	45.837	45.780	45.692	45.870

Table D3.14, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

3% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.099	0.085	0.113	58.284	58.156	58.413	58.383	58.264	58.502	0.073	0.061	0.086	58.284	58.156	58.413	58.357	58.238	58.478
QALE	0.071	0.061	0.082	45.744	45.650	45.837	45.815	45.729	45.902	0.053	0.044	0.063	45.744	45.650	45.837	45.797	45.710	45.885

Table D3.14, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

3.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.122	0.106	0.140	58.284	58.156	58.413	58.407	58.290	58.524	0.096	0.081	0.111	58.284	58.156	58.413	58.380	58.262	58.499
QALE	0.088	0.076	0.101	45.744	45.650	45.837	45.832	45.747	45.918	0.069	0.059	0.081	45.744	45.650	45.837	45.813	45.727	45.900

Table D3.14, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

4% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.146	0.126	0.166	58.284	58.156	58.413	58.430	58.314	58.546	0.118	0.101	0.136	58.284	58.156	58.413	58.402	58.286	58.520
QALE	0.105	0.091	0.119	45.744	45.650	45.837	45.848	45.764	45.933	0.085	0.073	0.098	45.744	45.650	45.837	45.829	45.744	45.915

Table D3.14, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

4.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.168	0.146	0.191	58.284	58.156	58.413	58.452	58.338	58.567	0.140	0.120	0.160	58.284	58.156	58.413	58.424	58.309	58.540
QALE	0.121	0.105	0.137	45.744	45.650	45.837	45.865	45.781	45.948	0.101	0.087	0.116	45.744	45.650	45.837	45.845	45.761	45.929

Table D3.14, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.191	0.166	0.216	58.284	58.156	58.413	58.475	58.362	58.588	0.161	0.139	0.184	58.284	58.156	58.413	58.445	58.331	58.560
QALE	0.137	0.119	0.155	45.744	45.650	45.837	45.881	45.798	45.963	0.116	0.100	0.133	45.744	45.650	45.837	45.860	45.777	45.943

Table D3.15: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on purchase probability projections for the 'Master model': Increasing age category at MRTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': 13-17 years; for 'switching' and 'diversion from quitting': 18-22 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.206	0.179	0.233	58.284	58.156	58.413	58.490	58.377	58.603	0.190	0.165	0.215	58.284	58.156	58.413	58.474	58.361	58.587
QALE	0.148	0.129	0.167	45.744	45.650	45.837	45.892	45.810	45.973	0.137	0.119	0.155	45.744	45.650	45.837	45.880	45.798	45.962

Table D3.15, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on purchase probability projections for the 'Master model': Increasing age category at MRTTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': 18-22 years; for 'switching' and 'diversion from quitting': 18-22 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.210	0.184	0.237	58.284	58.156	58.413	58.494	58.381	58.607	0.194	0.170	0.220	58.284	58.156	58.413	58.479	58.365	58.592
QALE	0.151	0.132	0.170	45.744	45.650	45.837	45.895	45.812	45.976	0.140	0.122	0.158	45.744	45.650	45.837	45.883	45.801	45.965

Table D3.15, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on purchase probability projections for the 'Master model': Increasing age category at MRTTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': 23-27 years; for 'switching' and 'diversion from quitting': 23-27 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.150	0.131	0.169	58.284	58.156	58.413	58.434	58.317	58.551	0.139	0.122	0.157	58.284	58.156	58.413	58.424	58.306	58.541
QALE	0.108	0.094	0.121	45.744	45.650	45.837	45.851	45.766	45.936	0.100	0.087	0.113	45.744	45.650	45.837	45.844	45.758	45.929

Table D3.15, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on purchase probability projections for the 'Master model': Increasing age category at MRTTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 28-32 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.094	0.082	0.106	58.284	58.156	58.413	58.378	58.258	58.499	0.088	0.076	0.099	58.284	58.156	58.413	58.372	58.251	58.493
QALE	0.067	0.059	0.076	45.744	45.650	45.837	45.811	45.723	45.899	0.063	0.055	0.071	45.744	45.650	45.837	45.806	45.718	45.895

Table D3.15, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on purchase probability projections for the 'Master model': Increasing age category at MRTTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 33-37 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.055	0.048	0.063	58.284	58.156	58.413	58.339	58.216	58.463	0.052	0.045	0.059	58.284	58.156	58.413	58.336	58.212	58.459
QALE	0.039	0.034	0.045	45.744	45.650	45.837	45.783	45.693	45.873	0.037	0.032	0.042	45.744	45.650	45.837	45.780	45.690	45.871

Table D3.15, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on purchase probability projections for the 'Master model': Increasing age category at MRTTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 38-42 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.034	0.030	0.039	58.284	58.156	58.413	58.318	58.194	58.444	0.032	0.028	0.037	58.284	58.156	58.413	58.316	58.191	58.442
QALE	0.024	0.021	0.028	45.744	45.650	45.837	45.768	45.676	45.860	0.023	0.020	0.026	45.744	45.650	45.837	45.766	45.675	45.858

Table D3.15, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on purchase probability projections for the 'Master model': Increasing age category at MRTTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 43-47 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.019	0.017	0.022	58.284	58.156	58.413	58.303	58.177	58.430	0.018	0.016	0.021	58.284	58.156	58.413	58.302	58.176	58.429
QALE	0.014	0.012	0.016	45.744	45.650	45.837	45.757	45.665	45.850	0.013	0.011	0.015	45.744	45.650	45.837	45.756	45.664	45.849

Table D3.15, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on purchase probability projections for the 'Master model': Increasing age category at MRTTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 48-52 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.009	0.008	0.010	58.284	58.156	58.413	58.293	58.166	58.421	0.008	0.007	0.010	58.284	58.156	58.413	58.292	58.165	58.420
QALE	0.006	0.005	0.007	45.744	45.650	45.837	45.750	45.657	45.843	0.006	0.005	0.007	45.744	45.650	45.837	45.749	45.656	45.843

Table D3.15, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on purchase probability projections for the 'Master model': Increasing age category at MRTTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 53-57 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.004	0.003	0.005	58.284	58.156	58.413	58.288	58.160	58.416	0.004	0.003	0.004	58.284	58.156	58.413	58.288	58.160	58.416
QALE	0.003	0.002	0.003	45.744	45.650	45.837	45.746	45.653	45.840	0.003	0.002	0.003	45.744	45.650	45.837	45.746	45.653	45.840

Table D3.15, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on purchase probability projections for the 'Master model': Increasing age category at MRTTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 58-62 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.002	0.002	0.003	58.284	58.156	58.413	58.286	58.159	58.415	0.002	0.002	0.002	58.284	58.156	58.413	58.286	58.158	58.415
QALE	0.002	0.001	0.002	45.744	45.650	45.837	45.745	45.651	45.839	0.001	0.001	0.002	45.744	45.650	45.837	45.745	45.651	45.839

Table D3.15, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on purchase probability projections for the 'Master model': Increasing age category at MRTTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 63-67 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.001	0.001	0.001	58.284	58.156	58.413	58.285	58.157	58.414	0.001	0.001	0.001	58.284	58.156	58.413	58.285	58.157	58.414
QALE	0.001	0.001	0.001	45.744	45.650	45.837	45.744	45.650	45.838	0.001	0.000	0.001	45.744	45.650	45.837	45.744	45.650	45.838

Table D_H1: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking' ('master model'); mortality rates for women

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.163	0.141	0.185	61.640	61.525	61.754	61.803	61.699	61.904	0.150	0.130	0.171	61.640	61.525	61.754	61.790	61.686	61.892
QALE	0.116	0.101	0.132	48.197	48.116	48.278	48.313	48.240	48.385	0.107	0.092	0.122	48.197	48.116	48.278	48.304	48.230	48.376

Table D_H5: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'additional initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking'; mortality rates for women

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.162	0.141	0.185	61.640	61.525	61.754	61.802	61.699	61.904	0.149	0.129	0.170	61.640	61.525	61.754	61.789	61.685	61.892
QALE	0.116	0.100	0.131	48.197	48.116	48.278	48.313	48.239	48.385	0.107	0.092	0.121	48.197	48.116	48.278	48.304	48.230	48.376

Table D3_H8: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

0% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	-0.017	-0.018	-0.016	61.640	61.525	61.754	61.623	61.508	61.737	-0.021	-0.022	-0.019	61.640	61.525	61.754	61.619	61.505	61.733
QALE	-0.012	-0.013	-0.012	48.197	48.116	48.278	48.185	48.103	48.266	-0.015	-0.015	-0.014	48.197	48.116	48.278	48.182	48.101	48.264

Table D H8, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

0.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors		Number of survivors, base case			Number of survivors, counterfactual			
	Mean	95% PI		Mean	95% PI		Mean	95% PI		95% PI		Mean	95% PI		Mean	95% PI		
LE	0.005	0.002	0.007	61.640	61.525	61.754	61.645	61.532	61.756	-0.002	0.003	61.640	61.525	61.754	61.640	61.527	61.752	
QALE	0.003	0.001	0.005	48.197	48.116	48.278	48.200	48.120	48.280	-0.002	0.002	48.197	48.116	48.278	48.197	48.116	48.277	

Table D_H8, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

1% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.026	0.021	0.031	61.640	61.525	61.754	61.666	61.554	61.776	0.020	0.016	0.025	61.640	61.525	61.754	61.660	61.548	61.771
QALE	0.018	0.015	0.022	48.197	48.116	48.278	48.215	48.136	48.294	0.014	0.011	0.018	48.197	48.116	48.278	48.211	48.132	48.290

Table D_H8, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

1.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.046	0.039	0.054	61.640	61.525	61.754	61.686	61.576	61.795	0.040	0.033	0.047	61.640	61.525	61.754	61.680	61.569	61.789
QALE	0.033	0.028	0.039	48.197	48.116	48.278	48.230	48.151	48.307	0.028	0.023	0.034	48.197	48.116	48.278	48.225	48.146	48.303

Table D_H8, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

2% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.067	0.057	0.077	61.640	61.525	61.754	61.707	61.597	61.814	0.059	0.050	0.069	61.640	61.525	61.754	61.699	61.590	61.807
QALE	0.047	0.040	0.055	48.197	48.116	48.278	48.244	48.167	48.321	0.042	0.035	0.049	48.197	48.116	48.278	48.239	48.161	48.316

Table D_H8, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

2.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.087	0.074	0.100	61.640	61.525	61.754	61.726	61.619	61.833	0.078	0.066	0.090	61.640	61.525	61.754	61.718	61.610	61.825
QALE	0.061	0.053	0.071	48.197	48.116	48.278	48.258	48.182	48.334	0.055	0.047	0.064	48.197	48.116	48.278	48.252	48.176	48.328

Table D_H8, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

3% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.106	0.091	0.121	61.640	61.525	61.754	61.746	61.639	61.851	0.096	0.082	0.111	61.640	61.525	61.754	61.736	61.629	61.842
QALE	0.075	0.065	0.086	48.197	48.116	48.278	48.272	48.196	48.347	0.068	0.059	0.079	48.197	48.116	48.278	48.265	48.189	48.340

Table D_H8, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

3.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.125	0.108	0.143	61.640	61.525	61.754	61.765	61.659	61.868	0.114	0.098	0.131	61.640	61.525	61.754	61.754	61.648	61.858
QALE	0.089	0.076	0.101	48.197	48.116	48.278	48.286	48.211	48.359	0.081	0.070	0.093	48.197	48.116	48.278	48.278	48.203	48.352

Table D_H8, cont.: Life expectancy (LE) at age 18 years and quality of life-adjusted life expectancy (QALE) at age 18 years in the base case and counterfactual scenario and differences, counterfactual scenario versus base case based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

4% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
LE	0.143	0.124	0.164	61.640	61.525	61.754	61.783	61.678	61.886	0.132	0.114	0.151	61.640	61.525	61.754	61.772	61.666	61.875
QALE	0.102	0.088	0.116	48.197	48.116	48.278	48.299	48.225	48.372	0.094	0.081	0.107	48.197	48.116	48.278	48.291	48.216	48.364

Appendix E: Results from Analyses of Numbers of Survivors for All Age Intervals

Change log for Appendix E

Page number	Location
1	Table E3.1
2	Table E3.1_2
3, 4, 5, 6 & 7	Table E3.1_3
8	Table E3.2
9	Table E3.3
20	Table E3.6
25	Table E3.11
60-70	Table E3.15
71	Table E_C3
72	Table E_C4
78	Table E_H1
79	Table E_H5
89	Table E_H3
90	Table E_H6

Note: Changes were made to Tables E3.1, E3.1_2, all E3.1_3 tables, E3.2, E3.3, E3.6, E3.11, all E3.15 tables, E_C3, E_C4, E_H1, E_H3, E_H5 and E_H6

Table E3.1: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of ‘additional initiation’ with ‘delayed smoking’, ‘alternative initiation’ with ‘gateway effect’, ‘diversion from quitting’, and ‘switching’ with ‘resumed smoking’ (‘master model’)

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,651	993,282	994,009	0	0	0	993,650	993,281	994,009	993,651	993,282	994,009
23 - 27	21	18	24	988,756	988,189	989,305	988,777	988,210	989,327	20	16	23	988,756	988,189	989,305	988,776	988,208	989,325
28 - 32	94	80	108	982,030	981,252	982,794	982,124	981,351	982,883	89	76	103	982,030	981,252	982,794	982,119	981,346	982,879
33 - 37	257	221	293	972,766	971,766	973,763	973,023	972,042	974,003	245	210	280	972,766	971,766	973,763	973,010	972,029	973,991
38 - 42	551	477	626	959,978	958,732	961,234	960,529	959,328	961,737	524	453	597	959,978	958,732	961,234	960,502	959,300	961,712
43 - 47	1,023	887	1,161	942,285	940,758	943,830	943,309	941,858	944,759	972	841	1,106	942,285	940,758	943,830	943,258	941,804	944,712
48 - 52	1,716	1,489	1,944	917,749	915,866	919,636	919,465	917,755	921,191	1,627	1,409	1,847	917,749	915,866	919,636	919,376	917,659	921,107
53 - 57	2,649	2,301	3,000	883,638	881,326	885,956	886,287	884,252	888,345	2,503	2,170	2,841	883,638	881,326	885,956	886,141	884,095	888,204
58 - 62	3,787	3,293	4,289	836,133	833,339	838,900	839,920	837,552	842,322	3,563	3,091	4,043	836,133	833,339	838,900	839,696	837,308	842,112
63 - 67	5,024	4,371	5,690	769,998	766,689	773,230	775,022	772,275	777,716	4,699	4,079	5,332	769,998	766,689	773,230	774,697	771,930	777,405
68 - 72	6,137	5,345	6,948	678,494	674,893	682,007	684,631	681,704	687,504	5,695	4,946	6,461	678,494	674,893	682,007	684,189	681,230	687,091
73 - 77	6,758	5,890	7,652	554,326	550,744	557,788	561,084	558,206	563,906	6,207	5,392	7,051	554,326	550,744	557,788	560,534	557,624	563,388
78 - 82	6,419	5,590	7,279	393,784	390,324	397,173	400,203	397,071	403,312	5,819	5,053	6,620	393,784	390,324	397,173	399,603	396,467	402,718
83 - 87	4,739	4,083	5,421	208,183	203,696	212,699	212,922	208,380	217,538	4,228	3,634	4,846	208,183	203,696	212,699	212,411	207,906	217,010
88 - 92	1,922	1,477	2,398	44,385	39,290	49,590	46,307	40,970	51,759	1,690	1,309	2,097	44,385	39,290	49,590	46,075	40,770	51,487
93 - 97	-2	-8	3	5	-11	25	3	-7	17	-2	-8	3	5	-11	25	3	-7	17
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.1_2: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking'; probabilities for all primary beneficial and harmful transitions reduced by 75%, while probabilities for secondary harmful transitions retained at 100%

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,651	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	5	4	6	988,756	988,189	989,305	988,761	988,194	989,311	5	4	6	988,756	988,189	989,305	988,761	988,194	989,310
28 - 32	24	20	27	982,030	981,252	982,794	982,053	981,277	982,817	22	19	26	982,030	981,252	982,794	982,052	981,276	982,816
33 - 37	65	56	74	972,766	971,766	973,763	972,831	971,835	973,822	62	53	71	972,766	971,766	973,763	972,828	971,832	973,819
38 - 42	141	122	161	959,978	958,732	961,234	960,119	958,888	961,361	134	116	153	959,978	958,732	961,234	960,112	958,880	961,355
43 - 47	264	229	300	942,285	940,758	943,830	942,550	941,045	944,070	251	217	286	942,285	940,758	943,830	942,536	941,032	944,058
48 - 52	447	387	506	917,749	915,866	919,636	918,195	916,360	920,040	423	366	481	917,749	915,866	919,636	918,172	916,335	920,019
53 - 57	693	602	785	883,638	881,326	885,956	884,332	882,098	886,563	655	567	744	883,638	881,326	885,956	884,293	882,057	886,528
58 - 62	995	865	1,128	836,133	833,339	838,900	837,128	834,448	839,799	936	812	1,063	836,133	833,339	838,900	837,069	834,386	839,743
63 - 67	1,325	1,153	1,501	769,998	766,689	773,230	771,323	768,149	774,407	1,239	1,075	1,407	769,998	766,689	773,230	771,237	768,055	774,330
68 - 72	1,622	1,413	1,837	678,494	674,893	682,007	680,117	676,703	683,461	1,506	1,307	1,709	678,494	674,893	682,007	680,000	676,578	683,354
73 - 77	1,789	1,559	2,026	554,326	550,744	557,788	556,115	552,729	559,394	1,643	1,426	1,867	554,326	550,744	557,788	555,970	552,566	559,257
78 - 82	1,700	1,480	1,928	393,784	390,324	397,173	395,483	392,124	398,784	1,541	1,338	1,753	393,784	390,324	397,173	395,325	391,966	398,621
83 - 87	1,254	1,080	1,435	208,183	203,696	212,699	209,437	204,955	213,990	1,119	962	1,283	208,183	203,696	212,699	209,302	204,822	213,849
88 - 92	508	390	634	44,385	39,290	49,590	44,893	39,713	50,161	447	346	554	44,385	39,290	49,590	44,832	39,672	50,084
93 - 97	-0	-2	1	5	-11	25	5	-10	22	-0	-2	1	5	-11	25	5	-10	23
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.1_3: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking', using different ERRs

	ERR=0.1									ERR=0.2								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,651	993,282	994,009	0	-0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	20	17	24	988,756	988,189	989,305	988,776	988,209	989,326	16	13	19	988,756	988,189	989,305	988,772	988,205	989,322
28 - 32	91	77	105	982,030	981,252	982,794	982,121	981,348	982,880	75	63	87	982,030	981,252	982,794	982,105	981,332	982,865
33 - 37	249	214	284	972,766	971,766	973,763	973,014	972,033	973,995	207	176	238	972,766	971,766	973,763	972,972	971,989	973,956
38 - 42	533	461	607	959,978	958,732	961,234	960,511	959,310	961,720	442	379	507	959,978	958,732	961,234	960,420	959,215	961,634
43 - 47	989	856	1,124	942,285	940,758	943,830	943,275	941,822	944,727	815	699	934	942,285	940,758	943,830	943,101	941,638	944,566
48 - 52	1,657	1,436	1,879	917,749	915,866	919,636	919,406	917,691	921,135	1,352	1,160	1,547	917,749	915,866	919,636	919,101	917,363	920,852
53 - 57	2,552	2,213	2,894	883,638	881,326	885,956	886,190	884,148	888,251	2,053	1,764	2,348	883,638	881,326	885,956	885,691	883,610	887,784
58 - 62	3,638	3,157	4,126	836,133	833,339	838,900	839,771	837,390	842,180	2,872	2,464	3,287	836,133	833,339	838,900	839,004	836,556	841,470
63 - 67	4,808	4,175	5,452	769,998	766,689	773,230	774,806	772,040	777,508	3,700	3,171	4,241	769,998	766,689	773,230	773,698	770,852	776,482
68 - 72	5,843	5,079	6,624	678,494	674,893	682,007	684,337	681,391	687,228	4,348	3,719	4,995	678,494	674,893	682,007	682,842	679,774	685,838
73 - 77	6,391	5,559	7,251	554,326	550,744	557,788	560,717	557,819	563,558	4,547	3,887	5,233	554,326	550,744	557,788	558,874	555,861	561,832
78 - 82	6,019	5,234	6,839	393,784	390,324	397,173	399,803	396,665	402,914	4,037	3,439	4,666	393,784	390,324	397,173	397,820	394,667	400,928
83 - 87	4,397	3,783	5,037	208,183	203,696	212,699	212,581	208,054	217,181	2,741	2,317	3,189	208,183	203,696	212,699	210,924	206,453	215,444
88 - 92	1,767	1,365	2,196	44,385	39,290	49,590	46,152	40,842	51,570	1,034	822	1,264	44,385	39,290	49,590	45,419	40,196	50,724
93 - 97	-2	-8	3	5	-11	25	3	-7	17	-2	-8	3	5	-11	25	3	-7	17
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.1_3, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking', using different ERRs

	ERR=0.3									ERR=0.4								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-1	-1	-1	993,650	993,281	994,009	993,650	993,281	994,008
23 - 27	12	10	15	988,756	988,189	989,305	988,768	988,201	989,318	8	6	10	988,756	988,189	989,305	988,764	988,196	989,313
28 - 32	59	49	69	982,030	981,252	982,794	982,089	981,315	982,849	42	34	51	982,030	981,252	982,794	982,072	981,298	982,834
33 - 37	163	137	190	972,766	971,766	973,763	972,929	971,943	973,914	119	97	141	972,766	971,766	973,763	972,884	971,896	973,870
38 - 42	348	293	404	959,978	958,732	961,234	960,326	959,113	961,546	250	204	297	959,978	958,732	961,234	960,228	959,010	961,456
43 - 47	634	534	735	942,285	940,758	943,830	942,919	941,452	944,397	445	363	530	942,285	940,758	943,830	942,730	941,255	944,220
48 - 52	1,033	871	1,199	917,749	915,866	919,636	918,782	917,022	920,554	700	567	837	917,749	915,866	919,636	918,449	916,667	920,242
53 - 57	1,531	1,288	1,779	883,638	881,326	885,956	885,169	883,053	887,305	987	792	1,189	883,638	881,326	885,956	884,625	882,466	886,790
58 - 62	2,072	1,737	2,415	836,133	833,339	838,900	838,205	835,696	840,717	1,241	977	1,517	836,133	833,339	838,900	837,373	834,817	839,950
63 - 67	2,552	2,129	2,993	769,998	766,689	773,230	772,550	769,611	775,427	1,368	1,040	1,713	769,998	766,689	773,230	771,366	768,329	774,339
68 - 72	2,817	2,326	3,332	678,494	674,893	682,007	681,311	678,132	684,431	1,259	889	1,649	678,494	674,893	682,007	679,753	676,462	682,991
73 - 77	2,694	2,190	3,227	554,326	550,744	557,788	557,020	553,878	560,073	844	477	1,237	554,326	550,744	557,788	555,171	551,897	558,335
78 - 82	2,098	1,668	2,558	393,784	390,324	397,173	395,881	392,681	399,041	216	-107	557	393,784	390,324	397,173	394,000	390,754	397,204
83 - 87	1,180	901	1,479	208,183	203,696	212,699	209,363	204,912	213,830	-278	-520	-35	208,183	203,696	212,699	207,905	203,475	212,302
88 - 92	377	271	487	44,385	39,290	49,590	44,762	39,649	49,956	-206	-393	-42	44,385	39,290	49,590	44,179	39,131	49,327
93 - 97	-2	-8	3	5	-11	25	3	-7	17	-2	-8	3	5	-11	25	3	-7	17
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.1_3, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking', using different ERRs

	ERR=0.5									ERR=0.6								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-1	-1	-1	993,650	993,281	994,009	993,649	993,280	994,008	-1	-1	-1	993,650	993,281	994,009	993,649	993,280	994,008
23 - 27	4	2	6	988,756	988,189	989,305	988,760	988,192	989,309	-0	-2	1	988,756	988,189	989,305	988,756	988,188	989,305
28 - 32	26	19	33	982,030	981,252	982,794	982,055	981,281	982,817	8	3	14	982,030	981,252	982,794	982,038	981,263	982,802
33 - 37	73	55	91	972,766	971,766	973,763	972,838	971,848	973,827	26	11	41	972,766	971,766	973,763	972,791	971,800	973,782
38 - 42	149	112	188	959,978	958,732	961,234	960,127	958,905	961,361	45	16	75	959,978	958,732	961,234	960,022	958,792	961,262
43 - 47	249	184	317	942,285	940,758	943,830	942,534	941,048	944,038	46	-4	99	942,285	940,758	943,830	942,331	940,830	943,851
48 - 52	354	251	463	917,749	915,866	919,636	918,103	916,298	919,917	-5	-83	79	917,749	915,866	919,636	917,744	915,915	919,588
53 - 57	421	272	579	883,638	881,326	885,956	884,059	881,865	886,264	-165	-282	-44	883,638	881,326	885,956	883,473	881,233	885,722
58 - 62	380	180	595	836,133	833,339	838,900	836,513	833,883	839,153	-507	-671	-339	836,133	833,339	838,900	835,626	832,919	838,326
63 - 67	153	-96	415	769,998	766,689	773,230	770,151	767,037	773,224	-1,090	-1,315	-865	769,998	766,689	773,230	768,908	765,700	772,083
68 - 72	-319	-608	-15	678,494	674,893	682,007	678,175	674,766	681,530	-1,909	-2,206	-1,620	678,494	674,893	682,007	676,585	673,050	680,068
73 - 77	-990	-1,303	-668	554,326	550,744	557,788	553,336	549,950	556,630	-2,798	-3,174	-2,447	554,326	550,744	557,788	551,528	548,036	554,974
78 - 82	-1,596	-1,928	-1,275	393,784	390,324	397,173	392,188	388,878	395,439	-3,327	-3,764	-2,924	393,784	390,324	397,173	390,457	387,091	393,803
83 - 87	-1,626	-1,949	-1,325	208,183	203,696	212,699	206,557	202,176	210,939	-2,861	-3,301	-2,449	208,183	203,696	212,699	205,322	200,972	209,662
88 - 92	-718	-1,010	-454	44,385	39,290	49,590	43,667	38,687	48,716	-1,164	-1,554	-806	44,385	39,290	49,590	43,221	38,308	48,219
93 - 97	-2	-8	3	5	-11	25	3	-7	17	-2	-7	3	5	-11	25	3	-8	17
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.1_3, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking', using different ERRs

	ERR=0.7									ERR=0.8								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-2	-2	-1	993,650	993,281	994,009	993,649	993,280	994,007	-2	-2	-2	993,650	993,281	994,009	993,648	993,279	994,007
23 - 27	-5	-6	-3	988,756	988,189	989,305	988,751	988,184	989,301	-9	-10	-8	988,756	988,189	989,305	988,747	988,180	989,297
28 - 32	-9	-14	-4	982,030	981,252	982,794	982,021	981,245	982,785	-27	-31	-23	982,030	981,252	982,794	982,003	981,226	982,768
33 - 37	-23	-34	-11	972,766	971,766	973,763	972,743	971,748	973,736	-72	-83	-62	972,766	971,766	973,763	972,693	971,694	973,689
38 - 42	-63	-86	-39	959,978	958,732	961,234	959,915	958,675	961,162	-174	-197	-152	959,978	958,732	961,234	959,804	958,559	961,059
43 - 47	-164	-205	-122	942,285	940,758	943,830	942,121	940,602	943,657	-381	-426	-338	942,285	940,758	943,830	941,904	940,376	943,458
48 - 52	-377	-446	-306	917,749	915,866	919,636	917,372	915,519	919,250	-761	-844	-681	917,749	915,866	919,636	916,988	915,112	918,894
53 - 57	-771	-886	-659	883,638	881,326	885,956	882,867	880,580	885,178	-1,396	-1,542	-1,258	883,638	881,326	885,956	882,242	879,910	884,599
58 - 62	-1,420	-1,602	-1,246	836,133	833,339	838,900	834,713	831,940	837,494	-2,355	-2,594	-2,131	836,133	833,339	838,900	833,778	830,929	836,638
63 - 67	-2,356	-2,631	-2,100	769,998	766,689	773,230	767,642	764,325	770,924	-3,639	-3,999	-3,298	769,998	766,689	773,230	766,359	762,945	769,741
68 - 72	-3,503	-3,888	-3,144	678,494	674,893	682,007	674,991	671,331	678,599	-5,092	-5,593	-4,609	678,494	674,893	682,007	673,402	669,615	677,136
73 - 77	-4,569	-5,066	-4,106	554,326	550,744	557,788	549,757	546,127	553,343	-6,292	-6,929	-5,681	554,326	550,744	557,788	548,034	544,263	551,757
78 - 82	-4,967	-5,536	-4,431	393,784	390,324	397,173	388,816	385,371	392,248	-6,509	-7,214	-5,829	393,784	390,324	397,173	387,274	383,784	390,786
83 - 87	-3,981	-4,545	-3,456	208,183	203,696	212,699	204,202	199,866	208,533	-4,987	-5,654	-4,357	208,183	203,696	212,699	203,196	198,875	207,521
88 - 92	-1,548	-2,014	-1,120	44,385	39,290	49,590	42,837	37,960	47,798	-1,875	-2,396	-1,390	44,385	39,290	49,590	42,510	37,681	47,436
93 - 97	-2	-7	3	5	-11	25	3	-8	18	-1	-6	2	5	-11	25	4	-8	19
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.1_3, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking', using different ERRs

	ERR=0.9									ERR=1.0								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-2	-2	-2	993,650	993,281	994,009	993,648	993,279	994,007	-3	-3	-2	993,650	993,281	994,009	993,648	993,279	994,007
23 - 27	-13	-15	-12	988,756	988,189	989,305	988,743	988,175	989,293	-18	-19	-16	988,756	988,189	989,305	988,738	988,171	989,289
28 - 32	-45	-50	-41	982,030	981,252	982,794	981,985	981,206	982,751	-64	-70	-58	982,030	981,252	982,794	981,966	981,187	982,733
33 - 37	-123	-136	-111	972,766	971,766	973,763	972,642	971,642	973,641	-175	-192	-159	972,766	971,766	973,763	972,590	971,586	973,592
38 - 42	-288	-317	-261	959,978	958,732	961,234	959,690	958,435	960,953	-405	-444	-369	959,978	958,732	961,234	959,572	958,312	960,843
43 - 47	-605	-664	-548	942,285	940,758	943,830	941,681	940,137	943,251	-835	-913	-760	942,285	940,758	943,830	941,450	939,890	943,040
48 - 52	-1,157	-1,268	-1,052	917,749	915,866	919,636	916,592	914,680	918,523	-1,565	-1,712	-1,422	917,749	915,866	919,636	916,184	914,233	918,147
53 - 57	-2,038	-2,232	-1,854	883,638	881,326	885,956	881,600	879,203	884,004	-2,698	-2,949	-2,451	883,638	881,326	885,956	880,940	878,495	883,393
58 - 62	-3,311	-3,623	-3,007	836,133	833,339	838,900	832,822	829,885	835,754	-4,285	-4,685	-3,889	836,133	833,339	838,900	831,848	828,824	834,867
63 - 67	-4,936	-5,401	-4,479	769,998	766,689	773,230	765,062	761,521	768,561	-6,241	-6,823	-5,660	769,998	766,689	773,230	763,757	760,110	767,358
68 - 72	-6,670	-7,306	-6,045	678,494	674,893	682,007	671,824	667,907	675,696	-8,228	-9,013	-7,451	678,494	674,893	682,007	670,266	666,221	674,254
73 - 77	-7,958	-8,743	-7,191	554,326	550,744	557,788	546,368	542,448	550,219	-9,559	-10,495	-8,634	554,326	550,744	557,788	544,767	540,720	548,744
78 - 82	-7,947	-8,789	-7,128	393,784	390,324	397,173	385,836	382,293	389,420	-9,277	-10,246	-8,324	393,784	390,324	397,173	384,507	380,873	388,175
83 - 87	-5,881	-6,639	-5,159	208,183	203,696	212,699	202,302	197,987	206,630	-6,666	-7,506	-5,860	208,183	203,696	212,699	201,517	197,198	205,833
88 - 92	-2,150	-2,710	-1,623	44,385	39,290	49,590	42,235	37,418	47,127	-2,379	-2,969	-1,827	44,385	39,290	49,590	42,006	37,208	46,883
93 - 97	-1	-2	1	5	-11	25	4	-12	26	10	-12	40	5	-11	25	15	-23	64
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.2: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'additional initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	19	16	22	988,756	988,189	989,305	988,775	988,208	989,324	18	15	21	988,756	988,189	989,305	988,774	988,206	989,323
28 - 32	89	76	103	982,030	981,252	982,794	982,119	981,347	982,879	85	72	98	982,030	981,252	982,794	982,115	981,342	982,875
33 - 37	249	214	285	972,766	971,766	973,763	973,015	972,033	973,995	237	203	271	972,766	971,766	973,763	973,003	972,021	973,984
38 - 42	539	466	613	959,978	958,732	961,234	960,517	959,316	961,726	513	443	585	959,978	958,732	961,234	960,491	959,289	961,702
43 - 47	1,007	872	1,142	942,285	940,758	943,830	943,292	941,840	944,745	956	827	1,087	942,285	940,758	943,830	943,242	941,787	944,698
48 - 52	1,695	1,470	1,920	917,749	915,866	919,636	919,444	917,730	921,171	1,607	1,391	1,824	917,749	915,866	919,636	919,356	917,636	921,088
53 - 57	2,623	2,278	2,970	883,638	881,326	885,956	886,261	884,223	888,321	2,479	2,148	2,812	883,638	881,326	885,956	886,117	884,068	888,182
58 - 62	3,759	3,269	4,257	836,133	833,339	838,900	839,892	837,518	842,298	3,537	3,067	4,014	836,133	833,339	838,900	839,670	837,280	842,087
63 - 67	4,998	4,350	5,661	769,998	766,689	773,230	774,996	772,246	777,695	4,676	4,058	5,306	769,998	766,689	773,230	774,674	771,903	777,389
68 - 72	6,118	5,330	6,926	678,494	674,893	682,007	684,612	681,679	687,491	5,680	4,935	6,444	678,494	674,893	682,007	684,175	681,212	687,079
73 - 77	6,755	5,887	7,646	554,326	550,744	557,788	561,081	558,197	563,909	6,208	5,396	7,047	554,326	550,744	557,788	560,535	557,624	563,392
78 - 82	6,438	5,608	7,296	393,784	390,324	397,173	400,221	397,086	403,336	5,841	5,074	6,640	393,784	390,324	397,173	399,624	396,488	402,742
83 - 87	4,776	4,114	5,461	208,183	203,696	212,699	212,959	208,414	217,571	4,265	3,667	4,888	208,183	203,696	212,699	212,448	207,938	217,047
88 - 92	1,955	1,501	2,441	44,385	39,290	49,590	46,340	40,995	51,795	1,722	1,333	2,137	44,385	39,290	49,590	46,107	40,803	51,524
93 - 97	-2	-8	3	5	-11	25	3	-7	17	-2	-8	3	5	-11	25	3	-7	17
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.3: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of ‘additional initiation’, ‘diversion from quitting’, and ‘switching’

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	41	35	48	988,756	988,189	989,305	988,797	988,230	989,346	40	33	46	988,756	988,189	989,305	988,796	988,228	989,344
28 - 32	191	165	217	982,030	981,252	982,794	982,221	981,453	982,974	183	158	209	982,030	981,252	982,794	982,213	981,445	982,968
33 - 37	524	457	592	972,766	971,766	973,763	973,289	972,317	974,258	503	438	569	972,766	971,766	973,763	973,269	972,296	974,239
38 - 42	1,119	981	1,259	959,978	958,732	961,234	961,097	959,920	962,268	1,075	940	1,210	959,978	958,732	961,234	961,052	959,873	962,227
43 - 47	2,065	1,813	2,319	942,285	940,758	943,830	944,351	942,975	945,750	1,980	1,736	2,226	942,285	940,758	943,830	944,265	942,887	945,668
48 - 52	3,440	3,023	3,859	917,749	915,866	919,636	921,189	919,598	922,814	3,290	2,888	3,695	917,749	915,866	919,636	921,039	919,441	922,674
53 - 57	5,272	4,632	5,915	883,638	881,326	885,956	888,910	887,080	890,762	5,029	4,411	5,648	883,638	881,326	885,956	888,667	886,817	890,545
58 - 62	7,494	6,588	8,413	836,133	833,339	838,900	843,627	841,566	845,731	7,120	6,250	8,003	836,133	833,339	838,900	843,253	841,166	845,378
63 - 67	9,892	8,697	11,104	769,998	766,689	773,230	779,890	777,521	782,196	9,350	8,208	10,513	769,998	766,689	773,230	779,348	776,949	781,675
68 - 72	12,025	10,570	13,501	678,494	674,893	682,007	690,520	688,073	692,968	11,288	9,907	12,699	678,494	674,893	682,007	689,783	687,291	692,269
73 - 77	13,176	11,575	14,817	554,326	550,744	557,788	567,502	565,046	569,935	12,256	10,752	13,803	554,326	550,744	557,788	566,582	564,089	569,047
78 - 82	12,429	10,893	14,014	393,784	390,324	397,173	406,212	403,207	409,237	11,423	9,992	12,909	393,784	390,324	397,173	405,206	402,206	408,205
83 - 87	9,057	7,840	10,314	208,183	203,696	212,699	217,240	212,495	222,034	8,196	7,083	9,350	208,183	203,696	212,699	216,379	211,695	221,105
88 - 92	3,541	2,719	4,422	44,385	39,290	49,590	47,926	42,387	53,620	3,149	2,434	3,915	44,385	39,290	49,590	47,533	42,051	53,153
93 - 97	-3	-13	6	5	-11	25	2	-5	11	-3	-13	6	5	-11	25	2	-5	11
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.4: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

0% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	-3	-3	-2	988,756	988,189	989,305	988,753	988,186	989,303	-3	-3	-3	988,756	988,189	989,305	988,753	988,186	989,302
28 - 32	-10	-11	-10	982,030	981,252	982,794	982,020	981,242	982,784	-12	-12	-11	982,030	981,252	982,794	982,018	981,241	982,782
33 - 37	-27	-28	-26	972,766	971,766	973,763	972,739	971,738	973,736	-31	-32	-29	972,766	971,766	973,763	972,735	971,734	973,732
38 - 42	-57	-60	-55	959,978	958,732	961,234	959,921	958,675	961,176	-65	-68	-62	959,978	958,732	961,234	959,913	958,667	961,169
43 - 47	-105	-109	-100	942,285	940,758	943,830	942,181	940,654	943,725	-119	-124	-114	942,285	940,758	943,830	942,167	940,639	943,712
48 - 52	-173	-180	-167	917,749	915,866	919,636	917,575	915,697	919,462	-198	-206	-190	917,749	915,866	919,636	917,551	915,672	919,439
53 - 57	-266	-276	-257	883,638	881,326	885,956	883,372	881,064	885,687	-306	-318	-294	883,638	881,326	885,956	883,332	881,023	885,649
58 - 62	-381	-394	-368	836,133	833,339	838,900	835,752	832,960	838,515	-442	-459	-425	836,133	833,339	838,900	835,691	832,898	838,456
63 - 67	-506	-524	-488	769,998	766,689	773,230	769,492	766,191	772,719	-594	-619	-569	769,998	766,689	773,230	769,404	766,101	772,635
68 - 72	-616	-641	-592	678,494	674,893	682,007	677,878	674,273	681,393	-733	-768	-700	678,494	674,893	682,007	677,761	674,150	681,275
73 - 77	-666	-699	-634	554,326	550,744	557,788	553,660	550,089	557,115	-809	-855	-764	554,326	550,744	557,788	553,518	549,947	556,972
78 - 82	-596	-638	-556	393,784	390,324	397,173	393,188	389,741	396,571	-746	-804	-693	393,784	390,324	397,173	393,037	389,594	396,420
83 - 87	-366	-412	-322	208,183	203,696	212,699	207,817	203,360	212,311	-488	-549	-431	208,183	203,696	212,699	207,695	203,242	212,179
88 - 92	-53	-88	-22	44,385	39,290	49,590	44,332	39,249	49,517	-103	-151	-61	44,385	39,290	49,590	44,282	39,209	49,462
93 - 97	0	0	0	5	-11	25	5	-11	25	0	0	0	5	-11	25	5	-11	25
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.4, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

0.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	-1	-1	-1	988,756	988,189	989,305	988,755	988,188	989,304	-2	-2	-2	988,756	988,189	989,305	988,754	988,187	989,304
28 - 32	-3	-4	-2	982,030	981,252	982,794	982,027	981,249	982,791	-5	-6	-4	982,030	981,252	982,794	982,025	981,248	982,789
33 - 37	-5	-8	-2	972,766	971,766	973,763	972,760	971,761	973,756	-10	-13	-7	972,766	971,766	973,763	972,756	971,757	973,752
38 - 42	-6	-12	1	959,978	958,732	961,234	959,972	958,731	961,223	-15	-21	-8	959,978	958,732	961,234	959,963	958,721	961,214
43 - 47	-0	-14	13	942,285	940,758	943,830	942,285	940,766	943,823	-18	-31	-5	942,285	940,758	943,830	942,267	940,748	943,806
48 - 52	14	-10	38	917,749	915,866	919,636	917,763	915,895	919,631	-17	-39	6	917,749	915,866	919,636	917,732	915,862	919,602
53 - 57	40	3	79	883,638	881,326	885,956	883,679	881,403	885,957	-10	-46	26	883,638	881,326	885,956	883,628	881,350	885,910
58 - 62	81	26	139	836,133	833,339	838,900	836,214	833,454	838,940	3	-50	57	836,133	833,339	838,900	836,136	833,375	838,865
63 - 67	135	58	214	769,998	766,689	773,230	770,133	766,888	773,297	21	-50	95	769,998	766,689	773,230	770,019	766,771	773,190
68 - 72	193	98	292	678,494	674,893	682,007	678,687	675,172	682,120	39	-48	130	678,494	674,893	682,007	678,533	675,015	681,972
73 - 77	243	141	353	554,326	550,744	557,788	554,570	551,080	557,940	54	-40	154	554,326	550,744	557,788	554,380	550,884	557,754
78 - 82	273	178	375	393,784	390,324	397,173	394,056	390,661	397,377	70	-15	163	393,784	390,324	397,173	393,854	390,462	397,180
83 - 87	265	193	343	208,183	203,696	212,699	208,448	203,969	212,964	99	33	168	208,183	203,696	212,699	208,282	203,811	212,789
88 - 92	189	143	238	44,385	39,290	49,590	44,574	39,462	49,781	119	83	157	44,385	39,290	49,590	44,504	39,399	49,700
93 - 97	-0	-2	1	5	-11	25	5	-10	23	-0	-2	1	5	-11	25	5	-10	23
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.4, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

1% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	0	-0	0	988,756	988,189	989,305	988,756	988,189	989,305	-1	-1	-0	988,756	988,189	989,305	988,755	988,188	989,305
28 - 32	4	2	6	982,030	981,252	982,794	982,034	981,257	982,798	2	0	4	982,030	981,252	982,794	982,032	981,255	982,796
33 - 37	16	11	22	972,766	971,766	973,763	972,782	971,785	973,776	11	6	16	972,766	971,766	973,763	972,777	971,780	973,771
38 - 42	46	33	58	959,978	958,732	961,234	960,023	958,787	961,269	35	23	47	959,978	958,732	961,234	960,012	958,776	961,259
43 - 47	103	77	128	942,285	940,758	943,830	942,388	940,876	943,917	82	58	106	942,285	940,758	943,830	942,367	940,855	943,897
48 - 52	199	153	244	917,749	915,866	919,636	917,947	916,098	919,800	162	119	205	917,749	915,866	919,636	917,910	916,059	919,764
53 - 57	342	269	417	883,638	881,326	885,956	883,981	881,740	886,228	281	211	351	883,638	881,326	885,956	883,919	881,673	886,172
58 - 62	535	426	646	836,133	833,339	838,900	836,668	833,962	839,355	440	336	545	836,133	833,339	838,900	836,572	833,861	839,263
63 - 67	762	612	916	769,998	766,689	773,230	770,760	767,575	773,855	622	483	768	769,998	766,689	773,230	770,620	767,424	773,725
68 - 72	984	797	1,176	678,494	674,893	682,007	679,478	676,049	682,837	794	619	975	678,494	674,893	682,007	679,288	675,846	682,659
73 - 77	1,132	925	1,346	554,326	550,744	557,788	555,458	552,055	558,751	896	705	1,097	554,326	550,744	557,788	555,223	551,805	558,525
78 - 82	1,121	924	1,327	393,784	390,324	397,173	394,904	391,547	398,189	868	691	1,056	393,784	390,324	397,173	394,651	391,293	397,945
83 - 87	881	731	1,040	208,183	203,696	212,699	209,064	204,596	213,596	671	540	813	208,183	203,696	212,699	208,854	204,393	213,377
88 - 92	426	328	529	44,385	39,290	49,590	44,811	39,665	50,047	335	259	415	44,385	39,290	49,590	44,720	39,585	49,940
93 - 97	-1	-3	1	5	-11	25	4	-9	22	-1	-3	1	5	-11	25	4	-9	22
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.4, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

1.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	1	1	2	988,756	988,189	989,305	988,757	988,190	989,307	1	0	1	988,756	988,189	989,305	988,757	988,190	989,306
28 - 32	11	8	14	982,030	981,252	982,794	982,041	981,264	982,804	9	6	11	982,030	981,252	982,794	982,038	981,262	982,802
33 - 37	38	30	46	972,766	971,766	973,763	972,803	971,807	973,795	32	24	40	972,766	971,766	973,763	972,797	971,801	973,790
38 - 42	96	78	115	959,978	958,732	961,234	960,074	958,841	961,316	84	66	102	959,978	958,732	961,234	960,062	958,827	961,304
43 - 47	204	167	242	942,285	940,758	943,830	942,490	940,986	944,011	180	145	216	942,285	940,758	943,830	942,466	940,962	943,989
48 - 52	381	314	448	917,749	915,866	919,636	918,130	916,301	919,966	338	274	402	917,749	915,866	919,636	918,087	916,255	919,924
53 - 57	640	531	749	883,638	881,326	885,956	884,278	882,060	886,495	568	464	672	883,638	881,326	885,956	884,206	881,984	886,425
58 - 62	981	818	1,145	836,133	833,339	838,900	837,114	834,457	839,757	868	714	1,024	836,133	833,339	838,900	837,001	834,337	839,652
63 - 67	1,377	1,154	1,605	769,998	766,689	773,230	771,375	768,257	774,415	1,212	1,001	1,428	769,998	766,689	773,230	771,210	768,080	774,259
68 - 72	1,758	1,478	2,044	678,494	674,893	682,007	680,252	676,892	683,532	1,532	1,270	1,801	678,494	674,893	682,007	680,026	676,653	683,323
73 - 77	2,000	1,688	2,321	554,326	550,744	557,788	556,326	553,017	559,545	1,719	1,430	2,018	554,326	550,744	557,788	556,045	552,719	559,280
78 - 82	1,948	1,652	2,258	393,784	390,324	397,173	395,732	392,411	398,982	1,645	1,373	1,931	393,784	390,324	397,173	395,429	392,105	398,673
83 - 87	1,483	1,252	1,722	208,183	203,696	212,699	209,666	205,180	214,197	1,230	1,024	1,445	208,183	203,696	212,699	209,413	204,939	213,939
88 - 92	657	507	815	44,385	39,290	49,590	45,042	39,855	50,316	546	426	676	44,385	39,290	49,590	44,931	39,763	50,180
93 - 97	-1	-5	2	5	-11	25	4	-9	20	-1	-5	2	5	-11	25	4	-9	20
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.4, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

2% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	3	2	3	988,756	988,189	989,305	988,759	988,191	989,308	2	1	3	988,756	988,189	989,305	988,758	988,191	989,307
28 - 32	18	14	21	982,030	981,252	982,794	982,047	981,271	982,811	15	12	19	982,030	981,252	982,794	982,045	981,269	982,809
33 - 37	59	48	70	972,766	971,766	973,763	972,824	971,830	973,815	53	42	63	972,766	971,766	973,763	972,818	971,824	973,809
38 - 42	147	122	172	959,978	958,732	961,234	960,124	958,895	961,362	133	109	157	959,978	958,732	961,234	960,110	958,881	961,349
43 - 47	305	256	355	942,285	940,758	943,830	942,591	941,095	944,101	278	231	325	942,285	940,758	943,830	942,563	941,067	944,076
48 - 52	561	472	649	917,749	915,866	919,636	918,310	916,500	920,133	512	428	596	917,749	915,866	919,636	918,260	916,445	920,086
53 - 57	932	789	1,077	883,638	881,326	885,956	884,571	882,377	886,771	850	713	988	883,638	881,326	885,956	884,488	882,291	886,693
58 - 62	1,419	1,203	1,636	836,133	833,339	838,900	837,552	834,940	840,158	1,289	1,085	1,496	836,133	833,339	838,900	837,422	834,804	840,037
63 - 67	1,980	1,684	2,280	769,998	766,689	773,230	771,978	768,930	774,959	1,790	1,510	2,075	769,998	766,689	773,230	771,788	768,725	774,784
68 - 72	2,514	2,145	2,894	678,494	674,893	682,007	681,009	677,726	684,211	2,254	1,905	2,611	678,494	674,893	682,007	680,748	677,449	683,969
73 - 77	2,847	2,433	3,274	554,326	550,744	557,788	557,174	553,952	560,312	2,523	2,139	2,921	554,326	550,744	557,788	556,849	553,604	560,002
78 - 82	2,756	2,361	3,168	393,784	390,324	397,173	396,540	393,274	399,749	2,405	2,041	2,784	393,784	390,324	397,173	396,188	392,907	399,400
83 - 87	2,070	1,762	2,394	208,183	203,696	212,699	210,253	205,747	214,801	1,775	1,499	2,064	208,183	203,696	212,699	209,958	205,479	214,480
88 - 92	883	681	1,097	44,385	39,290	49,590	45,267	40,057	50,563	753	585	931	44,385	39,290	49,590	45,138	39,936	50,422
93 - 97	-1	-6	2	5	-11	25	4	-8	19	-1	-6	2	5	-11	25	4	-8	19
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.4, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

2.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	4	3	5	988,756	988,189	989,305	988,760	988,193	989,309	3	2	4	988,756	988,189	989,305	988,759	988,192	989,309
28 - 32	25	20	29	982,030	981,252	982,794	982,054	981,278	982,818	22	18	26	982,030	981,252	982,794	982,052	981,276	982,816
33 - 37	80	67	93	972,766	971,766	973,763	972,846	971,854	973,836	73	61	86	972,766	971,766	973,763	972,839	971,846	973,829
38 - 42	197	166	228	959,978	958,732	961,234	960,174	958,950	961,409	181	152	211	959,978	958,732	961,234	960,159	958,934	961,394
43 - 47	405	344	467	942,285	940,758	943,830	942,691	941,203	944,192	374	316	433	942,285	940,758	943,830	942,660	941,171	944,163
48 - 52	739	629	848	917,749	915,866	919,636	918,487	916,686	920,294	683	578	788	917,749	915,866	919,636	918,432	916,630	920,243
53 - 57	1,220	1,042	1,399	883,638	881,326	885,956	884,859	882,690	887,035	1,128	957	1,299	883,638	881,326	885,956	884,766	882,591	886,947
58 - 62	1,849	1,582	2,118	836,133	833,339	838,900	837,981	835,412	840,542	1,703	1,449	1,960	836,133	833,339	838,900	837,836	835,257	840,406
63 - 67	2,571	2,203	2,942	769,998	766,689	773,230	772,569	769,592	775,490	2,356	2,009	2,709	769,998	766,689	773,230	772,354	769,359	775,291
68 - 72	3,255	2,796	3,724	678,494	674,893	682,007	681,749	678,553	684,892	2,960	2,527	3,404	678,494	674,893	682,007	681,454	678,237	684,612
73 - 77	3,675	3,161	4,204	554,326	550,744	557,788	558,002	554,862	561,085	3,307	2,827	3,804	554,326	550,744	557,788	557,634	554,470	560,735
78 - 82	3,545	3,054	4,055	393,784	390,324	397,173	397,329	394,096	400,509	3,146	2,692	3,621	393,784	390,324	397,173	396,929	393,697	400,109
83 - 87	2,643	2,258	3,047	208,183	203,696	212,699	210,826	206,333	215,388	2,307	1,961	2,670	208,183	203,696	212,699	210,490	205,985	215,035
88 - 92	1,103	851	1,372	44,385	39,290	49,590	45,488	40,251	50,809	954	742	1,181	44,385	39,290	49,590	45,339	40,112	50,646
93 - 97	-2	-7	3	5	-11	25	3	-8	18	-2	-7	3	5	-11	25	3	-8	18
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.4, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

3% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	5	4	6	988,756	988,189	989,305	988,761	988,194	989,311	4	3	6	988,756	988,189	989,305	988,760	988,193	989,310
28 - 32	32	26	37	982,030	981,252	982,794	982,061	981,286	982,825	29	24	34	982,030	981,252	982,794	982,059	981,283	982,822
33 - 37	101	85	117	972,766	971,766	973,763	972,867	971,875	973,856	94	78	109	972,766	971,766	973,763	972,859	971,867	973,848
38 - 42	246	210	283	959,978	958,732	961,234	960,224	959,002	961,458	229	194	265	959,978	958,732	961,234	960,207	958,984	961,441
43 - 47	504	431	577	942,285	940,758	943,830	942,789	941,306	944,282	470	400	540	942,285	940,758	943,830	942,756	941,270	944,250
48 - 52	914	784	1,044	917,749	915,866	919,636	918,663	916,874	920,458	853	728	977	917,749	915,866	919,636	918,601	916,809	920,399
53 - 57	1,504	1,292	1,716	883,638	881,326	885,956	885,142	882,999	887,299	1,401	1,198	1,605	883,638	881,326	885,956	885,039	882,888	887,203
58 - 62	2,271	1,954	2,590	836,133	833,339	838,900	838,404	835,877	840,920	2,109	1,807	2,414	836,133	833,339	838,900	838,242	835,705	840,768
63 - 67	3,149	2,711	3,590	769,998	766,689	773,230	773,147	770,235	776,015	2,911	2,495	3,332	769,998	766,689	773,230	772,909	769,978	775,796
68 - 72	3,979	3,434	4,537	678,494	674,893	682,007	682,473	679,347	685,559	3,651	3,136	4,181	678,494	674,893	682,007	682,145	678,992	685,250
73 - 77	4,484	3,872	5,114	554,326	550,744	557,788	558,811	555,754	561,827	4,074	3,501	4,667	554,326	550,744	557,788	558,401	555,318	561,440
78 - 82	4,315	3,731	4,923	393,784	390,324	397,173	398,099	394,890	401,244	3,869	3,326	4,436	393,784	390,324	397,173	397,653	394,447	400,805
83 - 87	3,202	2,744	3,686	208,183	203,696	212,699	211,385	206,897	215,958	2,826	2,412	3,265	208,183	203,696	212,699	211,009	206,523	215,565
88 - 92	1,319	1,018	1,641	44,385	39,290	49,590	45,704	40,430	51,065	1,151	894	1,427	44,385	39,290	49,590	45,536	40,294	50,858
93 - 97	-2	-8	3	5	-11	25	3	-7	16	-2	-8	3	5	-11	25	3	-7	16
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.4, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

3.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	6	5	8	988,756	988,189	989,305	988,762	988,195	989,312	6	4	7	988,756	988,189	989,305	988,762	988,194	989,311
28 - 32	38	32	45	982,030	981,252	982,794	982,068	981,293	982,831	35	29	42	982,030	981,252	982,794	982,065	981,290	982,828
33 - 37	122	104	141	972,766	971,766	973,763	972,888	971,898	973,876	114	96	132	972,766	971,766	973,763	972,880	971,889	973,868
38 - 42	295	253	338	959,978	958,732	961,234	960,273	959,054	961,503	277	236	318	959,978	958,732	961,234	960,254	959,035	961,486
43 - 47	602	518	686	942,285	940,758	943,830	942,887	941,408	944,371	565	484	646	942,285	940,758	943,830	942,850	941,370	944,336
48 - 52	1,087	936	1,237	917,749	915,866	919,636	918,836	917,062	920,619	1,020	875	1,165	917,749	915,866	919,636	918,769	916,992	920,555
53 - 57	1,783	1,537	2,029	883,638	881,326	885,956	885,421	883,306	887,552	1,670	1,434	1,907	883,638	881,326	885,956	885,309	883,184	887,446
58 - 62	2,685	2,319	3,054	836,133	833,339	838,900	838,818	836,338	841,306	2,508	2,157	2,861	836,133	833,339	838,900	838,640	836,146	841,139
63 - 67	3,717	3,211	4,225	769,998	766,689	773,230	773,715	770,841	776,523	3,454	2,975	3,941	769,998	766,689	773,230	773,452	770,559	776,279
68 - 72	4,687	4,057	5,331	678,494	674,893	682,007	683,181	680,117	686,198	4,327	3,732	4,938	678,494	674,893	682,007	682,821	679,733	685,863
73 - 77	5,275	4,568	6,001	554,326	550,744	557,788	559,601	556,615	562,555	4,823	4,159	5,509	554,326	550,744	557,788	559,150	556,142	562,131
78 - 82	5,067	4,391	5,771	393,784	390,324	397,173	398,850	395,670	401,974	4,575	3,946	5,231	393,784	390,324	397,173	398,359	395,177	401,489
83 - 87	3,749	3,218	4,309	208,183	203,696	212,699	211,932	207,427	216,528	3,333	2,851	3,844	208,183	203,696	212,699	211,516	207,024	216,090
88 - 92	1,529	1,181	1,903	44,385	39,290	49,590	45,914	40,627	51,298	1,343	1,043	1,666	44,385	39,290	49,590	45,728	40,452	51,080
93 - 97	-2	-9	4	5	-11	25	3	-7	15	-2	-9	4	5	-11	25	3	-7	15
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.4, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

4% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	8	6	9	988,756	988,189	989,305	988,764	988,196	989,313	7	5	8	988,756	988,189	989,305	988,763	988,196	989,312
28 - 32	45	38	53	982,030	981,252	982,794	982,075	981,300	982,837	42	35	49	982,030	981,252	982,794	982,072	981,297	982,834
33 - 37	143	122	164	972,766	971,766	973,763	972,909	971,920	973,895	134	114	155	972,766	971,766	973,763	972,900	971,911	973,887
38 - 42	344	296	393	959,978	958,732	961,234	960,322	959,106	961,548	324	277	371	959,978	958,732	961,234	960,302	959,085	961,529
43 - 47	698	603	794	942,285	940,758	943,830	942,984	941,513	944,460	658	566	750	942,285	940,758	943,830	942,944	941,471	944,422
48 - 52	1,258	1,087	1,428	917,749	915,866	919,636	919,006	917,248	920,773	1,185	1,020	1,349	917,749	915,866	919,636	918,934	917,170	920,705
53 - 57	2,058	1,779	2,336	883,638	881,326	885,956	885,696	883,609	887,804	1,935	1,668	2,203	883,638	881,326	885,956	885,573	883,479	887,688
58 - 62	3,092	2,677	3,510	836,133	833,339	838,900	839,225	836,788	841,677	2,899	2,502	3,300	836,133	833,339	838,900	839,032	836,580	841,500
63 - 67	4,272	3,700	4,848	769,998	766,689	773,230	774,270	771,457	777,025	3,987	3,442	4,538	769,998	766,689	773,230	773,985	771,150	776,761
68 - 72	5,380	4,665	6,109	678,494	674,893	682,007	683,874	680,875	686,815	4,988	4,312	5,680	678,494	674,893	682,007	683,482	680,457	686,453
73 - 77	6,047	5,246	6,868	554,326	550,744	557,788	560,373	557,462	563,258	5,555	4,801	6,331	554,326	550,744	557,788	559,881	556,943	562,794
78 - 82	5,801	5,037	6,596	393,784	390,324	397,173	399,585	396,440	402,703	5,265	4,552	6,006	393,784	390,324	397,173	399,048	395,887	402,159
83 - 87	4,282	3,679	4,919	208,183	203,696	212,699	212,466	207,932	217,071	3,828	3,280	4,407	208,183	203,696	212,699	212,012	207,510	216,602
88 - 92	1,735	1,339	2,161	44,385	39,290	49,590	46,120	40,822	51,540	1,531	1,188	1,900	44,385	39,290	49,590	45,916	40,635	51,287
93 - 97	-2	-11	4	5	-11	25	3	-6	14	-2	-11	4	5	-11	25	3	-6	14
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.5: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on the transition of 'alternative initiation'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	1	1	1	993,650	993,281	994,009	993,651	993,282	994,010	1	1	1	993,650	993,281	994,009	993,651	993,282	994,010
23 - 27	3	2	3	988,756	988,189	989,305	988,759	988,192	989,308	3	2	3	988,756	988,189	989,305	988,759	988,192	989,308
28 - 32	7	6	7	982,030	981,252	982,794	982,036	981,259	982,800	6	6	7	982,030	981,252	982,794	982,036	981,259	982,800
33 - 37	13	11	14	972,766	971,766	973,763	972,779	971,780	973,775	12	11	14	972,766	971,766	973,763	972,778	971,780	973,774
38 - 42	22	20	25	959,978	958,732	961,234	960,000	958,756	961,253	21	19	24	959,978	958,732	961,234	959,999	958,755	961,252
43 - 47	34	30	39	942,285	940,758	943,830	942,320	940,796	943,862	33	29	37	942,285	940,758	943,830	942,318	940,795	943,860
48 - 52	50	44	56	917,749	915,866	919,636	917,798	915,920	919,682	47	41	53	917,749	915,866	919,636	917,796	915,917	919,680
53 - 57	66	58	75	883,638	881,326	885,956	883,705	881,397	886,015	62	54	70	883,638	881,326	885,956	883,700	881,392	886,011
58 - 62	82	72	93	836,133	833,339	838,900	836,215	833,425	838,973	76	66	86	836,133	833,339	838,900	836,209	833,419	838,967
63 - 67	92	80	105	769,998	766,689	773,230	770,090	766,791	773,315	84	72	96	769,998	766,689	773,230	770,082	766,782	773,308
68 - 72	91	78	105	678,494	674,893	682,007	678,585	674,994	682,087	80	68	93	678,494	674,893	682,007	678,574	674,982	682,077
73 - 77	70	58	83	554,326	550,744	557,788	554,397	550,822	557,849	58	47	71	554,326	550,744	557,788	554,385	550,809	557,837
78 - 82	29	18	40	393,784	390,324	397,173	393,812	390,356	397,194	18	7	29	393,784	390,324	397,173	393,801	390,346	397,184
83 - 87	-22	-34	-10	208,183	203,696	212,699	208,162	203,674	212,675	-28	-41	-16	208,183	203,696	212,699	208,155	203,668	212,668
88 - 92	-43	-58	-29	44,385	39,290	49,590	44,342	39,249	49,546	-44	-59	-30	44,385	39,290	49,590	44,341	39,248	49,545
93 - 97	-0	-0	0	5	-11	25	5	-10	25	-0	-0	0	5	-11	25	5	-10	25
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.6: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on the transition of 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	43	36	49	988,756	988,189	989,305	988,799	988,231	989,347	41	35	48	988,756	988,189	989,305	988,797	988,230	989,346
28 - 32	195	169	221	982,030	981,252	982,794	982,224	981,457	982,978	189	164	215	982,030	981,252	982,794	982,219	981,451	982,973
33 - 37	534	466	602	972,766	971,766	973,763	973,299	972,327	974,268	517	452	583	972,766	971,766	973,763	973,283	972,310	974,252
38 - 42	1,140	1,001	1,281	959,978	958,732	961,234	961,118	959,941	962,288	1,104	969	1,240	959,978	958,732	961,234	961,082	959,902	962,254
43 - 47	2,105	1,852	2,360	942,285	940,758	943,830	944,390	943,013	945,789	2,036	1,791	2,283	942,285	940,758	943,830	944,321	942,944	945,724
48 - 52	3,510	3,090	3,930	917,749	915,866	919,636	921,259	919,666	922,884	3,389	2,982	3,796	917,749	915,866	919,636	921,137	919,537	922,770
53 - 57	5,388	4,744	6,031	883,638	881,326	885,956	889,026	887,198	890,876	5,190	4,568	5,811	883,638	881,326	885,956	888,828	886,984	890,702
58 - 62	7,674	6,761	8,595	836,133	833,339	838,900	843,806	841,744	845,909	7,369	6,491	8,256	836,133	833,339	838,900	843,501	841,415	845,622
63 - 67	10,154	8,947	11,376	769,998	766,689	773,230	780,152	777,782	782,465	9,710	8,557	10,883	769,998	766,689	773,230	779,708	777,302	782,036
68 - 72	12,381	10,909	13,863	678,494	674,893	682,007	690,875	688,427	693,318	11,774	10,372	13,192	678,494	674,893	682,007	690,268	687,771	692,753
73 - 77	13,615	11,992	15,270	554,326	550,744	557,788	567,941	565,484	570,382	12,851	11,320	14,417	554,326	550,744	557,788	567,177	564,680	569,644
78 - 82	12,897	11,347	14,500	393,784	390,324	397,173	406,680	403,659	409,722	12,051	10,595	13,560	393,784	390,324	397,173	405,835	402,820	408,855
83 - 87	9,436	8,187	10,722	208,183	203,696	212,699	217,619	212,851	222,423	8,699	7,547	9,884	208,183	203,696	212,699	216,882	212,152	221,651
88 - 92	3,691	2,829	4,615	44,385	39,290	49,590	48,076	42,502	53,805	3,343	2,579	4,160	44,385	39,290	49,590	47,728	42,224	53,379
93 - 97	-3	-13	6	5	-11	25	2	-5	11	-3	-13	6	5	-11	25	2	-5	11
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.7: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on the transition of 'additional initiation'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	-1	-1	-1	988,756	988,189	989,305	988,755	988,188	989,305	-1	-1	-1	988,756	988,189	989,305	988,755	988,188	989,304
28 - 32	-2	-2	-2	982,030	981,252	982,794	982,028	981,250	982,792	-3	-3	-3	982,030	981,252	982,794	982,027	981,249	982,791
33 - 37	-5	-5	-4	972,766	971,766	973,763	972,761	971,762	973,758	-7	-8	-6	972,766	971,766	973,763	972,759	971,759	973,756
38 - 42	-9	-10	-8	959,978	958,732	961,234	959,969	958,723	961,224	-14	-16	-13	959,978	958,732	961,234	959,964	958,718	961,219
43 - 47	-17	-19	-15	942,285	940,758	943,830	942,268	940,742	943,813	-26	-28	-23	942,285	940,758	943,830	942,260	940,733	943,804
48 - 52	-30	-33	-26	917,749	915,866	919,636	917,719	915,839	919,605	-44	-48	-40	917,749	915,866	919,636	917,704	915,824	919,590
53 - 57	-49	-54	-43	883,638	881,326	885,956	883,590	881,280	885,903	-72	-78	-66	883,638	881,326	885,956	883,567	881,258	885,879
58 - 62	-75	-82	-67	836,133	833,339	838,900	836,058	833,267	838,818	-109	-117	-101	836,133	833,339	838,900	836,024	833,233	838,783
63 - 67	-109	-118	-99	769,998	766,689	773,230	769,889	766,585	773,116	-156	-166	-145	769,998	766,689	773,230	769,842	766,539	773,067
68 - 72	-145	-155	-134	678,494	674,893	682,007	678,349	674,755	681,854	-205	-217	-193	678,494	674,893	682,007	678,289	674,696	681,792
73 - 77	-173	-183	-162	554,326	550,744	557,788	554,153	550,581	557,605	-241	-253	-228	554,326	550,744	557,788	554,086	550,515	557,536
78 - 82	-171	-181	-162	393,784	390,324	397,173	393,612	390,155	396,996	-234	-246	-222	393,784	390,324	397,173	393,550	390,092	396,931
83 - 87	-118	-126	-109	208,183	203,696	212,699	208,065	203,583	212,576	-157	-168	-146	208,183	203,696	212,699	208,026	203,546	212,536
88 - 92	-24	-32	-17	44,385	39,290	49,590	44,361	39,271	49,564	-29	-39	-20	44,385	39,290	49,590	44,356	39,267	49,559
93 - 97	0	0	0	5	-11	25	5	-11	25	0	0	0	5	-11	25	5	-11	25
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.8: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on the transition of 'diversion from quitting'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	-0	-1	-0	988,756	988,189	989,305	988,756	988,189	989,305	-1	-1	-0	988,756	988,189	989,305	988,755	988,189	989,305
28 - 32	-2	-2	-1	982,030	981,252	982,794	982,028	981,251	982,792	-3	-3	-2	982,030	981,252	982,794	982,027	981,250	982,792
33 - 37	-5	-6	-4	972,766	971,766	973,763	972,760	971,760	973,758	-7	-8	-6	972,766	971,766	973,763	972,759	971,758	973,756
38 - 42	-12	-14	-10	959,978	958,732	961,234	959,966	958,719	961,222	-16	-19	-13	959,978	958,732	961,234	959,962	958,715	961,218
43 - 47	-23	-27	-20	942,285	940,758	943,830	942,262	940,735	943,807	-32	-37	-27	942,285	940,758	943,830	942,254	940,726	943,798
48 - 52	-42	-49	-36	917,749	915,866	919,636	917,706	915,821	919,596	-58	-67	-49	917,749	915,866	919,636	917,691	915,807	919,582
53 - 57	-72	-82	-62	883,638	881,326	885,956	883,566	881,253	885,887	-98	-112	-84	883,638	881,326	885,956	883,541	881,225	885,863
58 - 62	-114	-130	-99	836,133	833,339	838,900	836,019	833,220	838,789	-155	-177	-134	836,133	833,339	838,900	835,978	833,177	838,750
63 - 67	-169	-192	-147	769,998	766,689	773,230	769,829	766,520	773,071	-230	-261	-200	769,998	766,689	773,230	769,768	766,453	773,017
68 - 72	-235	-266	-204	678,494	674,893	682,007	678,260	674,640	681,786	-318	-362	-277	678,494	674,893	682,007	678,176	674,552	681,702
73 - 77	-299	-339	-260	554,326	550,744	557,788	554,027	550,445	557,493	-404	-459	-352	554,326	550,744	557,788	553,922	550,346	557,392
78 - 82	-335	-382	-290	393,784	390,324	397,173	393,449	389,999	396,836	-451	-515	-391	393,784	390,324	397,173	393,332	389,876	396,722
83 - 87	-295	-344	-251	208,183	203,696	212,699	207,888	203,417	212,389	-396	-461	-336	208,183	203,696	212,699	207,787	203,317	212,278
88 - 92	-142	-188	-100	44,385	39,290	49,590	44,243	39,160	49,419	-189	-250	-133	44,385	39,290	49,590	44,196	39,118	49,364
93 - 97	0	0	0	5	-11	25	5	-11	25	0	0	0	5	-11	25	5	-11	25
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.9: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'additional initiation' and 'gateway effect'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009	-0	-0	-0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	-2	-2	-2	988,756	988,189	989,305	988,754	988,187	989,303	-2	-3	-2	988,756	988,189	989,305	988,754	988,187	989,303
28 - 32	-8	-9	-8	982,030	981,252	982,794	982,022	981,244	982,786	-9	-10	-9	982,030	981,252	982,794	982,021	981,243	982,785
33 - 37	-22	-23	-21	972,766	971,766	973,763	972,744	971,744	973,741	-24	-25	-22	972,766	971,766	973,763	972,742	971,742	973,739
38 - 42	-45	-48	-43	959,978	958,732	961,234	959,932	958,687	961,188	-49	-51	-46	959,978	958,732	961,234	959,929	958,684	961,184
43 - 47	-81	-85	-77	942,285	940,758	943,830	942,204	940,678	943,747	-87	-91	-83	942,285	940,758	943,830	942,198	940,673	943,741
48 - 52	-131	-137	-125	917,749	915,866	919,636	917,618	915,740	919,502	-140	-147	-134	917,749	915,866	919,636	917,609	915,731	919,493
53 - 57	-194	-204	-185	883,638	881,326	885,956	883,444	881,138	885,753	-208	-218	-199	883,638	881,326	885,956	883,430	881,125	885,739
58 - 62	-267	-280	-255	836,133	833,339	838,900	835,866	833,077	838,620	-287	-301	-274	836,133	833,339	838,900	835,846	833,057	838,600
63 - 67	-337	-353	-321	769,998	766,689	773,230	769,661	766,361	772,882	-364	-381	-347	769,998	766,689	773,230	769,634	766,335	772,854
68 - 72	-382	-400	-364	678,494	674,893	682,007	678,113	674,522	681,608	-415	-435	-397	678,494	674,893	682,007	678,079	674,489	681,573
73 - 77	-367	-386	-349	554,326	550,744	557,788	553,959	550,392	557,404	-405	-424	-386	554,326	550,744	557,788	553,922	550,355	557,367
78 - 82	-261	-280	-243	393,784	390,324	397,173	393,522	390,070	396,902	-296	-315	-276	393,784	390,324	397,173	393,488	390,037	396,867
83 - 87	-71	-97	-44	208,183	203,696	212,699	208,112	203,631	212,624	-92	-119	-65	208,183	203,696	212,699	208,091	203,611	212,603
88 - 92	89	56	122	44,385	39,290	49,590	44,474	39,353	49,676	86	53	119	44,385	39,290	49,590	44,471	39,351	49,672
93 - 97	0	0	0	5	-11	25	5	-11	25	0	0	0	5	-11	25	5	-11	25
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.10: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'alternative initiation' and 'delayed smoking'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	1	1	1	993,650	993,281	994,009	993,651	993,282	994,010	1	1	1	993,650	993,281	994,009	993,651	993,282	994,010
23 - 27	2	2	3	988,756	988,189	989,305	988,758	988,191	989,307	2	2	2	988,756	988,189	989,305	988,758	988,191	989,307
28 - 32	5	4	6	982,030	981,252	982,794	982,035	981,257	982,799	5	4	5	982,030	981,252	982,794	982,035	981,257	982,798
33 - 37	9	8	10	972,766	971,766	973,763	972,775	971,776	973,771	9	8	10	972,766	971,766	973,763	972,774	971,776	973,771
38 - 42	15	13	17	959,978	958,732	961,234	959,993	958,748	961,247	14	12	16	959,978	958,732	961,234	959,992	958,747	961,246
43 - 47	22	19	25	942,285	940,758	943,830	942,308	940,783	943,850	21	18	24	942,285	940,758	943,830	942,307	940,782	943,849
48 - 52	31	27	35	917,749	915,866	919,636	917,780	915,900	919,665	29	25	33	917,749	915,866	919,636	917,778	915,898	919,663
53 - 57	40	34	46	883,638	881,326	885,956	883,678	881,368	885,992	38	32	43	883,638	881,326	885,956	883,676	881,365	885,990
58 - 62	48	41	56	836,133	833,339	838,900	836,181	833,391	838,941	45	38	52	836,133	833,339	838,900	836,177	833,387	838,937
63 - 67	53	45	62	769,998	766,689	773,230	770,051	766,749	773,278	48	40	57	769,998	766,689	773,230	770,046	766,744	773,273
68 - 72	51	41	61	678,494	674,893	682,007	678,545	674,950	682,051	45	36	55	678,494	674,893	682,007	678,539	674,944	682,046
73 - 77	39	29	49	554,326	550,744	557,788	554,365	550,787	557,819	32	23	42	554,326	550,744	557,788	554,359	550,779	557,812
78 - 82	15	6	25	393,784	390,324	397,173	393,799	390,342	397,181	9	-0	19	393,784	390,324	397,173	393,793	390,336	397,176
83 - 87	-12	-21	-4	208,183	203,696	212,699	208,171	203,683	212,686	-16	-25	-7	208,183	203,696	212,699	208,167	203,680	212,682
88 - 92	-23	-32	-15	44,385	39,290	49,590	44,362	39,270	49,566	-24	-32	-16	44,385	39,290	49,590	44,361	39,269	49,565
93 - 97	-0	-0	0	5	-11	25	5	-10	25	-0	-0	0	5	-11	25	5	-10	25
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.11: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' and 'resumed smoking'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	21	18	25	988,756	988,189	989,305	988,777	988,210	989,327	21	18	24	988,756	988,189	989,305	988,777	988,210	989,326
28 - 32	100	86	113	982,030	981,252	982,794	982,129	981,357	982,889	97	84	110	982,030	981,252	982,794	982,126	981,353	982,885
33 - 37	276	241	312	972,766	971,766	973,763	973,042	972,061	974,022	268	234	302	972,766	971,766	973,763	973,033	972,051	974,014
38 - 42	596	523	670	959,978	958,732	961,234	960,574	959,374	961,783	578	507	649	959,978	958,732	961,234	960,555	959,355	961,765
43 - 47	1,111	976	1,246	942,285	940,758	943,830	943,396	941,944	944,851	1,074	944	1,205	942,285	940,758	943,830	943,360	941,906	944,818
48 - 52	1,867	1,643	2,092	917,749	915,866	919,636	919,616	917,899	921,344	1,803	1,586	2,020	917,749	915,866	919,636	919,552	917,829	921,283
53 - 57	2,887	2,540	3,232	883,638	881,326	885,956	886,525	884,485	888,588	2,781	2,446	3,115	883,638	881,326	885,956	886,419	884,369	888,488
58 - 62	4,135	3,642	4,633	836,133	833,339	838,900	840,268	837,887	842,676	3,971	3,498	4,449	836,133	833,339	838,900	840,104	837,710	842,525
63 - 67	5,496	4,841	6,158	769,998	766,689	773,230	775,493	772,736	778,196	5,256	4,630	5,892	769,998	766,689	773,230	775,254	772,473	777,972
68 - 72	6,722	5,924	7,530	678,494	674,893	682,007	685,216	682,273	688,093	6,394	5,635	7,167	678,494	674,893	682,007	684,888	681,920	687,800
73 - 77	7,403	6,521	8,306	554,326	550,744	557,788	561,730	558,836	564,559	6,991	6,155	7,846	554,326	550,744	557,788	561,317	558,401	564,175
78 - 82	7,014	6,169	7,888	393,784	390,324	397,173	400,797	397,649	403,927	6,557	5,765	7,378	393,784	390,324	397,173	400,341	397,192	403,472
83 - 87	5,124	4,443	5,825	208,183	203,696	212,699	213,307	208,741	217,936	4,727	4,101	5,372	208,183	203,696	212,699	212,910	208,361	217,542
88 - 92	2,000	1,534	2,497	44,385	39,290	49,590	46,384	41,031	51,848	1,813	1,399	2,255	44,385	39,290	49,590	46,197	40,876	51,641
93 - 97	-2	-8	3	5	-11	25	3	-7	17	-2	-8	3	5	-11	25	3	-7	17
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.12: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

0% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-10	-11	-9	993,650	993,281	994,009	993,640	993,271	994,000	-14	-14	-13	993,650	993,281	994,009	993,637	993,267	993,996
23 - 27	-30	-33	-27	988,756	988,189	989,305	988,726	988,158	989,277	-45	-49	-41	988,756	988,189	989,305	988,711	988,142	989,262
28 - 32	-65	-76	-54	982,030	981,252	982,794	981,965	981,186	982,730	-106	-118	-94	982,030	981,252	982,794	981,924	981,145	982,689
33 - 37	-130	-156	-103	972,766	971,766	973,763	972,636	971,638	973,637	-216	-244	-188	972,766	971,766	973,763	972,549	971,549	973,552
38 - 42	-245	-296	-192	959,978	958,732	961,234	959,733	958,497	960,981	-408	-462	-354	959,978	958,732	961,234	959,569	958,335	960,820
43 - 47	-440	-527	-349	942,285	940,758	943,830	941,845	940,341	943,369	-724	-816	-629	942,285	940,758	943,830	941,561	940,058	943,082
48 - 52	-755	-891	-611	917,749	915,866	919,636	916,994	915,189	918,821	-1,217	-1,360	-1,067	917,749	915,866	919,636	916,532	914,731	918,354
53 - 57	-1,235	-1,432	-1,026	883,638	881,326	885,956	882,403	880,197	884,606	-1,944	-2,152	-1,727	883,638	881,326	885,956	881,694	879,499	883,888
58 - 62	-1,919	-2,182	-1,639	836,133	833,339	838,900	834,214	831,568	836,825	-2,947	-3,227	-2,654	836,133	833,339	838,900	833,186	830,564	835,781
63 - 67	-2,806	-3,131	-2,457	769,998	766,689	773,230	767,192	764,113	770,196	-4,206	-4,556	-3,841	769,998	766,689	773,230	765,792	762,745	768,780
68 - 72	-3,800	-4,162	-3,414	678,494	674,893	682,007	674,695	671,360	677,955	-5,557	-5,948	-5,150	678,494	674,893	682,007	672,937	669,634	676,166
73 - 77	-4,609	-4,957	-4,239	554,326	550,744	557,788	549,717	546,403	552,939	-6,572	-6,958	-6,166	554,326	550,744	557,788	547,755	544,463	550,935
78 - 82	-4,678	-4,962	-4,375	393,784	390,324	397,173	389,105	385,822	392,333	-6,481	-6,817	-6,131	393,784	390,324	397,173	387,303	384,055	390,490
83 - 87	-3,362	-3,614	-3,107	208,183	203,696	212,699	204,821	200,468	209,178	-4,475	-4,788	-4,159	208,183	203,696	212,699	203,708	199,401	208,012
88 - 92	-864	-1,131	-618	44,385	39,290	49,590	43,520	38,603	48,568	-1,003	-1,309	-710	44,385	39,290	49,590	43,382	38,494	48,379
93 - 97	0	0	0	5	-11	25	5	-11	25	0	0	0	5	-11	25	5	-11	25
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.12, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

0.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-10	-11	-9	993,650	993,281	994,009	993,640	993,271	994,000	-14	-14	-13	993,650	993,281	994,009	993,637	993,267	993,996
23 - 27	-29	-32	-25	988,756	988,189	989,305	988,727	988,159	989,278	-44	-48	-40	988,756	988,189	989,305	988,712	988,143	989,263
28 - 32	-58	-70	-47	982,030	981,252	982,794	981,972	981,194	982,736	-99	-111	-87	982,030	981,252	982,794	981,931	981,152	982,696
33 - 37	-109	-136	-81	972,766	971,766	973,763	972,657	971,659	973,655	-196	-225	-167	972,766	971,766	973,763	972,570	971,570	973,570
38 - 42	-195	-249	-140	959,978	958,732	961,234	959,783	958,551	961,027	-360	-416	-303	959,978	958,732	961,234	959,617	958,385	960,865
43 - 47	-340	-434	-243	942,285	940,758	943,830	941,945	940,449	943,459	-627	-725	-527	942,285	940,758	943,830	941,658	940,161	943,171
48 - 52	-576	-725	-421	917,749	915,866	919,636	917,173	915,379	918,987	-1,044	-1,199	-883	917,749	915,866	919,636	916,705	914,914	918,517
53 - 57	-943	-1,161	-714	883,638	881,326	885,956	882,696	880,519	884,876	-1,662	-1,892	-1,424	883,638	881,326	885,956	881,976	879,812	884,148
58 - 62	-1,479	-1,777	-1,165	836,133	833,339	838,900	834,654	832,058	837,222	-2,524	-2,839	-2,197	836,133	833,339	838,900	833,609	831,027	836,162
63 - 67	-2,198	-2,575	-1,798	769,998	766,689	773,230	767,800	764,776	770,747	-3,623	-4,023	-3,209	769,998	766,689	773,230	766,375	763,377	769,307
68 - 72	-3,033	-3,467	-2,579	678,494	674,893	682,007	675,461	672,204	678,650	-4,827	-5,290	-4,353	678,494	674,893	682,007	673,668	670,433	676,826
73 - 77	-3,749	-4,180	-3,297	554,326	550,744	557,788	550,577	547,332	553,731	-5,757	-6,219	-5,271	554,326	550,744	557,788	548,570	545,356	551,686
78 - 82	-3,858	-4,213	-3,485	393,784	390,324	397,173	389,926	386,701	393,110	-5,711	-6,111	-5,296	393,784	390,324	397,173	388,073	384,884	391,218
83 - 87	-2,767	-3,024	-2,505	208,183	203,696	212,699	205,416	201,058	209,778	-3,923	-4,241	-3,602	208,183	203,696	212,699	204,260	199,940	208,586
88 - 92	-636	-863	-428	44,385	39,290	49,590	43,749	38,791	48,818	-794	-1,067	-536	44,385	39,290	49,590	43,591	38,674	48,607
93 - 97	-0	-2	1	5	-11	25	5	-10	23	-0	-2	1	5	-11	25	5	-10	23
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.12, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

1% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-10	-11	-9	993,650	993,281	994,009	993,640	993,271	994,000	-14	-14	-13	993,650	993,281	994,009	993,637	993,267	993,996
23 - 27	-27	-31	-24	988,756	988,189	989,305	988,729	988,160	989,279	-43	-47	-39	988,756	988,189	989,305	988,713	988,144	989,264
28 - 32	-51	-63	-40	982,030	981,252	982,794	981,978	981,201	982,743	-92	-105	-80	982,030	981,252	982,794	981,937	981,159	982,703
33 - 37	-88	-116	-59	972,766	971,766	973,763	972,678	971,682	973,675	-176	-206	-146	972,766	971,766	973,763	972,590	971,591	973,588
38 - 42	-146	-203	-88	959,978	958,732	961,234	959,832	958,603	961,073	-312	-372	-252	959,978	958,732	961,234	959,665	958,436	960,908
43 - 47	-241	-342	-137	942,285	940,758	943,830	942,044	940,556	943,549	-532	-636	-424	942,285	940,758	943,830	941,754	940,264	943,260
48 - 52	-399	-563	-231	917,749	915,866	919,636	917,350	915,566	919,153	-873	-1,042	-698	917,749	915,866	919,636	916,876	915,098	918,673
53 - 57	-655	-897	-401	883,638	881,326	885,956	882,984	880,836	885,139	-1,384	-1,637	-1,124	883,638	881,326	885,956	882,254	880,116	884,398
58 - 62	-1,047	-1,381	-693	836,133	833,339	838,900	835,086	832,535	837,614	-2,109	-2,459	-1,745	836,133	833,339	838,900	834,024	831,487	836,539
63 - 67	-1,602	-2,032	-1,149	769,998	766,689	773,230	768,396	765,442	771,292	-3,052	-3,505	-2,583	769,998	766,689	773,230	766,945	764,004	769,823
68 - 72	-2,283	-2,788	-1,759	678,494	674,893	682,007	676,211	673,036	679,340	-4,112	-4,644	-3,563	678,494	674,893	682,007	674,382	671,231	677,475
73 - 77	-2,909	-3,426	-2,371	554,326	550,744	557,788	551,418	548,254	554,505	-4,961	-5,511	-4,395	554,326	550,744	557,788	549,366	546,232	552,422
78 - 82	-3,057	-3,493	-2,603	393,784	390,324	397,173	390,727	387,533	393,883	-4,959	-5,435	-4,476	393,784	390,324	397,173	388,825	385,670	391,941
83 - 87	-2,185	-2,476	-1,898	208,183	203,696	212,699	205,998	201,624	210,387	-3,384	-3,727	-3,039	208,183	203,696	212,699	204,799	200,475	209,155
88 - 92	-413	-608	-234	44,385	39,290	49,590	43,972	38,972	49,075	-591	-835	-358	44,385	39,290	49,590	43,794	38,832	48,839
93 - 97	-1	-3	1	5	-11	25	4	-9	22	-1	-3	1	5	-11	25	4	-9	22
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.12, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

1.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-10	-11	-9	993,650	993,281	994,009	993,640	993,271	994,000	-14	-14	-13	993,650	993,281	994,009	993,637	993,267	993,996
23 - 27	-26	-29	-23	988,756	988,189	989,305	988,730	988,162	989,280	-41	-45	-38	988,756	988,189	989,305	988,715	988,146	989,265
28 - 32	-45	-57	-33	982,030	981,252	982,794	981,985	981,209	982,749	-86	-99	-73	982,030	981,252	982,794	981,944	981,166	982,709
33 - 37	-67	-97	-37	972,766	971,766	973,763	972,699	971,704	973,695	-156	-187	-124	972,766	971,766	973,763	972,610	971,613	973,605
38 - 42	-97	-157	-35	959,978	958,732	961,234	959,881	958,654	961,119	-265	-328	-201	959,978	958,732	961,234	959,713	958,485	960,951
43 - 47	-143	-251	-32	942,285	940,758	943,830	942,142	940,664	943,642	-437	-550	-322	942,285	940,758	943,830	941,848	940,367	943,344
48 - 52	-225	-402	-42	917,749	915,866	919,636	917,524	915,755	919,312	-705	-888	-516	917,749	915,866	919,636	917,044	915,280	918,827
53 - 57	-371	-638	-92	883,638	881,326	885,956	883,267	881,150	885,400	-1,111	-1,388	-825	883,638	881,326	885,956	882,527	880,420	884,654
58 - 62	-623	-1,000	-229	836,133	833,339	838,900	835,510	833,004	838,000	-1,701	-2,093	-1,298	836,133	833,339	838,900	834,432	831,943	836,908
63 - 67	-1,018	-1,511	-505	769,998	766,689	773,230	768,980	766,094	771,825	-2,493	-3,003	-1,967	769,998	766,689	773,230	767,505	764,630	770,331
68 - 72	-1,550	-2,136	-944	678,494	674,893	682,007	676,944	673,842	680,000	-3,413	-4,024	-2,789	678,494	674,893	682,007	675,081	672,000	678,109
73 - 77	-2,088	-2,699	-1,454	554,326	550,744	557,788	552,239	549,165	555,259	-4,184	-4,822	-3,531	554,326	550,744	557,788	550,143	547,089	553,130
78 - 82	-2,275	-2,800	-1,734	393,784	390,324	397,173	391,508	388,341	394,621	-4,225	-4,777	-3,662	393,784	390,324	397,173	389,558	386,433	392,642
83 - 87	-1,618	-1,957	-1,285	208,183	203,696	212,699	206,565	202,182	210,972	-2,858	-3,239	-2,487	208,183	203,696	212,699	205,325	200,989	209,690
88 - 92	-195	-369	-33	44,385	39,290	49,590	44,190	39,158	49,334	-392	-617	-181	44,385	39,290	49,590	43,993	39,013	49,063
93 - 97	-1	-5	2	5	-11	25	4	-9	20	-1	-5	2	5	-11	25	4	-9	20
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.12, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

2% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-10	-11	-9	993,650	993,281	994,009	993,640	993,271	994,000	-14	-14	-13	993,650	993,281	994,009	993,637	993,267	993,996
23 - 27	-25	-28	-21	988,756	988,189	989,305	988,731	988,163	989,282	-40	-44	-36	988,756	988,189	989,305	988,716	988,147	989,267
28 - 32	-38	-50	-26	982,030	981,252	982,794	981,992	981,216	982,756	-79	-93	-66	982,030	981,252	982,794	981,951	981,174	982,715
33 - 37	-46	-78	-15	972,766	971,766	973,763	972,719	971,726	973,713	-135	-168	-103	972,766	971,766	973,763	972,630	971,635	973,623
38 - 42	-48	-113	18	959,978	958,732	961,234	959,930	958,708	961,164	-218	-285	-151	959,978	958,732	961,234	959,760	958,537	960,995
43 - 47	-46	-163	73	942,285	940,758	943,830	942,239	940,767	943,729	-343	-464	-221	942,285	940,758	943,830	941,942	940,469	943,431
48 - 52	-53	-246	146	917,749	915,866	919,636	917,696	915,942	919,467	-538	-737	-335	917,749	915,866	919,636	917,211	915,458	918,978
53 - 57	-92	-387	214	883,638	881,326	885,956	883,546	881,451	885,659	-842	-1,146	-531	883,638	881,326	885,956	882,796	880,711	884,901
58 - 62	-206	-624	230	836,133	833,339	838,900	835,927	833,466	838,381	-1,301	-1,733	-857	836,133	833,339	838,900	834,832	832,382	837,272
63 - 67	-445	-996	129	769,998	766,689	773,230	769,552	766,725	772,348	-1,945	-2,514	-1,359	769,998	766,689	773,230	768,053	765,237	770,829
68 - 72	-833	-1,500	-145	678,494	674,893	682,007	677,661	674,625	680,648	-2,730	-3,417	-2,026	678,494	674,893	682,007	675,764	672,741	678,724
73 - 77	-1,286	-1,991	-564	554,326	550,744	557,788	553,040	550,052	555,987	-3,424	-4,148	-2,682	554,326	550,744	557,788	550,902	547,924	553,815
78 - 82	-1,512	-2,124	-884	393,784	390,324	397,173	392,271	389,129	395,355	-3,510	-4,142	-2,869	393,784	390,324	397,173	390,274	387,162	393,316
83 - 87	-1,065	-1,460	-674	208,183	203,696	212,699	207,118	202,730	211,543	-2,345	-2,772	-1,929	208,183	203,696	212,699	205,838	201,509	210,206
88 - 92	18	-150	180	44,385	39,290	49,590	44,403	39,339	49,574	-198	-413	6	44,385	39,290	49,590	44,187	39,169	49,294
93 - 97	-1	-6	2	5	-11	25	4	-8	19	-1	-6	2	5	-11	25	4	-8	19
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.12, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

2.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-10	-11	-9	993,650	993,281	994,009	993,640	993,271	994,000	-14	-14	-13	993,650	993,281	994,009	993,637	993,267	993,996
23 - 27	-23	-27	-20	988,756	988,189	989,305	988,733	988,165	989,283	-39	-43	-35	988,756	988,189	989,305	988,717	988,148	989,268
28 - 32	-31	-44	-18	982,030	981,252	982,794	981,999	981,223	982,763	-73	-86	-59	982,030	981,252	982,794	981,957	981,180	982,721
33 - 37	-26	-59	7	972,766	971,766	973,763	972,740	971,748	973,730	-115	-150	-81	972,766	971,766	973,763	972,650	971,656	973,642
38 - 42	0	-69	69	959,978	958,732	961,234	959,978	958,759	961,208	-171	-242	-100	959,978	958,732	961,234	959,806	958,587	961,038
43 - 47	49	-77	177	942,285	940,758	943,830	942,335	940,869	943,819	-251	-380	-120	942,285	940,758	943,830	942,035	940,569	943,517
48 - 52	117	-93	333	917,749	915,866	919,636	917,866	916,124	919,623	-374	-590	-154	917,749	915,866	919,636	917,375	915,638	919,128
53 - 57	183	-141	518	883,638	881,326	885,956	883,821	881,752	885,911	-577	-907	-239	883,638	881,326	885,956	883,061	880,998	885,144
58 - 62	203	-259	683	836,133	833,339	838,900	836,335	833,912	838,756	-908	-1,380	-422	836,133	833,339	838,900	835,225	832,815	837,630
63 - 67	115	-499	751	769,998	766,689	773,230	770,113	767,350	772,848	-1,408	-2,037	-761	769,998	766,689	773,230	768,590	765,832	771,310
68 - 72	-132	-878	635	678,494	674,893	682,007	678,362	675,389	681,279	-2,061	-2,827	-1,281	678,494	674,893	682,007	676,433	673,471	679,329
73 - 77	-503	-1,297	311	554,326	550,744	557,788	553,823	550,896	556,691	-2,683	-3,493	-1,854	554,326	550,744	557,788	551,643	548,733	554,490
78 - 82	-768	-1,463	-51	393,784	390,324	397,173	393,016	389,910	396,072	-2,811	-3,527	-2,086	393,784	390,324	397,173	390,973	387,885	394,015
83 - 87	-524	-975	-68	208,183	203,696	212,699	207,659	203,276	212,099	-1,844	-2,322	-1,377	208,183	203,696	212,699	206,339	202,011	210,710
88 - 92	226	47	407	44,385	39,290	49,590	44,611	39,525	49,790	-8	-223	198	44,385	39,290	49,590	44,377	39,334	49,504
93 - 97	-2	-7	3	5	-11	25	3	-8	18	-2	-7	3	5	-11	25	3	-8	18
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.12, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

3% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-10	-11	-9	993,650	993,281	994,009	993,640	993,271	994,000	-14	-14	-13	993,650	993,281	994,009	993,637	993,267	993,996
23 - 27	-22	-26	-19	988,756	988,189	989,305	988,734	988,166	989,284	-38	-42	-34	988,756	988,189	989,305	988,718	988,150	989,269
28 - 32	-24	-38	-11	982,030	981,252	982,794	982,005	981,231	982,769	-66	-80	-52	982,030	981,252	982,794	981,964	981,187	982,727
33 - 37	-5	-40	30	972,766	971,766	973,763	972,761	971,769	973,750	-96	-132	-60	972,766	971,766	973,763	972,670	971,675	973,660
38 - 42	48	-25	121	959,978	958,732	961,234	960,026	958,809	961,252	-125	-200	-50	959,978	958,732	961,234	959,853	958,634	961,081
43 - 47	144	9	282	942,285	940,758	943,830	942,430	940,968	943,902	-159	-298	-19	942,285	940,758	943,830	942,127	940,666	943,603
48 - 52	285	58	517	917,749	915,866	919,636	918,034	916,304	919,777	-212	-445	24	917,749	915,866	919,636	917,537	915,809	919,276
53 - 57	453	100	815	883,638	881,326	885,956	884,092	882,048	886,156	-317	-675	50	883,638	881,326	885,956	883,322	881,280	885,381
58 - 62	604	97	1,128	836,133	833,339	838,900	836,737	834,354	839,124	-522	-1,035	4	836,133	833,339	838,900	835,611	833,237	837,988
63 - 67	664	-14	1,362	769,998	766,689	773,230	770,662	767,950	773,336	-883	-1,571	-175	769,998	766,689	773,230	769,115	766,410	771,777
68 - 72	554	-269	1,400	678,494	674,893	682,007	679,048	676,150	681,897	-1,408	-2,246	-548	678,494	674,893	682,007	677,086	674,205	679,921
73 - 77	262	-617	1,167	554,326	550,744	557,788	554,588	551,734	557,394	-1,959	-2,851	-1,048	554,326	550,744	557,788	552,367	549,526	555,162
78 - 82	-41	-820	757	393,784	390,324	397,173	393,743	390,667	396,771	-2,129	-2,923	-1,323	393,784	390,324	397,173	391,655	388,599	394,656
83 - 87	4	-505	521	208,183	203,696	212,699	208,187	203,800	212,635	-1,355	-1,887	-827	208,183	203,696	212,699	206,828	202,500	211,218
88 - 92	429	230	638	44,385	39,290	49,590	44,814	39,695	50,010	177	-45	396	44,385	39,290	49,590	44,562	39,495	49,722
93 - 97	-2	-8	3	5	-11	25	3	-7	16	-2	-8	3	5	-11	25	3	-7	16
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.12, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

3.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-10	-11	-9	993,650	993,281	994,009	993,640	993,271	994,000	-14	-14	-13	993,650	993,281	994,009	993,637	993,267	993,996
23 - 27	-21	-25	-17	988,756	988,189	989,305	988,735	988,167	989,286	-36	-41	-32	988,756	988,189	989,305	988,720	988,151	989,270
28 - 32	-18	-32	-4	982,030	981,252	982,794	982,012	981,238	982,775	-60	-74	-45	982,030	981,252	982,794	981,970	981,194	982,734
33 - 37	15	-21	52	972,766	971,766	973,763	972,781	971,790	973,768	-76	-114	-38	972,766	971,766	973,763	972,690	971,697	973,677
38 - 42	95	18	173	959,978	958,732	961,234	960,073	958,858	961,295	-79	-159	1	959,978	958,732	961,234	959,899	958,683	961,124
43 - 47	238	93	384	942,285	940,758	943,830	942,524	941,067	943,991	-68	-216	80	942,285	940,758	943,830	942,217	940,766	943,685
48 - 52	450	206	699	917,749	915,866	919,636	918,199	916,487	919,931	-52	-303	199	917,749	915,866	919,636	917,696	915,986	919,423
53 - 57	719	340	1,109	883,638	881,326	885,956	884,358	882,340	886,398	-60	-447	335	883,638	881,326	885,956	883,578	881,562	885,611
58 - 62	998	446	1,565	836,133	833,339	838,900	837,131	834,783	839,482	-143	-701	427	836,133	833,339	838,900	835,990	833,649	838,337
63 - 67	1,202	464	1,963	769,998	766,689	773,230	771,200	768,551	773,816	-367	-1,115	398	769,998	766,689	773,230	769,631	766,985	772,235
68 - 72	1,225	327	2,147	678,494	674,893	682,007	679,719	676,894	682,504	-769	-1,679	161	678,494	674,893	682,007	677,725	674,908	680,501
73 - 77	1,009	43	2,001	554,326	550,744	557,788	555,335	552,544	558,085	-1,252	-2,227	-256	554,326	550,744	557,788	553,074	550,289	555,810
78 - 82	669	-193	1,552	393,784	390,324	397,173	394,453	391,407	397,468	-1,464	-2,330	-577	393,784	390,324	397,173	392,320	389,292	395,312
83 - 87	519	-50	1,101	208,183	203,696	212,699	208,702	204,311	213,171	-878	-1,456	-298	208,183	203,696	212,699	207,305	202,965	211,723
88 - 92	628	401	873	44,385	39,290	49,590	45,013	39,861	50,229	358	120	597	44,385	39,290	49,590	44,743	39,647	49,908
93 - 97	-2	-9	4	5	-11	25	3	-7	15	-2	-9	4	5	-11	25	3	-7	15
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.12, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

4% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-10	-11	-9	993,650	993,281	994,009	993,640	993,271	994,000	-14	-14	-13	993,650	993,281	994,009	993,637	993,267	993,996
23 - 27	-20	-23	-16	988,756	988,189	989,305	988,736	988,168	989,287	-35	-39	-31	988,756	988,189	989,305	988,721	988,152	989,272
28 - 32	-11	-25	3	982,030	981,252	982,794	982,019	981,245	982,782	-53	-68	-38	982,030	981,252	982,794	981,977	981,201	982,740
33 - 37	36	-3	74	972,766	971,766	973,763	972,801	971,812	973,787	-56	-96	-17	972,766	971,766	973,763	972,709	971,718	973,695
38 - 42	142	60	225	959,978	958,732	961,234	960,120	958,908	961,340	-34	-118	51	959,978	958,732	961,234	959,944	958,731	961,167
43 - 47	331	176	487	942,285	940,758	943,830	942,616	941,169	944,080	22	-136	180	942,285	940,758	943,830	942,307	940,862	943,770
48 - 52	614	352	879	917,749	915,866	919,636	918,363	916,670	920,083	105	-162	374	917,749	915,866	919,636	917,854	916,163	919,567
53 - 57	981	573	1,400	883,638	881,326	885,956	884,620	882,627	886,644	192	-224	615	883,638	881,326	885,956	883,831	881,841	885,840
58 - 62	1,386	793	1,995	836,133	833,339	838,900	837,518	835,205	839,832	229	-372	839	836,133	833,339	838,900	836,362	834,054	838,678
63 - 67	1,730	934	2,549	769,998	766,689	773,230	771,728	769,118	774,288	138	-667	961	769,998	766,689	773,230	770,136	767,536	772,691
68 - 72	1,881	906	2,881	678,494	674,893	682,007	680,375	677,617	683,109	-144	-1,124	858	678,494	674,893	682,007	678,351	675,593	681,068
73 - 77	1,739	685	2,818	554,326	550,744	557,788	556,065	553,341	558,766	-561	-1,615	515	554,326	550,744	557,788	553,765	551,045	556,444
78 - 82	1,362	420	2,331	393,784	390,324	397,173	395,146	392,134	398,141	-814	-1,756	153	393,784	390,324	397,173	392,970	389,969	395,950
83 - 87	1,022	396	1,672	208,183	203,696	212,699	209,205	204,789	213,689	-412	-1,040	224	208,183	203,696	212,699	207,771	203,412	212,198
88 - 92	822	561	1,107	44,385	39,290	49,590	45,207	40,034	50,462	535	275	798	44,385	39,290	49,590	44,920	39,810	50,108
93 - 97	-2	-11	4	5	-11	25	3	-6	14	-2	-11	4	5	-11	25	3	-6	14
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.12, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

4.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-10	-11	-9	993,650	993,281	994,009	993,640	993,271	994,000	-14	-14	-13	993,650	993,281	994,009	993,637	993,267	993,996
23 - 27	-18	-22	-14	988,756	988,189	989,305	988,738	988,170	989,288	-34	-38	-30	988,756	988,189	989,305	988,722	988,153	989,273
28 - 32	-4	-19	11	982,030	981,252	982,794	982,026	981,252	982,788	-46	-62	-31	982,030	981,252	982,794	981,983	981,208	982,746
33 - 37	56	15	96	972,766	971,766	973,763	972,821	971,833	973,805	-37	-78	5	972,766	971,766	973,763	972,729	971,738	973,714
38 - 42	189	102	276	959,978	958,732	961,234	960,167	958,959	961,382	12	-77	100	959,978	958,732	961,234	959,989	958,780	961,209
43 - 47	423	259	588	942,285	940,758	943,830	942,708	941,268	944,166	110	-56	278	942,285	940,758	943,830	942,396	940,956	943,852
48 - 52	775	495	1,058	917,749	915,866	919,636	918,524	916,847	920,229	261	-23	547	917,749	915,866	919,636	918,010	916,333	919,712
53 - 57	1,239	800	1,685	883,638	881,326	885,956	884,877	882,906	886,876	441	-3	888	883,638	881,326	885,956	884,079	882,109	886,067
58 - 62	1,766	1,129	2,420	836,133	833,339	838,900	837,898	835,622	840,179	594	-48	1,246	836,133	833,339	838,900	836,727	834,452	839,007
63 - 67	2,246	1,392	3,124	769,998	766,689	773,230	772,244	769,677	774,750	632	-226	1,513	769,998	766,689	773,230	770,630	768,067	773,135
68 - 72	2,523	1,474	3,598	678,494	674,893	682,007	681,017	678,313	683,681	468	-581	1,543	678,494	674,893	682,007	678,962	676,266	681,621
73 - 77	2,452	1,315	3,618	554,326	550,744	557,788	556,779	554,122	559,421	113	-1,021	1,270	554,326	550,744	557,788	554,440	551,777	557,071
78 - 82	2,039	1,014	3,086	393,784	390,324	397,173	395,822	392,832	398,807	-180	-1,196	863	393,784	390,324	397,173	393,604	390,634	396,576
83 - 87	1,513	827	2,229	208,183	203,696	212,699	209,697	205,267	214,195	43	-634	738	208,183	203,696	212,699	208,226	203,864	212,668
88 - 92	1,011	717	1,334	44,385	39,290	49,590	45,396	40,200	50,677	707	425	1,001	44,385	39,290	49,590	45,092	39,966	50,297
93 - 97	-2	-11	5	5	-11	25	3	-6	13	-2	-11	5	5	-11	25	3	-6	13
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.12, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-10	-11	-9	993,650	993,281	994,009	993,640	993,271	994,000	-14	-14	-13	993,650	993,281	994,009	993,637	993,267	993,996
23 - 27	-17	-21	-13	988,756	988,189	989,305	988,739	988,171	989,289	-33	-37	-28	988,756	988,189	989,305	988,723	988,155	989,274
28 - 32	3	-13	18	982,030	981,252	982,794	982,032	981,258	982,794	-40	-57	-24	982,030	981,252	982,794	981,990	981,214	982,752
33 - 37	76	33	118	972,766	971,766	973,763	972,842	971,855	973,824	-17	-61	26	972,766	971,766	973,763	972,748	971,760	973,732
38 - 42	235	143	328	959,978	958,732	961,234	960,213	959,010	961,424	56	-37	150	959,978	958,732	961,234	960,034	958,829	961,248
43 - 47	514	340	688	942,285	940,758	943,830	942,799	941,362	944,253	198	23	375	942,285	940,758	943,830	942,484	941,050	943,938
48 - 52	934	636	1,234	917,749	915,866	919,636	918,683	917,015	920,381	414	114	717	917,749	915,866	919,636	918,163	916,497	919,856
53 - 57	1,493	1,027	1,967	883,638	881,326	885,956	885,131	883,182	887,106	685	217	1,159	883,638	881,326	885,956	884,323	882,374	886,296
58 - 62	2,139	1,459	2,831	836,133	833,339	838,900	838,272	836,030	840,524	953	270	1,646	836,133	833,339	838,900	837,085	834,838	839,331
63 - 67	2,753	1,840	3,688	769,998	766,689	773,230	772,751	770,231	775,219	1,117	202	2,052	769,998	766,689	773,230	771,115	768,605	773,577
68 - 72	3,151	2,029	4,300	678,494	674,893	682,007	681,645	679,002	684,264	1,066	-52	2,213	678,494	674,893	682,007	679,560	676,914	682,170
73 - 77	3,149	1,930	4,399	554,326	550,744	557,788	557,475	554,866	560,061	772	-441	2,011	554,326	550,744	557,788	555,099	552,484	557,680
78 - 82	2,699	1,595	3,829	393,784	390,324	397,173	396,483	393,520	399,455	439	-651	1,557	393,784	390,324	397,173	394,223	391,271	397,182
83 - 87	1,993	1,248	2,771	208,183	203,696	212,699	210,176	205,752	214,679	487	-244	1,240	208,183	203,696	212,699	208,670	204,279	213,123
88 - 92	1,197	867	1,559	44,385	39,290	49,590	45,582	40,371	50,892	876	567	1,204	44,385	39,290	49,590	45,261	40,117	50,496
93 - 97	-3	-12	5	5	-11	25	2	-6	12	-3	-12	5	5	-11	25	2	-6	12
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.12, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'additional initiation'

5.5% 'switching'

	ERR=0.08						ERR=0.11								
	Difference in survivors		Number of survivors, base case		Number of survivors, counterfactual		Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI	Mean	95% PI	Mean	95% PI	Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	N/A						0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22							-14	-14	-13	993,650	993,281	994,009	993,637	993,267	993,996
23 - 27							-31	-36	-27	988,756	988,189	989,305	988,725	988,156	989,276
28 - 32							-33	-51	-17	982,030	981,252	982,794	981,996	981,221	982,758
33 - 37							2	-43	47	972,766	971,766	973,763	972,768	971,780	973,750
38 - 42							101	3	199	959,978	958,732	961,234	960,079	958,877	961,289
43 - 47							285	100	471	942,285	940,758	943,830	942,571	941,142	944,021
48 - 52							566	249	884	917,749	915,866	919,636	918,315	916,656	919,995
53 - 57							926	428	1,427	883,638	881,326	885,956	884,564	882,644	886,516
58 - 62							1,305	583	2,039	836,133	833,339	838,900	837,438	835,225	839,656
63 - 67							1,592	622	2,579	769,998	766,689	773,230	771,590	769,127	774,009
68 - 72							1,651	466	2,864	678,494	674,893	682,007	680,145	677,550	682,709
73 - 77							1,416	129	2,733	554,326	550,744	557,788	555,743	553,190	558,279
78 - 82							1,044	-117	2,233	393,784	390,324	397,173	394,828	391,908	397,754
83 - 87							920	137	1,730	208,183	203,696	212,699	209,103	204,706	213,581
88 - 92							1,041	704	1,401	44,385	39,290	49,590	45,426	40,258	50,690
93 - 97							-3	-13	5	5	-11	25	2	-5	11
98 - 102							0	0	0	0	0	0	0	0	0

Table E3.13: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

0% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-2	-2	-2	993,650	993,281	994,009	993,648	993,279	994,007	-3	-3	-3	993,650	993,281	994,009	993,647	993,278	994,006
23 - 27	-21	-22	-20	988,756	988,189	989,305	988,735	988,167	989,285	-24	-26	-23	988,756	988,189	989,305	988,732	988,163	989,282
28 - 32	-81	-86	-77	982,030	981,252	982,794	981,948	981,169	982,716	-90	-95	-85	982,030	981,252	982,794	981,940	981,161	982,707
33 - 37	-215	-227	-204	972,766	971,766	973,763	972,550	971,550	973,549	-233	-245	-221	972,766	971,766	973,763	972,532	971,531	973,532
38 - 42	-445	-468	-423	959,978	958,732	961,234	959,532	958,292	960,784	-479	-503	-455	959,978	958,732	961,234	959,499	958,258	960,751
43 - 47	-795	-835	-756	942,285	940,758	943,830	941,490	939,973	943,024	-852	-893	-811	942,285	940,758	943,830	941,434	939,917	942,966
48 - 52	-1,281	-1,344	-1,219	917,749	915,866	919,636	916,468	914,624	918,320	-1,371	-1,437	-1,307	917,749	915,866	919,636	916,377	914,535	918,229
53 - 57	-1,900	-1,991	-1,809	883,638	881,326	885,956	881,739	879,484	883,994	-2,036	-2,132	-1,942	883,638	881,326	885,956	881,602	879,351	883,858
58 - 62	-2,607	-2,733	-2,485	836,133	833,339	838,900	833,526	830,812	836,212	-2,803	-2,934	-2,675	836,133	833,339	838,900	833,330	830,620	836,011
63 - 67	-3,287	-3,446	-3,134	769,998	766,689	773,230	766,711	763,510	769,837	-3,551	-3,717	-3,390	769,998	766,689	773,230	766,447	763,257	769,568
68 - 72	-3,720	-3,901	-3,546	678,494	674,893	682,007	674,774	671,301	678,145	-4,049	-4,237	-3,866	678,494	674,893	682,007	674,446	670,982	677,806
73 - 77	-3,579	-3,761	-3,401	554,326	550,744	557,788	550,747	547,294	554,087	-3,944	-4,135	-3,758	554,326	550,744	557,788	550,382	546,935	553,711
78 - 82	-2,545	-2,730	-2,362	393,784	390,324	397,173	391,239	387,866	394,539	-2,880	-3,073	-2,691	393,784	390,324	397,173	390,904	387,535	394,195
83 - 87	-687	-943	-432	208,183	203,696	212,699	207,496	203,058	211,953	-896	-1,155	-636	208,183	203,696	212,699	207,287	202,854	211,739
88 - 92	865	549	1,190	44,385	39,290	49,590	45,250	40,142	50,447	837	517	1,163	44,385	39,290	49,590	45,222	40,119	50,412
93 - 97	0	0	0	5	-11	25	5	-11	25	0	0	0	5	-11	25	5	-11	25
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.13, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

0.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-2	-2	-2	993,650	993,281	994,009	993,648	993,279	994,007	-3	-3	-3	993,650	993,281	994,009	993,647	993,278	994,006
23 - 27	-20	-21	-19	988,756	988,189	989,305	988,736	988,168	989,286	-23	-25	-22	988,756	988,189	989,305	988,733	988,165	989,283
28 - 32	-74	-79	-70	982,030	981,252	982,794	981,955	981,177	982,722	-83	-89	-78	982,030	981,252	982,794	981,946	981,168	982,713
33 - 37	-194	-206	-181	972,766	971,766	973,763	972,572	971,571	973,569	-212	-226	-199	972,766	971,766	973,763	972,553	971,552	973,550
38 - 42	-394	-421	-368	959,978	958,732	961,234	959,583	958,345	960,831	-429	-457	-402	959,978	958,732	961,234	959,548	958,309	960,795
43 - 47	-692	-740	-644	942,285	940,758	943,830	941,593	940,085	943,117	-752	-801	-702	942,285	940,758	943,830	941,533	940,025	943,057
48 - 52	-1,096	-1,175	-1,016	917,749	915,866	919,636	916,653	914,824	918,492	-1,192	-1,274	-1,111	917,749	915,866	919,636	916,556	914,729	918,395
53 - 57	-1,596	-1,717	-1,475	883,638	881,326	885,956	882,042	879,822	884,269	-1,744	-1,868	-1,620	883,638	881,326	885,956	881,895	879,675	884,120
58 - 62	-2,150	-2,321	-1,980	836,133	833,339	838,900	833,983	831,315	836,620	-2,363	-2,539	-2,190	836,133	833,339	838,900	833,769	831,105	836,408
63 - 67	-2,654	-2,875	-2,434	769,998	766,689	773,230	767,344	764,222	770,402	-2,945	-3,170	-2,719	769,998	766,689	773,230	767,053	763,936	770,108
68 - 72	-2,922	-3,182	-2,662	678,494	674,893	682,007	675,572	672,186	678,886	-3,287	-3,552	-3,022	678,494	674,893	682,007	675,207	671,824	678,514
73 - 77	-2,682	-2,957	-2,408	554,326	550,744	557,788	551,644	548,285	554,901	-3,094	-3,374	-2,816	554,326	550,744	557,788	551,232	547,876	554,483
78 - 82	-1,688	-1,953	-1,426	393,784	390,324	397,173	392,095	388,769	395,359	-2,075	-2,343	-1,810	393,784	390,324	397,173	391,708	388,385	394,961
83 - 87	-65	-366	232	208,183	203,696	212,699	208,118	203,674	212,580	-319	-619	-21	208,183	203,696	212,699	207,864	203,436	212,318
88 - 92	1,103	753	1,464	44,385	39,290	49,590	45,488	40,359	50,723	1,055	705	1,413	44,385	39,290	49,590	45,440	40,320	50,665
93 - 97	-0	-2	1	5	-11	25	5	-10	23	-0	-2	1	5	-11	25	5	-10	23
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.13, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

1% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-2	-2	-2	993,650	993,281	994,009	993,648	993,279	994,007	-3	-3	-3	993,650	993,281	994,009	993,647	993,278	994,006
23 - 27	-19	-20	-17	988,756	988,189	989,305	988,737	988,169	989,287	-22	-23	-20	988,756	988,189	989,305	988,734	988,166	989,284
28 - 32	-68	-73	-62	982,030	981,252	982,794	981,962	981,184	982,728	-77	-82	-71	982,030	981,252	982,794	981,953	981,175	982,720
33 - 37	-172	-187	-158	972,766	971,766	973,763	972,593	971,595	973,589	-192	-207	-177	972,766	971,766	973,763	972,574	971,575	973,570
38 - 42	-344	-374	-312	959,978	958,732	961,234	959,634	958,398	960,878	-380	-412	-348	959,978	958,732	961,234	959,598	958,362	960,842
43 - 47	-590	-647	-532	942,285	940,758	943,830	941,695	940,196	943,208	-653	-712	-594	942,285	940,758	943,830	941,632	940,134	943,144
48 - 52	-913	-1,010	-815	917,749	915,866	919,636	916,836	915,022	918,660	-1,016	-1,114	-917	917,749	915,866	919,636	916,733	914,920	918,560
53 - 57	-1,297	-1,449	-1,146	883,638	881,326	885,956	882,341	880,149	884,542	-1,456	-1,609	-1,302	883,638	881,326	885,956	882,183	879,991	884,385
58 - 62	-1,701	-1,920	-1,481	836,133	833,339	838,900	834,431	831,815	837,029	-1,932	-2,153	-1,712	836,133	833,339	838,900	834,201	831,584	836,798
63 - 67	-2,034	-2,323	-1,742	769,998	766,689	773,230	767,964	764,918	770,956	-2,350	-2,641	-2,058	769,998	766,689	773,230	767,647	764,603	770,640
68 - 72	-2,141	-2,487	-1,790	678,494	674,893	682,007	676,353	673,053	679,585	-2,543	-2,890	-2,192	678,494	674,893	682,007	675,952	672,651	679,181
73 - 77	-1,805	-2,178	-1,428	554,326	550,744	557,788	552,521	549,257	555,707	-2,264	-2,634	-1,889	554,326	550,744	557,788	552,063	548,796	555,247
78 - 82	-852	-1,207	-499	393,784	390,324	397,173	392,932	389,638	396,147	-1,290	-1,644	-940	393,784	390,324	397,173	392,493	389,209	395,702
83 - 87	542	185	897	208,183	203,696	212,699	208,725	204,295	213,199	244	-107	594	208,183	203,696	212,699	208,427	204,005	212,892
88 - 92	1,336	945	1,743	44,385	39,290	49,590	45,721	40,572	50,999	1,267	885	1,663	44,385	39,290	49,590	45,652	40,513	50,914
93 - 97	-1	-3	1	5	-11	25	4	-9	22	-1	-3	1	5	-11	25	4	-9	22
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.13, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

1.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-2	-2	-2	993,650	993,281	994,009	993,648	993,279	994,007	-3	-3	-3	993,650	993,281	994,009	993,647	993,278	994,006
23 - 27	-17	-19	-16	988,756	988,189	989,305	988,739	988,170	989,289	-21	-22	-19	988,756	988,189	989,305	988,735	988,167	989,286
28 - 32	-61	-67	-55	982,030	981,252	982,794	981,969	981,191	982,735	-70	-76	-64	982,030	981,252	982,794	981,960	981,182	982,726
33 - 37	-151	-167	-135	972,766	971,766	973,763	972,615	971,619	973,610	-171	-188	-154	972,766	971,766	973,763	972,595	971,598	973,591
38 - 42	-293	-329	-257	959,978	958,732	961,234	959,684	958,452	960,924	-331	-368	-295	959,978	958,732	961,234	959,646	958,413	960,887
43 - 47	-489	-557	-421	942,285	940,758	943,830	941,797	940,306	943,303	-556	-624	-487	942,285	940,758	943,830	941,730	940,239	943,236
48 - 52	-732	-848	-615	917,749	915,866	919,636	917,017	915,217	918,828	-841	-957	-724	917,749	915,866	919,636	916,908	915,107	918,718
53 - 57	-1,003	-1,186	-818	883,638	881,326	885,956	882,635	880,470	884,822	-1,172	-1,355	-987	883,638	881,326	885,956	882,466	880,301	884,652
58 - 62	-1,261	-1,528	-989	836,133	833,339	838,900	834,872	832,304	837,425	-1,508	-1,775	-1,239	836,133	833,339	838,900	834,624	832,055	837,179
63 - 67	-1,427	-1,787	-1,065	769,998	766,689	773,230	768,571	765,588	771,503	-1,768	-2,125	-1,408	769,998	766,689	773,230	768,230	765,245	771,161
68 - 72	-1,377	-1,811	-939	678,494	674,893	682,007	677,117	673,890	680,283	-1,814	-2,246	-1,379	678,494	674,893	682,007	676,680	673,451	679,846
73 - 77	-949	-1,421	-470	554,326	550,744	557,788	553,377	550,180	556,494	-1,453	-1,919	-981	554,326	550,744	557,788	552,873	549,672	555,988
78 - 82	-36	-485	418	393,784	390,324	397,173	393,748	390,504	396,924	-525	-963	-81	393,784	390,324	397,173	393,259	390,007	396,435
83 - 87	1,134	713	1,556	208,183	203,696	212,699	209,317	204,870	213,804	794	384	1,202	208,183	203,696	212,699	208,977	204,541	213,453
88 - 92	1,564	1,127	2,016	44,385	39,290	49,590	45,949	40,767	51,248	1,475	1,057	1,911	44,385	39,290	49,590	45,860	40,697	51,140
93 - 97	-1	-5	2	5	-11	25	4	-9	20	-1	-5	2	5	-11	25	4	-9	20
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.13, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

2% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-2	-2	-2	993,650	993,281	994,009	993,648	993,279	994,007	-3	-3	-3	993,650	993,281	994,009	993,647	993,278	994,006
23 - 27	-16	-18	-14	988,756	988,189	989,305	988,740	988,172	989,290	-19	-21	-18	988,756	988,189	989,305	988,737	988,168	989,287
28 - 32	-54	-60	-47	982,030	981,252	982,794	981,976	981,199	982,742	-63	-70	-56	982,030	981,252	982,794	981,967	981,189	982,733
33 - 37	-130	-148	-111	972,766	971,766	973,763	972,636	971,639	973,631	-150	-169	-132	972,766	971,766	973,763	972,615	971,618	973,611
38 - 42	-243	-284	-202	959,978	958,732	961,234	959,734	958,505	960,972	-283	-324	-242	959,978	958,732	961,234	959,695	958,465	960,933
43 - 47	-389	-468	-311	942,285	940,758	943,830	941,896	940,412	943,395	-459	-538	-380	942,285	940,758	943,830	941,827	940,342	943,324
48 - 52	-554	-691	-417	917,749	915,866	919,636	917,195	915,409	918,992	-669	-806	-532	917,749	915,866	919,636	917,080	915,292	918,877
53 - 57	-714	-931	-497	883,638	881,326	885,956	882,925	880,783	885,088	-893	-1,110	-676	883,638	881,326	885,956	882,745	880,603	884,908
58 - 62	-828	-1,144	-510	836,133	833,339	838,900	835,305	832,779	837,823	-1,092	-1,407	-776	836,133	833,339	838,900	835,040	832,512	837,562
63 - 67	-831	-1,260	-401	769,998	766,689	773,230	769,167	766,243	772,039	-1,198	-1,622	-774	769,998	766,689	773,230	768,800	765,871	771,674
68 - 72	-630	-1,153	-102	678,494	674,893	682,007	677,865	674,713	680,962	-1,102	-1,617	-581	678,494	674,893	682,007	677,392	674,231	680,495
73 - 77	-113	-684	467	554,326	550,744	557,788	554,213	551,109	557,259	-661	-1,221	-93	554,326	550,744	557,788	553,665	550,554	556,721
78 - 82	761	221	1,313	393,784	390,324	397,173	394,544	391,321	397,694	223	-304	760	393,784	390,324	397,173	394,007	390,790	397,156
83 - 87	1,713	1,222	2,202	208,183	203,696	212,699	209,896	205,444	214,415	1,330	859	1,798	208,183	203,696	212,699	209,513	205,062	214,015
88 - 92	1,786	1,301	2,282	44,385	39,290	49,590	46,171	40,967	51,501	1,678	1,216	2,156	44,385	39,290	49,590	46,063	40,878	51,371
93 - 97	-1	-6	2	5	-11	25	4	-8	19	-1	-6	2	5	-11	25	4	-8	19
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.13, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

2.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-2	-2	-2	993,650	993,281	994,009	993,648	993,279	994,007	-3	-3	-3	993,650	993,281	994,009	993,647	993,278	994,006
23 - 27	-15	-16	-13	988,756	988,189	989,305	988,741	988,173	989,291	-18	-20	-16	988,756	988,189	989,305	988,738	988,169	989,288
28 - 32	-47	-54	-40	982,030	981,252	982,794	981,983	981,207	982,749	-56	-64	-49	982,030	981,252	982,794	981,973	981,197	982,740
33 - 37	-109	-129	-88	972,766	971,766	973,763	972,657	971,662	973,650	-130	-151	-109	972,766	971,766	973,763	972,636	971,640	973,629
38 - 42	-194	-240	-147	959,978	958,732	961,234	959,784	958,557	961,017	-235	-281	-189	959,978	958,732	961,234	959,743	958,515	960,977
43 - 47	-290	-380	-201	942,285	940,758	943,830	941,995	940,515	943,485	-363	-453	-274	942,285	940,758	943,830	941,922	940,441	943,413
48 - 52	-378	-535	-223	917,749	915,866	919,636	917,371	915,601	919,156	-499	-655	-344	917,749	915,866	919,636	917,250	915,478	919,036
53 - 57	-429	-678	-181	883,638	881,326	885,956	883,209	881,100	885,344	-619	-865	-373	883,638	881,326	885,956	883,020	880,906	885,156
58 - 62	-403	-768	-35	836,133	833,339	838,900	835,730	833,252	838,214	-684	-1,043	-320	836,133	833,339	838,900	835,449	832,967	837,936
63 - 67	-248	-739	251	769,998	766,689	773,230	769,750	766,877	772,560	-639	-1,125	-148	769,998	766,689	773,230	769,359	766,483	772,175
68 - 72	101	-513	719	678,494	674,893	682,007	678,595	675,519	681,620	-406	-1,005	199	678,494	674,893	682,007	678,088	674,998	681,123
73 - 77	704	35	1,380	554,326	550,744	557,788	555,030	552,012	558,007	112	-540	773	554,326	550,744	557,788	554,439	551,405	557,429
78 - 82	1,538	906	2,190	393,784	390,324	397,173	395,322	392,125	398,450	953	341	1,580	393,784	390,324	397,173	394,736	391,535	397,860
83 - 87	2,277	1,718	2,840	208,183	203,696	212,699	210,460	206,001	214,994	1,853	1,317	2,387	208,183	203,696	212,699	210,036	205,586	214,548
88 - 92	2,003	1,469	2,546	44,385	39,290	49,590	46,388	41,156	51,752	1,876	1,373	2,390	44,385	39,290	49,590	46,261	41,051	51,597
93 - 97	-2	-7	3	5	-11	25	3	-8	18	-2	-7	3	5	-11	25	3	-8	18
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.13, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

3% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-2	-2	-2	993,650	993,281	994,009	993,648	993,279	994,007	-3	-3	-3	993,650	993,281	994,009	993,647	993,278	994,006
23 - 27	-13	-15	-12	988,756	988,189	989,305	988,743	988,174	989,293	-17	-19	-15	988,756	988,189	989,305	988,739	988,171	989,289
28 - 32	-40	-48	-32	982,030	981,252	982,794	981,990	981,214	982,756	-50	-58	-42	982,030	981,252	982,794	981,980	981,204	982,746
33 - 37	-88	-111	-65	972,766	971,766	973,763	972,678	971,684	973,670	-110	-133	-86	972,766	971,766	973,763	972,656	971,662	973,648
38 - 42	-145	-197	-93	959,978	958,732	961,234	959,833	958,607	961,062	-187	-239	-136	959,978	958,732	961,234	959,790	958,563	961,020
43 - 47	-192	-293	-92	942,285	940,758	943,830	942,093	940,620	943,574	-269	-369	-169	942,285	940,758	943,830	942,017	940,543	943,498
48 - 52	-204	-381	-30	917,749	915,866	919,636	917,544	915,794	919,317	-332	-506	-159	917,749	915,866	919,636	917,417	915,664	919,190
53 - 57	-148	-429	130	883,638	881,326	885,956	883,490	881,410	885,608	-348	-625	-72	883,638	881,326	885,956	883,290	881,205	885,409
58 - 62	14	-397	430	836,133	833,339	838,900	836,147	833,717	838,596	-283	-689	127	836,133	833,339	838,900	835,850	833,410	838,303
63 - 67	324	-235	890	769,998	766,689	773,230	770,322	767,503	773,074	-92	-640	465	769,998	766,689	773,230	769,906	767,078	772,665
68 - 72	816	121	1,519	678,494	674,893	682,007	679,310	676,290	682,255	275	-406	962	678,494	674,893	682,007	678,770	675,741	681,733
73 - 77	1,502	733	2,276	554,326	550,744	557,788	555,828	552,875	558,743	868	124	1,619	554,326	550,744	557,788	555,194	552,230	558,120
78 - 82	2,297	1,574	3,040	393,784	390,324	397,173	396,081	392,941	399,191	1,665	967	2,381	393,784	390,324	397,173	395,448	392,297	398,556
83 - 87	2,829	2,202	3,467	208,183	203,696	212,699	211,012	206,520	215,555	2,364	1,766	2,968	208,183	203,696	212,699	210,547	206,077	215,070
88 - 92	2,216	1,639	2,803	44,385	39,290	49,590	46,600	41,341	51,988	2,069	1,524	2,623	44,385	39,290	49,590	46,454	41,225	51,815
93 - 97	-2	-8	3	5	-11	25	3	-7	16	-2	-8	3	5	-11	25	3	-7	16
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.13, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

3.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-2	-2	-2	993,650	993,281	994,009	993,648	993,279	994,007	-3	-3	-3	993,650	993,281	994,009	993,647	993,278	994,006
23 - 27	-12	-14	-10	988,756	988,189	989,305	988,744	988,176	989,294	-16	-18	-14	988,756	988,189	989,305	988,740	988,172	989,291
28 - 32	-33	-42	-24	982,030	981,252	982,794	981,997	981,221	982,762	-43	-52	-34	982,030	981,252	982,794	981,987	981,211	982,752
33 - 37	-67	-92	-41	972,766	971,766	973,763	972,699	971,706	973,690	-89	-115	-64	972,766	971,766	973,763	972,676	971,682	973,668
38 - 42	-96	-153	-39	959,978	958,732	961,234	959,882	958,660	961,107	-140	-197	-84	959,978	958,732	961,234	959,838	958,615	961,064
43 - 47	-95	-207	16	942,285	940,758	943,830	942,190	940,722	943,662	-175	-286	-65	942,285	940,758	943,830	942,111	940,641	943,585
48 - 52	-33	-229	162	917,749	915,866	919,636	917,716	915,982	919,472	-166	-360	25	917,749	915,866	919,636	917,583	915,846	919,343
53 - 57	128	-184	438	883,638	881,326	885,956	883,766	881,713	885,858	-82	-390	224	883,638	881,326	885,956	883,556	881,498	885,649
58 - 62	424	-36	886	836,133	833,339	838,900	836,557	834,162	838,972	111	-341	565	836,133	833,339	838,900	836,244	833,843	838,662
63 - 67	884	259	1,516	769,998	766,689	773,230	770,882	768,125	773,576	444	-167	1,064	769,998	766,689	773,230	770,442	767,674	773,148
68 - 72	1,515	732	2,300	678,494	674,893	682,007	680,009	677,076	682,902	942	181	1,708	678,494	674,893	682,007	679,436	676,484	682,339
73 - 77	2,282	1,419	3,151	554,326	550,744	557,788	556,608	553,723	559,449	1,606	771	2,446	554,326	550,744	557,788	555,932	553,030	558,789
78 - 82	3,038	2,228	3,871	393,784	390,324	397,173	396,822	393,695	399,926	2,360	1,579	3,160	393,784	390,324	397,173	396,143	393,022	399,243
83 - 87	3,367	2,671	4,077	208,183	203,696	212,699	211,550	207,059	216,100	2,863	2,201	3,533	208,183	203,696	212,699	211,046	206,571	215,587
88 - 92	2,423	1,802	3,055	44,385	39,290	49,590	46,808	41,524	52,229	2,258	1,674	2,852	44,385	39,290	49,590	46,643	41,388	52,030
93 - 97	-2	-9	4	5	-11	25	3	-7	15	-2	-9	4	5	-11	25	3	-7	15
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.13, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

4% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-2	-2	-2	993,650	993,281	994,009	993,648	993,279	994,007	-3	-3	-3	993,650	993,281	994,009	993,647	993,278	994,006
23 - 27	-11	-13	-9	988,756	988,189	989,305	988,745	988,177	989,295	-14	-17	-12	988,756	988,189	989,305	988,742	988,173	989,292
28 - 32	-26	-36	-17	982,030	981,252	982,794	982,003	981,228	982,768	-37	-46	-27	982,030	981,252	982,794	981,993	981,218	982,758
33 - 37	-46	-74	-18	972,766	971,766	973,763	972,720	971,728	973,709	-69	-97	-42	972,766	971,766	973,763	972,696	971,703	973,687
38 - 42	-47	-110	15	959,978	958,732	961,234	959,930	958,710	961,152	-93	-156	-31	959,978	958,732	961,234	959,884	958,663	961,107
43 - 47	1	-122	123	942,285	940,758	943,830	942,286	940,821	943,753	-82	-204	38	942,285	940,758	943,830	942,203	940,738	943,671
48 - 52	136	-80	350	917,749	915,866	919,636	917,885	916,161	919,626	-3	-216	208	917,749	915,866	919,636	917,746	916,019	919,490
53 - 57	400	54	743	883,638	881,326	885,956	884,038	882,003	886,100	180	-159	516	883,638	881,326	885,956	883,818	881,778	885,888
58 - 62	827	320	1,336	836,133	833,339	838,900	836,959	834,603	839,343	498	0	998	836,133	833,339	838,900	836,630	834,264	839,020
63 - 67	1,433	743	2,128	769,998	766,689	773,230	771,431	768,722	774,080	970	298	1,651	769,998	766,689	773,230	770,968	768,248	773,627
68 - 72	2,199	1,335	3,066	678,494	674,893	682,007	680,693	677,839	683,516	1,593	752	2,437	678,494	674,893	682,007	680,088	677,216	682,930
73 - 77	3,044	2,090	4,004	554,326	550,744	557,788	557,370	554,552	560,139	2,327	1,406	3,258	554,326	550,744	557,788	556,653	553,816	559,443
78 - 82	3,762	2,864	4,687	393,784	390,324	397,173	397,546	394,464	400,617	3,038	2,177	3,922	393,784	390,324	397,173	396,822	393,725	399,903
83 - 87	3,893	3,130	4,675	208,183	203,696	212,699	212,076	207,559	216,648	3,349	2,627	4,083	208,183	203,696	212,699	211,532	207,030	216,075
88 - 92	2,625	1,960	3,302	44,385	39,290	49,590	47,010	41,714	52,464	2,443	1,821	3,072	44,385	39,290	49,590	46,827	41,551	52,244
93 - 97	-2	-11	4	5	-11	25	3	-6	14	-2	-11	4	5	-11	25	3	-6	14
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.13, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

4.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-2	-2	-2	993,650	993,281	994,009	993,648	993,279	994,007	-3	-3	-3	993,650	993,281	994,009	993,647	993,278	994,006
23 - 27	-10	-12	-7	988,756	988,189	989,305	988,746	988,178	989,297	-13	-15	-11	988,756	988,189	989,305	988,743	988,175	989,293
28 - 32	-19	-30	-9	982,030	981,252	982,794	982,010	981,236	982,774	-30	-40	-20	982,030	981,252	982,794	982,000	981,225	982,764
33 - 37	-25	-56	5	972,766	971,766	973,763	972,740	971,750	973,729	-49	-79	-19	972,766	971,766	973,763	972,716	971,726	973,706
38 - 42	1	-68	68	959,978	958,732	961,234	959,978	958,762	961,197	-47	-115	20	959,978	958,732	961,234	959,931	958,713	961,151
43 - 47	95	-38	228	942,285	940,758	943,830	942,381	940,925	943,841	10	-122	141	942,285	940,758	943,830	942,295	940,837	943,757
48 - 52	303	67	536	917,749	915,866	919,636	918,052	916,342	919,783	158	-73	388	917,749	915,866	919,636	917,907	916,195	919,640
53 - 57	667	292	1,042	883,638	881,326	885,956	884,305	882,296	886,346	438	68	806	883,638	881,326	885,956	884,076	882,061	886,122
58 - 62	1,222	671	1,778	836,133	833,339	838,900	837,354	835,031	839,704	877	337	1,422	836,133	833,339	838,900	837,010	834,681	839,367
63 - 67	1,971	1,218	2,730	769,998	766,689	773,230	771,969	769,315	774,568	1,485	751	2,226	769,998	766,689	773,230	771,483	768,816	774,096
68 - 72	2,868	1,921	3,813	678,494	674,893	682,007	681,363	678,572	684,127	2,231	1,312	3,150	678,494	674,893	682,007	680,725	677,915	683,503
73 - 77	3,788	2,746	4,839	554,326	550,744	557,788	558,114	555,356	560,826	3,031	2,025	4,048	554,326	550,744	557,788	557,357	554,580	560,090
78 - 82	4,469	3,482	5,482	393,784	390,324	397,173	398,252	395,188	401,299	3,701	2,759	4,668	393,784	390,324	397,173	397,484	394,426	400,535
83 - 87	4,406	3,577	5,255	208,183	203,696	212,699	212,589	208,059	217,178	3,825	3,042	4,626	208,183	203,696	212,699	212,008	207,496	216,578
88 - 92	2,823	2,114	3,546	44,385	39,290	49,590	47,208	41,882	52,685	2,623	1,964	3,292	44,385	39,290	49,590	47,008	41,711	52,449
93 - 97	-2	-11	5	5	-11	25	3	-6	13	-2	-11	5	5	-11	25	3	-6	13
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.13, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus a scenario with elevated rates for 'additional initiation' and an extreme scenario for 'gateway effect'

5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	-2	-2	-2	993,650	993,281	994,009	993,648	993,279	994,007	-3	-3	-3	993,650	993,281	994,009	993,647	993,278	994,006
23 - 27	-8	-11	-6	988,756	988,189	989,305	988,748	988,179	989,298	-12	-14	-9	988,756	988,189	989,305	988,744	988,176	989,294
28 - 32	-13	-24	-1	982,030	981,252	982,794	982,017	981,243	982,780	-23	-35	-12	982,030	981,252	982,794	982,006	981,232	982,770
33 - 37	-5	-38	28	972,766	971,766	973,763	972,761	971,773	973,748	-29	-62	3	972,766	971,766	973,763	972,736	971,747	973,725
38 - 42	48	-26	121	959,978	958,732	961,234	960,026	958,811	961,243	-1	-74	72	959,978	958,732	961,234	959,977	958,760	961,194
43 - 47	189	44	333	942,285	940,758	943,830	942,475	941,027	943,930	100	-42	242	942,285	940,758	943,830	942,386	940,936	943,843
48 - 52	467	213	720	917,749	915,866	919,636	918,216	916,522	919,940	317	68	565	917,749	915,866	919,636	918,066	916,367	919,793
53 - 57	930	526	1,337	883,638	881,326	885,956	884,569	882,583	886,584	691	293	1,089	883,638	881,326	885,956	884,330	882,334	886,353
58 - 62	1,610	1,015	2,215	836,133	833,339	838,900	837,742	835,449	840,058	1,250	667	1,841	836,133	833,339	838,900	837,383	835,081	839,706
63 - 67	2,498	1,684	3,320	769,998	766,689	773,230	772,496	769,889	775,053	1,990	1,196	2,790	769,998	766,689	773,230	771,988	769,373	774,558
68 - 72	3,523	2,497	4,544	678,494	674,893	682,007	682,017	679,277	684,712	2,854	1,860	3,845	678,494	674,893	682,007	681,349	678,593	684,068
73 - 77	4,515	3,386	5,654	554,326	550,744	557,788	558,841	556,145	561,495	3,719	2,628	4,819	554,326	550,744	557,788	558,045	555,319	560,718
78 - 82	5,159	4,091	6,258	393,784	390,324	397,173	398,943	395,894	401,979	4,348	3,325	5,396	393,784	390,324	397,173	398,131	395,080	401,159
83 - 87	4,907	4,015	5,828	208,183	203,696	212,699	213,090	208,530	217,689	4,289	3,447	5,153	208,183	203,696	212,699	212,472	207,955	217,067
88 - 92	3,017	2,265	3,787	44,385	39,290	49,590	47,402	42,037	52,922	2,799	2,104	3,510	44,385	39,290	49,590	47,184	41,866	52,651
93 - 97	-3	-12	5	5	-11	25	2	-6	12	-3	-12	5	5	-11	25	2	-6	12
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.14: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

0% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	-1	-1	-1	988,756	988,189	989,305	988,755	988,188	989,304	-1	-2	-1	988,756	988,189	989,305	988,755	988,188	989,304
28 - 32	-6	-7	-5	982,030	981,252	982,794	982,024	981,247	982,789	-8	-10	-7	982,030	981,252	982,794	982,022	981,244	982,787
33 - 37	-21	-24	-18	972,766	971,766	973,763	972,745	971,744	973,742	-28	-33	-24	972,766	971,766	973,763	972,737	971,737	973,735
38 - 42	-55	-63	-47	959,978	958,732	961,234	959,923	958,673	961,181	-74	-85	-64	959,978	958,732	961,234	959,903	958,653	961,162
43 - 47	-120	-136	-104	942,285	940,758	943,830	942,165	940,633	943,718	-163	-185	-142	942,285	940,758	943,830	942,122	940,588	943,680
48 - 52	-234	-263	-204	917,749	915,866	919,636	917,515	915,622	919,417	-317	-358	-278	917,749	915,866	919,636	917,431	915,535	919,337
53 - 57	-415	-466	-364	883,638	881,326	885,956	883,224	880,878	885,571	-564	-634	-495	883,638	881,326	885,956	883,075	880,722	885,426
58 - 62	-682	-765	-600	836,133	833,339	838,900	835,451	832,623	838,269	-926	-1,039	-816	836,133	833,339	838,900	835,206	832,361	838,042
63 - 67	-1,043	-1,168	-920	769,998	766,689	773,230	768,955	765,568	772,267	-1,416	-1,585	-1,248	769,998	766,689	773,230	768,582	765,164	771,924
68 - 72	-1,477	-1,655	-1,303	678,494	674,893	682,007	677,017	673,300	680,643	-2,002	-2,244	-1,766	678,494	674,893	682,007	676,492	672,761	680,148
73 - 77	-1,902	-2,132	-1,676	554,326	550,744	557,788	552,425	548,770	555,991	-2,571	-2,883	-2,266	554,326	550,744	557,788	551,755	548,063	555,362
78 - 82	-2,128	-2,396	-1,870	393,784	390,324	397,173	391,655	388,176	395,078	-2,867	-3,228	-2,519	393,784	390,324	397,173	390,917	387,429	394,368
83 - 87	-1,856	-2,139	-1,593	208,183	203,696	212,699	206,327	201,925	210,747	-2,488	-2,867	-2,135	208,183	203,696	212,699	205,695	201,299	210,095
88 - 92	-873	-1,149	-620	44,385	39,290	49,590	43,512	38,546	48,594	-1,162	-1,527	-828	44,385	39,290	49,590	43,223	38,288	48,253
93 - 97	0	0	0	5	-11	25	5	-10	25	0	0	0	5	-11	25	5	-10	25
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.14, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

0.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	0	-0	0	988,756	988,189	989,305	988,756	988,189	989,305	-0	-1	0	988,756	988,189	989,305	988,756	988,189	989,305
28 - 32	1	-0	2	982,030	981,252	982,794	982,031	981,254	982,795	-1	-3	0	982,030	981,252	982,794	982,028	981,252	982,793
33 - 37	1	-2	4	972,766	971,766	973,763	972,766	971,767	973,763	-7	-11	-3	972,766	971,766	973,763	972,758	971,759	973,754
38 - 42	-3	-9	3	959,978	958,732	961,234	959,975	958,730	961,229	-24	-33	-16	959,978	958,732	961,234	959,954	958,708	961,209
43 - 47	-15	-28	-3	942,285	940,758	943,830	942,270	940,746	943,814	-61	-79	-45	942,285	940,758	943,830	942,224	940,698	943,771
48 - 52	-45	-67	-23	917,749	915,866	919,636	917,704	915,826	919,591	-134	-166	-105	917,749	915,866	919,636	917,615	915,732	919,508
53 - 57	-104	-142	-68	883,638	881,326	885,956	883,534	881,224	885,852	-263	-317	-213	883,638	881,326	885,956	883,375	881,052	885,704
58 - 62	-213	-273	-157	836,133	833,339	838,900	835,920	833,138	838,692	-473	-559	-393	836,133	833,339	838,900	835,660	832,859	838,451
63 - 67	-392	-482	-308	769,998	766,689	773,230	769,606	766,301	772,856	-787	-918	-666	769,998	766,689	773,230	769,211	765,867	772,490
68 - 72	-652	-781	-534	678,494	674,893	682,007	677,842	674,215	681,383	-1,209	-1,397	-1,037	678,494	674,893	682,007	677,285	673,629	680,870
73 - 77	-971	-1,141	-815	554,326	550,744	557,788	553,356	549,788	556,834	-1,680	-1,929	-1,448	554,326	550,744	557,788	552,646	549,030	556,172
78 - 82	-1,236	-1,440	-1,049	393,784	390,324	397,173	392,548	389,116	395,918	-2,018	-2,315	-1,740	393,784	390,324	397,173	391,765	388,322	395,156
83 - 87	-1,205	-1,421	-1,005	208,183	203,696	212,699	206,978	202,557	211,414	-1,874	-2,190	-1,583	208,183	203,696	212,699	206,309	201,912	210,713
88 - 92	-622	-840	-422	44,385	39,290	49,590	43,763	38,764	48,868	-928	-1,241	-642	44,385	39,290	49,590	43,457	38,493	48,520
93 - 97	-0	-2	1	5	-11	25	5	-10	23	-0	-1	1	5	-11	25	5	-10	23
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.14, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

1% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	1	1	2	988,756	988,189	989,305	988,757	988,191	989,307	1	1	1	988,756	988,189	989,305	988,757	988,190	989,306
28 - 32	8	6	10	982,030	981,252	982,794	982,038	981,261	982,801	5	4	7	982,030	981,252	982,794	982,035	981,259	982,799
33 - 37	22	18	27	972,766	971,766	973,763	972,788	971,791	973,782	14	9	18	972,766	971,766	973,763	972,779	971,782	973,774
38 - 42	48	39	59	959,978	958,732	961,234	960,026	958,787	961,276	26	16	36	959,978	958,732	961,234	960,004	958,763	961,255
43 - 47	88	70	108	942,285	940,758	943,830	942,374	940,856	943,911	39	20	59	942,285	940,758	943,830	942,325	940,806	943,865
48 - 52	142	110	176	917,749	915,866	919,636	917,891	916,029	919,760	47	13	81	917,749	915,866	919,636	917,795	915,929	919,672
53 - 57	201	150	255	883,638	881,326	885,956	883,839	881,565	886,124	33	-22	88	883,638	881,326	885,956	883,671	881,379	885,977
58 - 62	247	172	326	836,133	833,339	838,900	836,380	833,646	839,110	-28	-111	56	836,133	833,339	838,900	836,105	833,343	838,854
63 - 67	247	143	355	769,998	766,689	773,230	770,245	766,996	773,425	-171	-292	-52	769,998	766,689	773,230	769,826	766,554	773,049
68 - 72	155	19	293	678,494	674,893	682,007	678,649	675,112	682,105	-433	-599	-272	678,494	674,893	682,007	678,061	674,475	681,557
73 - 77	-62	-223	100	554,326	550,744	557,788	554,265	550,789	557,642	-810	-1,025	-608	554,326	550,744	557,788	553,516	550,001	556,948
78 - 82	-364	-542	-192	393,784	390,324	397,173	393,419	390,043	396,749	-1,190	-1,443	-958	393,784	390,324	397,173	392,594	389,200	395,925
83 - 87	-569	-745	-408	208,183	203,696	212,699	207,614	203,165	212,053	-1,276	-1,542	-1,035	208,183	203,696	212,699	206,908	202,495	211,317
88 - 92	-376	-544	-227	44,385	39,290	49,590	44,009	38,975	49,149	-700	-964	-462	44,385	39,290	49,590	43,685	38,693	48,769
93 - 97	-1	-3	1	5	-11	25	4	-9	22	-1	-3	1	5	-11	25	4	-9	22
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.14, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

1.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	3	2	3	988,756	988,189	989,305	988,759	988,192	989,308	2	2	3	988,756	988,189	989,305	988,758	988,191	989,307
28 - 32	15	13	17	982,030	981,252	982,794	982,045	981,268	982,808	12	10	15	982,030	981,252	982,794	982,042	981,265	982,805
33 - 37	44	37	51	972,766	971,766	973,763	972,810	971,814	973,802	35	28	41	972,766	971,766	973,763	972,800	971,805	973,794
38 - 42	99	85	115	959,978	958,732	961,234	960,077	958,842	961,322	75	62	90	959,978	958,732	961,234	960,053	958,818	961,300
43 - 47	191	162	222	942,285	940,758	943,830	942,477	940,968	944,005	139	112	167	942,285	940,758	943,830	942,424	940,912	943,955
48 - 52	326	276	379	917,749	915,866	919,636	918,075	916,229	919,925	225	179	274	917,749	915,866	919,636	917,974	916,123	919,837
53 - 57	502	422	586	883,638	881,326	885,956	884,140	881,899	886,391	324	250	402	883,638	881,326	885,956	883,962	881,704	886,230
58 - 62	699	582	823	836,133	833,339	838,900	836,832	834,143	839,527	409	301	524	836,133	833,339	838,900	836,542	833,829	839,255
63 - 67	872	713	1,039	769,998	766,689	773,230	770,870	767,690	773,988	432	284	587	769,998	766,689	773,230	770,430	767,213	773,587
68 - 72	944	749	1,151	678,494	674,893	682,007	679,438	675,987	682,816	326	136	522	678,494	674,893	682,007	678,820	675,316	682,239
73 - 77	827	613	1,057	554,326	550,744	557,788	555,153	551,747	558,451	40	-183	265	554,326	550,744	557,788	554,367	550,916	557,712
78 - 82	486	277	704	393,784	390,324	397,173	394,270	390,934	397,547	-381	-624	-144	393,784	390,324	397,173	393,402	390,052	396,694
83 - 87	52	-117	218	208,183	203,696	212,699	208,235	203,775	212,685	-691	-925	-476	208,183	203,696	212,699	207,492	203,061	211,905
88 - 92	-136	-261	-30	44,385	39,290	49,590	44,249	39,187	49,408	-477	-698	-282	44,385	39,290	49,590	43,908	38,885	49,027
93 - 97	-1	-4	2	5	-11	25	4	-9	20	-1	-4	2	5	-11	25	4	-9	20
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.14, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

2% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	4	3	5	988,756	988,189	989,305	988,760	988,193	989,309	4	3	4	988,756	988,189	989,305	988,760	988,193	989,309
28 - 32	22	19	25	982,030	981,252	982,794	982,052	981,276	982,815	19	16	22	982,030	981,252	982,794	982,049	981,273	982,812
33 - 37	65	56	75	972,766	971,766	973,763	972,831	971,837	973,823	55	47	64	972,766	971,766	973,763	972,821	971,826	973,813
38 - 42	150	129	171	959,978	958,732	961,234	960,128	958,898	961,370	124	106	144	959,978	958,732	961,234	960,102	958,871	961,345
43 - 47	293	252	335	942,285	940,758	943,830	942,578	941,077	944,098	237	201	276	942,285	940,758	943,830	942,523	941,018	944,045
48 - 52	508	437	581	917,749	915,866	919,636	918,256	916,426	920,095	401	338	469	917,749	915,866	919,636	918,150	916,313	919,994
53 - 57	798	685	915	883,638	881,326	885,956	884,436	882,214	886,658	611	510	718	883,638	881,326	885,956	884,249	882,021	886,483
58 - 62	1,143	978	1,316	836,133	833,339	838,900	837,276	834,632	839,931	839	691	996	836,133	833,339	838,900	836,971	834,309	839,646
63 - 67	1,485	1,262	1,718	769,998	766,689	773,230	771,483	768,357	774,536	1,023	823	1,234	769,998	766,689	773,230	771,021	767,875	774,112
68 - 72	1,716	1,442	2,007	678,494	674,893	682,007	680,210	676,839	683,511	1,069	824	1,329	678,494	674,893	682,007	679,563	676,137	682,898
73 - 77	1,695	1,396	2,011	554,326	550,744	557,788	556,021	552,691	559,235	871	600	1,161	554,326	550,744	557,788	555,197	551,820	558,464
78 - 82	1,317	1,042	1,614	393,784	390,324	397,173	395,101	391,812	398,338	408	140	684	393,784	390,324	397,173	394,192	390,879	397,443
83 - 87	659	460	871	208,183	203,696	212,699	208,842	204,373	213,320	-120	-348	98	208,183	203,696	212,699	208,063	203,612	212,490
88 - 92	98	-1	188	44,385	39,290	49,590	44,483	39,396	49,661	-259	-440	-103	44,385	39,290	49,590	44,126	39,078	49,272
93 - 97	-1	-6	2	5	-11	25	4	-8	19	-1	-6	2	5	-11	25	4	-8	19
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.14, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

2.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	5	4	6	988,756	988,189	989,305	988,761	988,194	989,311	5	4	6	988,756	988,189	989,305	988,761	988,194	989,310
28 - 32	29	25	33	982,030	981,252	982,794	982,059	981,283	982,822	26	22	30	982,030	981,252	982,794	982,055	981,280	982,819
33 - 37	87	75	99	972,766	971,766	973,763	972,852	971,860	973,843	76	65	87	972,766	971,766	973,763	972,842	971,849	973,833
38 - 42	200	174	228	959,978	958,732	961,234	960,178	958,952	961,413	173	149	199	959,978	958,732	961,234	960,151	958,924	961,389
43 - 47	393	341	447	942,285	940,758	943,830	942,679	941,184	944,188	335	287	385	942,285	940,758	943,830	942,620	941,123	944,134
48 - 52	687	596	781	917,749	915,866	919,636	918,436	916,620	920,258	575	492	661	917,749	915,866	919,636	918,324	916,502	920,155
53 - 57	1,089	943	1,239	883,638	881,326	885,956	884,728	882,528	886,925	893	761	1,032	883,638	881,326	885,956	884,531	882,322	886,744
58 - 62	1,579	1,365	1,801	836,133	833,339	838,900	837,712	835,115	840,331	1,260	1,068	1,463	836,133	833,339	838,900	837,393	834,779	840,036
63 - 67	2,086	1,794	2,389	769,998	766,689	773,230	772,084	769,023	775,085	1,603	1,345	1,875	769,998	766,689	773,230	771,601	768,506	774,628
68 - 72	2,471	2,113	2,846	678,494	674,893	682,007	680,966	677,666	684,187	1,795	1,478	2,131	678,494	674,893	682,007	680,289	676,959	683,564
73 - 77	2,543	2,154	2,959	554,326	550,744	557,788	556,869	553,624	559,999	1,682	1,340	2,047	554,326	550,744	557,788	556,009	552,712	559,190
78 - 82	2,128	1,769	2,514	393,784	390,324	397,173	395,912	392,662	399,120	1,179	861	1,522	393,784	390,324	397,173	394,962	391,702	398,173
83 - 87	1,251	997	1,525	208,183	203,696	212,699	209,434	204,966	213,926	437	196	685	208,183	203,696	212,699	208,620	204,163	213,065
88 - 92	327	228	435	44,385	39,290	49,590	44,712	39,595	49,916	-47	-197	83	44,385	39,290	49,590	44,338	39,261	49,502
93 - 97	-2	-7	3	5	-11	25	3	-8	18	-1	-7	3	5	-11	25	4	-8	18
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.14, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

3% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	7	6	8	988,756	988,189	989,305	988,763	988,195	989,312	6	5	7	988,756	988,189	989,305	988,762	988,195	989,311
28 - 32	36	31	41	982,030	981,252	982,794	982,065	981,290	982,829	32	28	37	982,030	981,252	982,794	982,062	981,287	982,825
33 - 37	108	94	122	972,766	971,766	973,763	972,873	971,883	973,863	97	84	110	972,766	971,766	973,763	972,862	971,871	973,852
38 - 42	250	218	283	959,978	958,732	961,234	960,228	959,007	961,460	221	191	252	959,978	958,732	961,234	960,199	958,975	961,434
43 - 47	493	429	557	942,285	940,758	943,830	942,778	941,292	944,277	431	373	492	942,285	940,758	943,830	942,717	941,226	944,222
48 - 52	864	752	978	917,749	915,866	919,636	918,613	916,815	920,419	747	644	852	917,749	915,866	919,636	918,495	916,689	920,310
53 - 57	1,376	1,196	1,559	883,638	881,326	885,956	885,014	882,845	887,192	1,171	1,008	1,340	883,638	881,326	885,956	884,809	882,621	886,997
58 - 62	2,008	1,742	2,279	836,133	833,339	838,900	838,140	835,584	840,708	1,674	1,435	1,924	836,133	833,339	838,900	837,807	835,232	840,406
63 - 67	2,675	2,316	3,049	769,998	766,689	773,230	772,673	769,678	775,615	2,171	1,850	2,505	769,998	766,689	773,230	772,169	769,131	775,145
68 - 72	3,210	2,765	3,675	678,494	674,893	682,007	681,705	678,481	684,869	2,505	2,113	2,919	678,494	674,893	682,007	681,000	677,720	684,214
73 - 77	3,371	2,889	3,886	554,326	550,744	557,788	557,698	554,528	560,763	2,475	2,050	2,927	554,326	550,744	557,788	556,802	553,585	559,911
78 - 82	2,920	2,471	3,398	393,784	390,324	397,173	396,704	393,491	399,865	1,931	1,544	2,348	393,784	390,324	397,173	395,715	392,490	398,894
83 - 87	1,829	1,511	2,174	208,183	203,696	212,699	210,012	205,538	214,515	981	706	1,277	208,183	203,696	212,699	209,164	204,706	213,622
88 - 92	551	425	698	44,385	39,290	49,590	44,936	39,787	50,186	161	28	284	44,385	39,290	49,590	44,546	39,451	49,723
93 - 97	-2	-8	3	5	-11	25	3	-7	16	-2	-8	3	5	-11	25	3	-7	16
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.14, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

3.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	8	7	9	988,756	988,189	989,305	988,764	988,197	989,313	7	6	8	988,756	988,189	989,305	988,763	988,196	989,313
28 - 32	43	37	48	982,030	981,252	982,794	982,072	981,297	982,835	39	34	45	982,030	981,252	982,794	982,069	981,293	982,832
33 - 37	129	112	146	972,766	971,766	973,763	972,895	971,904	973,883	117	102	133	972,766	971,766	973,763	972,883	971,893	973,872
38 - 42	299	262	338	959,978	958,732	961,234	960,277	959,058	961,507	269	234	306	959,978	958,732	961,234	960,247	959,030	961,478
43 - 47	591	516	667	942,285	940,758	943,830	942,877	941,396	944,370	527	457	599	942,285	940,758	943,830	942,812	941,328	944,309
48 - 52	1,038	906	1,173	917,749	915,866	919,636	918,787	917,004	920,576	916	794	1,042	917,749	915,866	919,636	918,665	916,875	920,462
53 - 57	1,659	1,446	1,875	883,638	881,326	885,956	885,297	883,156	887,456	1,444	1,250	1,644	883,638	881,326	885,956	885,083	882,923	887,251
58 - 62	2,428	2,113	2,747	836,133	833,339	838,900	838,561	836,037	841,090	2,081	1,796	2,375	836,133	833,339	838,900	838,214	835,670	840,770
63 - 67	3,252	2,824	3,693	769,998	766,689	773,230	773,250	770,316	776,128	2,728	2,341	3,127	769,998	766,689	773,230	772,726	769,747	775,654
68 - 72	3,934	3,406	4,486	678,494	674,893	682,007	682,428	679,292	685,519	3,201	2,730	3,692	678,494	674,893	682,007	681,695	678,485	684,844
73 - 77	4,181	3,606	4,788	554,326	550,744	557,788	558,507	555,432	561,520	3,250	2,742	3,792	554,326	550,744	557,788	557,576	554,434	560,623
78 - 82	3,693	3,154	4,260	393,784	390,324	397,173	397,477	394,303	400,602	2,666	2,201	3,166	393,784	390,324	397,173	396,450	393,260	399,589
83 - 87	2,394	2,011	2,814	208,183	203,696	212,699	210,577	206,101	215,080	1,513	1,188	1,863	208,183	203,696	212,699	209,696	205,241	214,168
88 - 92	770	602	961	44,385	39,290	49,590	45,155	39,952	50,436	365	234	501	44,385	39,290	49,590	44,749	39,632	49,954
93 - 97	-2	-9	4	5	-11	25	3	-7	15	-2	-9	4	5	-11	25	3	-7	15
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.14, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

4% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	9	8	11	988,756	988,189	989,305	988,765	988,198	989,315	9	7	10	988,756	988,189	989,305	988,765	988,197	989,314
28 - 32	49	43	56	982,030	981,252	982,794	982,079	981,304	982,842	46	39	52	982,030	981,252	982,794	982,075	981,300	982,838
33 - 37	150	131	169	972,766	971,766	973,763	972,915	971,927	973,902	137	120	156	972,766	971,766	973,763	972,903	971,914	973,891
38 - 42	348	305	393	959,978	958,732	961,234	960,326	959,110	961,556	317	276	360	959,978	958,732	961,234	960,295	959,077	961,524
43 - 47	689	602	776	942,285	940,758	943,830	942,974	941,500	944,459	621	541	704	942,285	940,758	943,830	942,907	941,430	944,398
48 - 52	1,211	1,058	1,366	917,749	915,866	919,636	918,960	917,189	920,740	1,083	942	1,228	917,749	915,866	919,636	918,832	917,056	920,615
53 - 57	1,937	1,692	2,185	883,638	881,326	885,956	885,575	883,461	887,710	1,714	1,488	1,943	883,638	881,326	885,956	885,352	883,217	887,504
58 - 62	2,841	2,478	3,209	836,133	833,339	838,900	838,974	836,490	841,468	2,480	2,148	2,820	836,133	833,339	838,900	838,613	836,099	841,134
63 - 67	3,817	3,323	4,324	769,998	766,689	773,230	773,815	770,946	776,637	3,273	2,828	3,738	769,998	766,689	773,230	773,271	770,356	776,138
68 - 72	4,641	4,033	5,278	678,494	674,893	682,007	683,135	680,072	686,154	3,881	3,330	4,455	678,494	674,893	682,007	682,375	679,253	685,450
73 - 77	4,972	4,307	5,673	554,326	550,744	557,788	559,299	556,301	562,256	4,007	3,416	4,636	554,326	550,744	557,788	558,333	555,265	561,330
78 - 82	4,449	3,821	5,108	393,784	390,324	397,173	398,232	395,087	401,317	3,384	2,839	3,967	393,784	390,324	397,173	397,167	394,004	400,267
83 - 87	2,945	2,492	3,437	208,183	203,696	212,699	211,129	206,644	215,642	2,032	1,651	2,444	208,183	203,696	212,699	210,215	205,750	214,714
88 - 92	984	772	1,222	44,385	39,290	49,590	45,369	40,137	50,671	563	417	725	44,385	39,290	49,590	44,948	39,799	50,193
93 - 97	-2	-10	4	5	-11	25	3	-6	14	-2	-10	4	5	-11	25	3	-6	14
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.14, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

4.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	11	9	12	988,756	988,189	989,305	988,767	988,199	989,316	10	8	11	988,756	988,189	989,305	988,766	988,198	989,315
28 - 32	56	49	64	982,030	981,252	982,794	982,086	981,311	982,848	52	45	60	982,030	981,252	982,794	982,082	981,307	982,844
33 - 37	171	149	193	972,766	971,766	973,763	972,936	971,949	973,922	158	137	179	972,766	971,766	973,763	972,923	971,935	973,909
38 - 42	397	348	448	959,978	958,732	961,234	960,375	959,161	961,601	364	318	412	959,978	958,732	961,234	960,342	959,126	961,570
43 - 47	785	687	884	942,285	940,758	943,830	943,070	941,603	944,548	715	623	808	942,285	940,758	943,830	943,000	941,531	944,483
48 - 52	1,381	1,208	1,556	917,749	915,866	919,636	919,130	917,376	920,894	1,248	1,087	1,412	917,749	915,866	919,636	918,997	917,235	920,769
53 - 57	2,210	1,934	2,491	883,638	881,326	885,956	885,849	883,760	887,956	1,979	1,722	2,241	883,638	881,326	885,956	885,617	883,508	887,743
58 - 62	3,247	2,834	3,661	836,133	833,339	838,900	839,379	836,932	841,843	2,873	2,495	3,258	836,133	833,339	838,900	839,005	836,536	841,494
63 - 67	4,371	3,811	4,944	769,998	766,689	773,230	774,369	771,555	777,135	3,808	3,298	4,339	769,998	766,689	773,230	773,806	770,953	776,622
68 - 72	5,333	4,641	6,053	678,494	674,893	682,007	683,827	680,822	686,795	4,546	3,920	5,201	678,494	674,893	682,007	683,040	679,990	686,056
73 - 77	5,746	4,991	6,537	554,326	550,744	557,788	560,072	557,153	562,967	4,747	4,070	5,466	554,326	550,744	557,788	559,073	556,081	562,011
78 - 82	5,187	4,472	5,937	393,784	390,324	397,173	398,970	395,860	402,042	4,085	3,462	4,749	393,784	390,324	397,173	397,868	394,741	400,944
83 - 87	3,484	2,959	4,050	208,183	203,696	212,699	211,668	207,175	216,195	2,538	2,102	3,013	208,183	203,696	212,699	210,722	206,264	215,222
88 - 92	1,193	936	1,479	44,385	39,290	49,590	45,578	40,334	50,895	757	586	955	44,385	39,290	49,590	45,142	39,953	50,411
93 - 97	-2	-11	5	5	-11	25	3	-6	13	-2	-11	5	5	-11	25	3	-6	13
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.14, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus an extreme scenario for 'diversion from quitting'

5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	12	10	14	988,756	988,189	989,305	988,768	988,200	989,317	11	9	13	988,756	988,189	989,305	988,767	988,200	989,316
28 - 32	63	55	72	982,030	981,252	982,794	982,093	981,319	982,854	59	51	67	982,030	981,252	982,794	982,089	981,314	982,850
33 - 37	191	167	216	972,766	971,766	973,763	972,957	971,971	973,942	178	155	201	972,766	971,766	973,763	972,943	971,957	973,929
38 - 42	445	390	502	959,978	958,732	961,234	960,423	959,211	961,644	411	359	464	959,978	958,732	961,234	960,389	959,174	961,614
43 - 47	880	771	990	942,285	940,758	943,830	943,166	941,705	944,635	807	705	911	942,285	940,758	943,830	943,093	941,627	944,571
48 - 52	1,549	1,357	1,744	917,749	915,866	919,636	919,298	917,563	921,049	1,411	1,231	1,594	917,749	915,866	919,636	919,159	917,413	920,920
53 - 57	2,480	2,172	2,792	883,638	881,326	885,956	886,118	884,058	888,207	2,240	1,952	2,532	883,638	881,326	885,956	885,878	883,798	887,976
58 - 62	3,645	3,186	4,106	836,133	833,339	838,900	839,778	837,377	842,208	3,258	2,835	3,687	836,133	833,339	838,900	839,391	836,961	841,848
63 - 67	4,914	4,289	5,552	769,998	766,689	773,230	774,912	772,148	777,626	4,332	3,760	4,921	769,998	766,689	773,230	774,330	771,527	777,091
68 - 72	6,010	5,238	6,809	678,494	674,893	682,007	684,504	681,561	687,410	5,197	4,496	5,931	678,494	674,893	682,007	683,691	680,684	686,664
73 - 77	6,501	5,659	7,383	554,326	550,744	557,788	560,828	557,972	563,666	5,469	4,710	6,273	554,326	550,744	557,788	559,796	556,883	562,682
78 - 82	5,907	5,108	6,744	393,784	390,324	397,173	399,691	396,591	402,739	4,769	4,070	5,513	393,784	390,324	397,173	398,553	395,453	401,607
83 - 87	4,011	3,418	4,647	208,183	203,696	212,699	212,194	207,707	216,755	3,034	2,540	3,573	208,183	203,696	212,699	211,217	206,746	215,727
88 - 92	1,398	1,096	1,733	44,385	39,290	49,590	45,782	40,503	51,124	947	744	1,181	44,385	39,290	49,590	45,332	40,118	50,615
93 - 97	-3	-12	5	5	-11	25	2	-6	12	-3	-12	5	5	-11	25	2	-5	12
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.15: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on purchase probability projections for the 'Master model': Increasing age category at MRTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': 13-17 years; for 'switching' and 'diversion from quitting': 18-22 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,651	993,282	994,009	0	0	0	993,650	993,281	994,009	993,651	993,282	994,009
23 - 27	21	18	24	988,756	988,189	989,305	988,777	988,210	989,327	20	16	23	988,756	988,189	989,305	988,776	988,208	989,325
28 - 32	94	80	108	982,030	981,252	982,794	982,124	981,351	982,883	89	76	103	982,030	981,252	982,794	982,119	981,346	982,879
33 - 37	257	221	293	972,766	971,766	973,763	973,023	972,042	974,003	245	210	280	972,766	971,766	973,763	973,010	972,029	973,991
38 - 42	551	477	626	959,978	958,732	961,234	960,529	959,328	961,737	524	453	597	959,978	958,732	961,234	960,502	959,300	961,712
43 - 47	1,023	887	1,161	942,285	940,758	943,830	943,309	941,858	944,759	972	841	1,106	942,285	940,758	943,830	943,258	941,804	944,712
48 - 52	1,716	1,489	1,944	917,749	915,866	919,636	919,465	917,755	921,191	1,627	1,409	1,847	917,749	915,866	919,636	919,376	917,659	921,107
53 - 57	2,649	2,301	3,000	883,638	881,326	885,956	886,287	884,252	888,345	2,503	2,170	2,841	883,638	881,326	885,956	886,141	884,095	888,204
58 - 62	3,787	3,293	4,289	836,133	833,339	838,900	839,920	837,552	842,322	3,563	3,091	4,043	836,133	833,339	838,900	839,696	837,308	842,112
63 - 67	5,024	4,371	5,690	769,998	766,689	773,230	775,022	772,275	777,716	4,699	4,079	5,332	769,998	766,689	773,230	774,697	771,930	777,405
68 - 72	6,137	5,345	6,948	678,494	674,893	682,007	684,631	681,704	687,504	5,695	4,946	6,461	678,494	674,893	682,007	684,189	681,230	687,091
73 - 77	6,758	5,890	7,652	554,326	550,744	557,788	561,084	558,206	563,906	6,207	5,392	7,051	554,326	550,744	557,788	560,534	557,624	563,388
78 - 82	6,419	5,590	7,279	393,784	390,324	397,173	400,203	397,071	403,312	5,819	5,053	6,620	393,784	390,324	397,173	399,603	396,467	402,718
83 - 87	4,739	4,083	5,421	208,183	203,696	212,699	212,922	208,380	217,538	4,228	3,634	4,846	208,183	203,696	212,699	212,411	207,906	217,010
88 - 92	1,922	1,477	2,398	44,385	39,290	49,590	46,307	40,970	51,759	1,690	1,309	2,097	44,385	39,290	49,590	46,075	40,770	51,487
93 - 97	-2	-8	3	5	-11	25	3	-7	17	-2	-8	3	5	-11	25	3	-7	17
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.15, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on purchase probability projections for the 'Master model': Increasing age category at MRTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': 18-22 years; for 'switching' and 'diversion from quitting': 18-22 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	21	18	24	988,756	988,189	989,305	988,777	988,210	989,327	20	17	23	988,756	988,189	989,305	988,776	988,209	989,326
28 - 32	96	83	110	982,030	981,252	982,794	982,126	981,354	982,886	92	80	105	982,030	981,252	982,794	982,122	981,349	982,882
33 - 37	264	229	299	972,766	971,766	973,763	973,030	972,048	974,010	253	219	287	972,766	971,766	973,763	973,018	972,036	974,000
38 - 42	566	493	640	959,978	958,732	961,234	960,544	959,343	961,753	541	471	612	959,978	958,732	961,234	960,519	959,318	961,730
43 - 47	1,050	916	1,184	942,285	940,758	943,830	943,335	941,884	944,788	1,002	874	1,133	942,285	940,758	943,830	943,288	941,833	944,745
48 - 52	1,760	1,537	1,984	917,749	915,866	919,636	919,509	917,794	921,235	1,676	1,461	1,891	917,749	915,866	919,636	919,424	917,703	921,156
53 - 57	2,714	2,370	3,059	883,638	881,326	885,956	886,352	884,311	888,411	2,575	2,245	2,907	883,638	881,326	885,956	886,213	884,163	888,281
58 - 62	3,877	3,390	4,374	836,133	833,339	838,900	840,010	837,635	842,418	3,663	3,196	4,136	836,133	833,339	838,900	839,796	837,404	842,215
63 - 67	5,141	4,495	5,800	769,998	766,689	773,230	775,139	772,384	777,839	4,829	4,215	5,454	769,998	766,689	773,230	774,827	772,053	777,542
68 - 72	6,273	5,488	7,078	678,494	674,893	682,007	684,767	681,832	687,648	5,847	5,104	6,606	678,494	674,893	682,007	684,341	681,375	687,250
73 - 77	6,896	6,035	7,783	554,326	550,744	557,788	561,222	558,337	564,051	6,363	5,553	7,200	554,326	550,744	557,788	560,689	557,773	563,548
78 - 82	6,531	5,704	7,389	393,784	390,324	397,173	400,315	397,176	403,431	5,946	5,182	6,744	393,784	390,324	397,173	399,730	396,594	402,848
83 - 87	4,793	4,139	5,474	208,183	203,696	212,699	212,976	208,431	217,597	4,290	3,697	4,909	208,183	203,696	212,699	212,473	207,966	217,074
88 - 92	1,915	1,474	2,390	44,385	39,290	49,590	46,300	40,961	51,747	1,683	1,304	2,089	44,385	39,290	49,590	46,068	40,760	51,483
93 - 97	-2	-8	3	5	-11	25	3	-7	17	-2	-8	3	5	-11	25	3	-7	17
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.15, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on purchase probability projections for the 'Master model': Increasing age category at MRTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': 23-27 years; for 'switching' and 'diversion from quitting': 23-27 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305
28 - 32	29	25	32	982,030	981,252	982,794	982,058	981,282	982,822	28	24	31	982,030	981,252	982,794	982,057	981,281	982,821
33 - 37	119	104	133	972,766	971,766	973,763	972,885	971,893	973,875	114	100	128	972,766	971,766	973,763	972,880	971,888	973,871
38 - 42	307	269	344	959,978	958,732	961,234	960,285	959,063	961,517	294	258	330	959,978	958,732	961,234	960,272	959,051	961,505
43 - 47	635	557	713	942,285	940,758	943,830	942,921	941,441	944,414	608	533	682	942,285	940,758	943,830	942,893	941,412	944,387
48 - 52	1,145	1,003	1,286	917,749	915,866	919,636	918,894	917,111	920,678	1,093	957	1,228	917,749	915,866	919,636	918,842	917,057	920,629
53 - 57	1,856	1,626	2,084	883,638	881,326	885,956	885,494	883,367	887,642	1,766	1,545	1,986	883,638	881,326	885,956	885,404	883,273	887,559
58 - 62	2,743	2,399	3,084	836,133	833,339	838,900	838,876	836,375	841,384	2,600	2,270	2,925	836,133	833,339	838,900	838,732	836,222	841,255
63 - 67	3,721	3,258	4,188	769,998	766,689	773,230	773,719	770,819	776,565	3,508	3,067	3,954	769,998	766,689	773,230	773,506	770,591	776,371
68 - 72	4,606	4,028	5,192	678,494	674,893	682,007	683,100	679,982	686,161	4,312	3,765	4,868	678,494	674,893	682,007	682,807	679,668	685,894
73 - 77	5,095	4,451	5,750	554,326	550,744	557,788	559,421	556,393	562,430	4,726	4,119	5,341	554,326	550,744	557,788	559,052	555,989	562,079
78 - 82	4,814	4,205	5,453	393,784	390,324	397,173	398,598	395,387	401,747	4,410	3,841	5,003	393,784	390,324	397,173	398,194	394,992	401,347
83 - 87	3,491	3,018	3,996	208,183	203,696	212,699	211,674	207,172	216,249	3,146	2,713	3,606	208,183	203,696	212,699	211,329	206,832	215,891
88 - 92	1,361	1,053	1,694	44,385	39,290	49,590	45,746	40,457	51,124	1,204	937	1,492	44,385	39,290	49,590	45,588	40,334	50,932
93 - 97	-1	-6	3	5	-11	25	4	-8	18	-1	-6	3	5	-11	25	4	-8	18
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.15, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on purchase probability projections for the 'Master model': Increasing age category at MRTTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 28-32 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305
28 - 32	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794
33 - 37	29	25	32	972,766	971,766	973,763	972,794	971,797	973,790	28	24	31	972,766	971,766	973,763	972,793	971,795	973,788
38 - 42	116	102	131	959,978	958,732	961,234	960,094	958,856	961,338	111	97	125	959,978	958,732	961,234	960,089	958,852	961,334
43 - 47	298	261	336	942,285	940,758	943,830	942,584	941,078	944,107	286	250	322	942,285	940,758	943,830	942,571	941,065	944,095
48 - 52	613	536	690	917,749	915,866	919,636	918,361	916,538	920,193	586	513	661	917,749	915,866	919,636	918,335	916,508	920,168
53 - 57	1,080	945	1,217	883,638	881,326	885,956	884,718	882,521	886,923	1,030	901	1,162	883,638	881,326	885,956	884,668	882,465	886,876
58 - 62	1,686	1,474	1,900	836,133	833,339	838,900	837,818	835,203	840,432	1,602	1,400	1,808	836,133	833,339	838,900	837,735	835,112	840,358
63 - 67	2,370	2,073	2,674	769,998	766,689	773,230	772,368	769,335	775,344	2,242	1,959	2,532	769,998	766,689	773,230	772,240	769,192	775,228
68 - 72	2,997	2,619	3,389	678,494	674,893	682,007	681,491	678,217	684,695	2,818	2,458	3,188	678,494	674,893	682,007	681,312	678,014	684,528
73 - 77	3,344	2,916	3,790	554,326	550,744	557,788	557,670	554,451	560,816	3,117	2,716	3,537	554,326	550,744	557,788	557,443	554,199	560,603
78 - 82	3,144	2,734	3,579	393,784	390,324	397,173	396,927	393,662	400,143	2,896	2,516	3,303	393,784	390,324	397,173	396,679	393,400	399,909
83 - 87	2,231	1,916	2,571	208,183	203,696	212,699	210,414	205,891	214,969	2,021	1,735	2,330	208,183	203,696	212,699	210,205	205,681	214,757
88 - 92	830	640	1,038	44,385	39,290	49,590	45,215	39,991	50,528	736	571	914	44,385	39,290	49,590	45,121	39,903	50,419
93 - 97	-1	-5	2	5	-11	25	4	-8	19	-1	-5	2	5	-11	25	4	-8	19
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.15, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on purchase probability projections for the 'Master model': Increasing age category at MRTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 33-37 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305
28 - 32	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794
33 - 37	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763
38 - 42	24	21	27	959,978	958,732	961,234	960,002	958,758	961,256	23	20	26	959,978	958,732	961,234	960,001	958,757	961,255
43 - 47	104	91	117	942,285	940,758	943,830	942,389	940,871	943,927	99	87	112	942,285	940,758	943,830	942,385	940,866	943,924
48 - 52	273	238	308	917,749	915,866	919,636	918,021	916,164	919,882	261	228	294	917,749	915,866	919,636	918,010	916,151	919,872
53 - 57	552	482	623	883,638	881,326	885,956	884,191	881,940	886,444	527	460	595	883,638	881,326	885,956	884,165	881,913	886,421
58 - 62	937	818	1,059	836,133	833,339	838,900	837,070	834,373	839,752	892	778	1,008	836,133	833,339	838,900	837,024	834,324	839,710
63 - 67	1,391	1,214	1,572	769,998	766,689	773,230	771,389	768,231	774,473	1,318	1,149	1,490	769,998	766,689	773,230	771,315	768,147	774,408
68 - 72	1,821	1,590	2,062	678,494	674,893	682,007	680,315	676,910	683,636	1,715	1,496	1,944	678,494	674,893	682,007	680,210	676,795	683,539
73 - 77	2,071	1,804	2,353	554,326	550,744	557,788	556,398	553,031	559,650	1,936	1,685	2,201	554,326	550,744	557,788	556,262	552,885	559,529
78 - 82	1,959	1,700	2,237	393,784	390,324	397,173	395,742	392,398	399,016	1,811	1,570	2,070	393,784	390,324	397,173	395,594	392,239	398,875
83 - 87	1,380	1,182	1,595	208,183	203,696	212,699	209,564	205,048	214,105	1,257	1,075	1,454	208,183	203,696	212,699	209,440	204,929	213,987
88 - 92	506	391	631	44,385	39,290	49,590	44,890	39,703	50,157	451	350	560	44,385	39,290	49,590	44,836	39,660	50,090
93 - 97	-1	-5	2	5	-11	25	4	-9	20	-1	-5	2	5	-11	25	4	-9	20
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.15, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on purchase probability projections for the 'Master model': Increasing age category at MRTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 38-42 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305
28 - 32	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794
33 - 37	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763
38 - 42	0	0	0	959,978	958,732	961,234	959,978	958,732	961,234	0	0	0	959,978	958,732	961,234	959,978	958,732	961,234
43 - 47	28	24	31	942,285	940,758	943,830	942,313	940,789	943,856	26	23	30	942,285	940,758	943,830	942,312	940,787	943,855
48 - 52	115	101	130	917,749	915,866	919,636	917,864	915,990	919,743	110	96	124	917,749	915,866	919,636	917,859	915,985	919,738
53 - 57	285	248	322	883,638	881,326	885,956	883,923	881,645	886,208	271	236	307	883,638	881,326	885,956	883,910	881,629	886,196
58 - 62	537	468	607	836,133	833,339	838,900	836,669	833,926	839,392	510	444	577	836,133	833,339	838,900	836,643	833,896	839,367
63 - 67	849	741	962	769,998	766,689	773,230	770,847	767,624	773,991	804	701	911	769,998	766,689	773,230	770,802	767,575	773,948
68 - 72	1,159	1,011	1,315	678,494	674,893	682,007	679,653	676,177	683,042	1,092	951	1,239	678,494	674,893	682,007	679,586	676,100	682,982
73 - 77	1,351	1,174	1,537	554,326	550,744	557,788	555,677	552,234	559,008	1,264	1,097	1,440	554,326	550,744	557,788	555,590	552,138	558,928
78 - 82	1,291	1,118	1,477	393,784	390,324	397,173	395,075	391,694	398,387	1,196	1,033	1,369	393,784	390,324	397,173	394,979	391,592	398,296
83 - 87	908	775	1,052	208,183	203,696	212,699	209,091	204,593	213,637	830	707	962	208,183	203,696	212,699	209,013	204,519	213,552
88 - 92	329	255	411	44,385	39,290	49,590	44,714	39,553	49,951	295	229	366	44,385	39,290	49,590	44,680	39,530	49,913
93 - 97	-1	-4	2	5	-11	25	4	-9	21	-1	-4	2	5	-11	25	4	-9	21
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.15, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on purchase probability projections for the 'Master model': Increasing age category at MRTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 43-47 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305
28 - 32	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794
33 - 37	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763
38 - 42	0	0	0	959,978	958,732	961,234	959,978	958,732	961,234	0	0	0	959,978	958,732	961,234	959,978	958,732	961,234
43 - 47	0	0	0	942,285	940,758	943,830	942,285	940,758	943,830	0	0	0	942,285	940,758	943,830	942,285	940,758	943,830
48 - 52	30	26	34	917,749	915,866	919,636	917,779	915,900	919,665	29	25	33	917,749	915,866	919,636	917,778	915,898	919,663
53 - 57	113	99	128	883,638	881,326	885,956	883,752	881,450	886,055	108	94	123	883,638	881,326	885,956	883,747	881,445	886,051
58 - 62	256	223	290	836,133	833,339	838,900	836,388	833,608	839,132	244	213	276	836,133	833,339	838,900	836,377	833,594	839,121
63 - 67	450	392	510	769,998	766,689	773,230	770,448	767,186	773,623	428	372	485	769,998	766,689	773,230	770,426	767,162	773,604
68 - 72	658	573	747	678,494	674,893	682,007	679,152	675,619	682,601	623	541	708	678,494	674,893	682,007	679,117	675,582	682,569
73 - 77	800	695	913	554,326	550,744	557,788	555,126	551,628	558,504	753	653	859	554,326	550,744	557,788	555,079	551,577	558,461
78 - 82	783	677	898	393,784	390,324	397,173	394,567	391,155	397,900	731	631	839	393,784	390,324	397,173	394,514	391,099	397,852
83 - 87	555	473	645	208,183	203,696	212,699	208,739	204,241	213,276	512	436	595	208,183	203,696	212,699	208,695	204,193	213,233
88 - 92	201	155	250	44,385	39,290	49,590	44,585	39,458	49,810	182	142	226	44,385	39,290	49,590	44,567	39,442	49,790
93 - 97	-1	-3	1	5	-11	25	4	-9	21	-1	-3	1	5	-11	25	4	-9	21
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.15, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on purchase probability projections for the 'Master model': Increasing age category at MRTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 48-52 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305
28 - 32	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794
33 - 37	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763
38 - 42	0	0	0	959,978	958,732	961,234	959,978	958,732	961,234	0	0	0	959,978	958,732	961,234	959,978	958,732	961,234
43 - 47	0	0	0	942,285	940,758	943,830	942,285	940,758	943,830	0	0	0	942,285	940,758	943,830	942,285	940,758	943,830
48 - 52	0	0	0	917,749	915,866	919,636	917,749	915,866	919,636	0	0	0	917,749	915,866	919,636	917,749	915,866	919,636
53 - 57	23	20	26	883,638	881,326	885,956	883,661	881,349	885,977	22	19	25	883,638	881,326	885,956	883,660	881,348	885,976
58 - 62	81	70	91	836,133	833,339	838,900	836,213	833,424	838,971	77	67	87	836,133	833,339	838,900	836,209	833,420	838,968
63 - 67	178	155	202	769,998	766,689	773,230	770,176	766,886	773,389	169	147	192	769,998	766,689	773,230	770,167	766,877	773,381
68 - 72	298	259	340	678,494	674,893	682,007	678,792	675,218	682,275	283	245	322	678,494	674,893	682,007	678,777	675,201	682,260
73 - 77	394	341	450	554,326	550,744	557,788	554,720	551,181	558,141	372	321	425	554,326	550,744	557,788	554,698	551,157	558,120
78 - 82	404	348	465	393,784	390,324	397,173	394,188	390,750	397,550	379	326	436	393,784	390,324	397,173	394,163	390,723	397,527
83 - 87	293	248	342	208,183	203,696	212,699	208,476	203,980	213,000	272	230	317	208,183	203,696	212,699	208,455	203,961	212,980
88 - 92	106	82	133	44,385	39,290	49,590	44,491	39,377	49,717	97	75	121	44,385	39,290	49,590	44,482	39,370	49,707
93 - 97	-1	-3	1	5	-11	25	4	-10	22	-1	-3	1	5	-11	25	4	-10	22
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.15, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on purchase probability projections for the 'Master model': Increasing age category at MRTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 53-57 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305
28 - 32	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794
33 - 37	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763
38 - 42	0	0	0	959,978	958,732	961,234	959,978	958,732	961,234	0	0	0	959,978	958,732	961,234	959,978	958,732	961,234
43 - 47	0	0	0	942,285	940,758	943,830	942,285	940,758	943,830	0	0	0	942,285	940,758	943,830	942,285	940,758	943,830
48 - 52	0	0	0	917,749	915,866	919,636	917,749	915,866	919,636	0	0	0	917,749	915,866	919,636	917,749	915,866	919,636
53 - 57	0	0	0	883,638	881,326	885,956	883,638	881,326	885,956	0	0	0	883,638	881,326	885,956	883,638	881,326	885,956
58 - 62	14	13	16	836,133	833,339	838,900	836,147	833,354	838,912	14	12	16	836,133	833,339	838,900	836,146	833,353	838,911
63 - 67	57	49	65	769,998	766,689	773,230	770,055	766,752	773,283	54	47	62	769,998	766,689	773,230	770,052	766,749	773,281
68 - 72	124	108	142	678,494	674,893	682,007	678,618	675,028	682,120	119	103	135	678,494	674,893	682,007	678,613	675,022	682,114
73 - 77	189	163	217	554,326	550,744	557,788	554,516	550,953	557,957	180	155	207	554,326	550,744	557,788	554,506	550,943	557,949
78 - 82	210	180	242	393,784	390,324	397,173	393,994	390,545	397,370	199	171	230	393,784	390,324	397,173	393,983	390,533	397,359
83 - 87	159	134	186	208,183	203,696	212,699	208,342	203,852	212,870	149	126	175	208,183	203,696	212,699	208,332	203,843	212,860
88 - 92	58	45	74	44,385	39,290	49,590	44,443	39,338	49,660	54	42	68	44,385	39,290	49,590	44,439	39,335	49,655
93 - 97	-0	-2	1	5	-11	25	4	-10	23	-0	-2	1	5	-11	25	4	-10	23
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.15, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on purchase probability projections for the 'Master model': Increasing age category at MRTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 58-62 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305
28 - 32	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794
33 - 37	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763
38 - 42	0	0	0	959,978	958,732	961,234	959,978	958,732	961,234	0	0	0	959,978	958,732	961,234	959,978	958,732	961,234
43 - 47	0	0	0	942,285	940,758	943,830	942,285	940,758	943,830	0	0	0	942,285	940,758	943,830	942,285	940,758	943,830
48 - 52	0	0	0	917,749	915,866	919,636	917,749	915,866	919,636	0	0	0	917,749	915,866	919,636	917,749	915,866	919,636
53 - 57	0	0	0	883,638	881,326	885,956	883,638	881,326	885,956	0	0	0	883,638	881,326	885,956	883,638	881,326	885,956
58 - 62	0	0	0	836,133	833,339	838,900	836,133	833,339	838,900	0	0	0	836,133	833,339	838,900	836,133	833,339	838,900
63 - 67	18	15	20	769,998	766,689	773,230	770,016	766,709	773,246	17	15	20	769,998	766,689	773,230	770,015	766,708	773,245
68 - 72	59	51	67	678,494	674,893	682,007	678,553	674,956	682,060	56	49	65	678,494	674,893	682,007	678,551	674,954	682,058
73 - 77	106	91	121	554,326	550,744	557,788	554,432	550,860	557,882	101	87	116	554,326	550,744	557,788	554,427	550,855	557,878
78 - 82	128	109	148	393,784	390,324	397,173	393,911	390,452	397,293	122	104	141	393,784	390,324	397,173	393,905	390,445	397,287
83 - 87	101	85	119	208,183	203,696	212,699	208,284	203,798	212,808	96	80	112	208,183	203,696	212,699	208,279	203,793	212,802
88 - 92	38	29	48	44,385	39,290	49,590	44,423	39,322	49,636	36	27	45	44,385	39,290	49,590	44,421	39,320	49,633
93 - 97	-0	-2	1	5	-11	25	5	-10	23	-0	-2	1	5	-11	25	5	-10	23
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E3.15, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on purchase probability projections for the 'Master model': Increasing age category at MRTP availability

First Age Category of Camel SNUS availability

For 'Alternative initiation' and 'additional initiation': N/A; for 'switching' and 'diversion from quitting': 63-67 years

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428	0	0	0	997,252	997,070	997,428	997,252	997,070	997,428
18 - 22	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009	0	0	0	993,650	993,281	994,009	993,650	993,281	994,009
23 - 27	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305	0	0	0	988,756	988,189	989,305	988,756	988,189	989,305
28 - 32	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794	0	0	0	982,030	981,252	982,794	982,030	981,252	982,794
33 - 37	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763	0	0	0	972,766	971,766	973,763	972,766	971,766	973,763
38 - 42	0	0	0	959,978	958,732	961,234	959,978	958,732	961,234	0	0	0	959,978	958,732	961,234	959,978	958,732	961,234
43 - 47	0	0	0	942,285	940,758	943,830	942,285	940,758	943,830	0	0	0	942,285	940,758	943,830	942,285	940,758	943,830
48 - 52	0	0	0	917,749	915,866	919,636	917,749	915,866	919,636	0	0	0	917,749	915,866	919,636	917,749	915,866	919,636
53 - 57	0	0	0	883,638	881,326	885,956	883,638	881,326	885,956	0	0	0	883,638	881,326	885,956	883,638	881,326	885,956
58 - 62	0	0	0	836,133	833,339	838,900	836,133	833,339	838,900	0	0	0	836,133	833,339	838,900	836,133	833,339	838,900
63 - 67	0	0	0	769,998	766,689	773,230	769,998	766,689	773,230	0	0	0	769,998	766,689	773,230	769,998	766,689	773,230
68 - 72	15	13	17	678,494	674,893	682,007	678,509	674,908	682,020	14	12	16	678,494	674,893	682,007	678,508	674,908	682,019
73 - 77	40	34	46	554,326	550,744	557,788	554,366	550,787	557,823	38	33	44	554,326	550,744	557,788	554,364	550,785	557,821
78 - 82	58	49	67	393,784	390,324	397,173	393,841	390,380	397,228	55	47	64	393,784	390,324	397,173	393,839	390,377	397,225
83 - 87	50	42	59	208,183	203,696	212,699	208,233	203,749	212,753	48	40	56	208,183	203,696	212,699	208,231	203,746	212,751
88 - 92	20	15	25	44,385	39,290	49,590	44,405	39,307	49,614	19	14	24	44,385	39,290	49,590	44,403	39,306	49,613
93 - 97	-0	-1	0	5	-11	25	5	-10	23	-0	-1	0	5	-11	25	5	-10	23
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E_C3: Mean numbers of survivors in the 'master model' (no 'relapse'), the counterfactual scenario with 50% 'relapse' in the 'master model', and the difference between them, for all age categories

	ERR=0.08			ERR=0.11		
Age interval	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'
13 - 17	0	997,252	997,252	0	997,252	997,252
18 - 22	0	993,651	993,651	0	993,651	993,651
23 - 27	3	988,774	988,777	3	988,773	988,776
28 - 32	11	982,113	982,124	10	982,109	982,119
33 - 37	29	972,994	973,023	28	972,982	973,010
38 - 42	62	960,467	960,529	60	960,442	960,502
43 - 47	117	943,192	943,309	113	943,145	943,258
48 - 52	199	919,266	919,465	193	919,183	919,376
53 - 57	314	885,973	886,287	303	885,838	886,141
58 - 62	457	839,463	839,920	440	839,256	839,696
63 - 67	613	774,409	775,022	588	774,109	774,697
68 - 72	754	683,877	684,631	718	683,471	684,189
73 - 77	831	560,253	561,084	787	559,747	560,534
78 - 82	786	399,417	400,203	738	398,865	399,603
83 - 87	572	212,350	212,922	531	211,880	212,411
88 - 92	222	46,085	46,307	203	45,872	46,075
93 - 97	0	3	3	0	3	3
98 - 102	0	0	0	0	0	0

Table E_C4: Mean numbers of survivors in the 'master model' without 'alternative initiation' (no 'relapse'), the counterfactual scenario with 50% 'relapse' in the 'master model' without 'alternative initiation', and the difference between them, for all age categories

	ERR=0.08			ERR=0.11		
Age interval	Difference in survivors	Number of survivors, Counterfactual, 'master model' without 'alternative initiation' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model' without 'alternative initiation'	Difference in survivors	Number of survivors, Counterfactual, 'master model' without 'alternative initiation' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model' without 'alternative initiation'
13 - 17	0	997,252	997,252	0	997,252	997,252
18 - 22	0	993,650	993,650	0	993,650	993,650
23 - 27	3	988,772	988,775	3	988,771	988,774
28 - 32	10	982,109	982,119	11	982,104	982,115
33 - 37	29	972,986	973,015	28	972,975	973,003
38 - 42	62	960,455	960,517	60	960,431	960,491
43 - 47	117	943,175	943,292	114	943,128	943,242
48 - 52	201	919,243	919,444	194	919,162	919,356
53 - 57	316	885,945	886,261	304	885,813	886,117
58 - 62	460	839,432	839,892	442	839,228	839,670
63 - 67	617	774,379	774,996	591	774,083	774,674
68 - 72	757	683,855	684,612	723	683,452	684,175
73 - 77	835	560,246	561,081	791	559,744	560,535
78 - 82	790	399,431	400,221	741	398,883	399,624
83 - 87	576	212,383	212,959	533	211,915	212,448
88 - 92	224	46,116	46,340	204	45,903	46,107
93 - 97	-1	4	3	-1	4	3
98 - 102	0	0	0	0	0	0

Table E_C5: Mean numbers of survivors in the counterfactual scenario with 'diversion from quitting' (no 'relapse'), the counterfactual scenario with 50% 'relapse' in addition to 'diversion from quitting', and the difference between them, for all age categories

	ERR=0.08			ERR=0.11		
Age interval	Difference in survivors	Number of survivors, Counterfactual, 'diversion from quitting' with 50% 'relapse'	Number of survivors, Counterfactual, 'diversion from quitting'	Difference in survivors	Number of survivors, Counterfactual, 'diversion from quitting' with 50% 'relapse'	Number of survivors, Counterfactual, 'diversion from quitting'
13 - 17	0	997,252	997,252	0	997,252	997,252
18 - 22	0	993,650	993,650	0	993,650	993,650
23 - 27	3	988,753	988,756	2	988,753	988,755
28 - 32	11	982,017	982,028	10	982,017	982,027
33 - 37	30	972,730	972,760	30	972,729	972,759
38 - 42	68	959,898	959,966	66	959,896	959,962
43 - 47	130	942,132	942,262	127	942,127	942,254
48 - 52	227	917,479	917,706	220	917,471	917,691
53 - 57	364	883,202	883,566	352	883,189	883,541
58 - 62	537	835,482	836,019	517	835,461	835,978
63 - 67	728	769,101	769,829	697	769,071	769,768
68 - 72	900	677,360	678,260	859	677,317	678,176
73 - 77	995	553,032	554,027	944	552,978	553,922
78 - 82	943	392,506	393,449	885	392,447	393,332
83 - 87	685	207,203	207,888	635	207,152	207,787
88 - 92	265	43,978	44,243	241	43,955	44,196
93 - 97	0	5	5	0	5	5
98 - 102	0	0	0	0	0	0

Table E_C6: Mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' (no 'relapse'), mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' with 50% 'relapse', and the difference between them, for all age categories

0% 'switching'

	ERR=0.08			ERR=0.11		
Age interval	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'
13 - 17	0	997,252	997,252	0	997,252	997,252
18 - 22	0	993,650	993,650	0	993,650	993,650
23 - 27	2	988,751	988,753	2	988,751	988,753
28 - 32	11	982,009	982,020	10	982,008	982,018
33 - 37	31	972,708	972,739	30	972,705	972,735
38 - 42	68	959,853	959,921	66	959,847	959,913
43 - 47	131	942,050	942,181	127	942,040	942,167
48 - 52	227	917,348	917,575	220	917,331	917,551
53 - 57	364	883,008	883,372	351	882,981	883,332
58 - 62	537	835,215	835,752	516	835,175	835,691
63 - 67	727	768,765	769,492	696	768,708	769,404
68 - 72	899	676,979	677,878	858	676,903	677,761
73 - 77	994	552,666	553,660	943	552,575	553,518
78 - 82	942	392,246	393,188	884	392,153	393,037
83 - 87	684	207,133	207,817	634	207,061	207,695
88 - 92	265	44,067	44,332	241	44,041	44,282
93 - 97	0	5	5	0	5	5
98 - 102	0	0	0	0	0	0

Table E_C6, cont.: Mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' (no 'relapse'), mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' with 50% 'relapse', and the difference between them, for all age categories

0.5% 'switching'

Age interval	ERR=0.08			ERR=0.11		
	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'
13 - 17	0	997,252	997,252	0	997,252	997,252
18 - 22	0	993,650	993,650	0	993,650	993,650
23 - 27	3	988,752	988,755	2	988,752	988,754
28 - 32	11	982,016	982,027	11	982,014	982,025
33 - 37	30	972,730	972,760	30	972,726	972,756
38 - 42	67	959,905	959,972	65	959,898	959,963
43 - 47	129	942,156	942,285	124	942,143	942,267
48 - 52	224	917,539	917,763	216	917,516	917,732
53 - 57	357	883,322	883,679	344	883,284	883,628
58 - 62	524	835,690	836,214	505	835,631	836,136
63 - 67	710	769,423	770,133	680	769,339	770,019
68 - 72	876	677,811	678,687	836	677,697	678,533
73 - 77	969	553,601	554,570	917	553,463	554,380
78 - 82	916	393,140	394,056	860	392,994	393,854
83 - 87	665	207,783	208,448	617	207,665	208,282
88 - 92	258	44,316	44,574	235	44,269	44,504
93 - 97	0	5	5	0	5	5
98 - 102	0	0	0	0	0	0

Table E_C6, cont.: Mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' (no 'relapse'), mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' with 50% 'relapse', and the difference between them, for all age categories

1% 'switching'

	ERR=0.08			ERR=0.11		
Age interval	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'
13 - 17	0	997,252	997,252	0	997,252	997,252
18 - 22	0	993,650	993,650	0	993,650	993,650
23 - 27	2	988,754	988,756	2	988,753	988,755
28 - 32	11	982,023	982,034	11	982,021	982,032
33 - 37	30	972,752	972,782	30	972,747	972,777
38 - 42	66	959,957	960,023	64	959,948	960,012
43 - 47	127	942,261	942,388	122	942,245	942,367
48 - 52	219	917,728	917,947	212	917,698	917,910
53 - 57	350	883,631	883,981	337	883,582	883,919
58 - 62	513	836,155	836,668	493	836,079	836,572
63 - 67	692	770,068	770,760	663	769,957	770,620
68 - 72	854	678,624	679,478	814	678,474	679,288
73 - 77	943	554,515	555,458	894	554,329	555,223
78 - 82	891	394,013	394,904	837	393,814	394,651
83 - 87	648	208,416	209,064	600	208,254	208,854
88 - 92	251	44,560	44,811	229	44,491	44,720
93 - 97	-1	5	4	-1	5	4
98 - 102	0	0	0	0	0	0

Table E_C6, cont.: Mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' (no 'relapse'), mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' with 50% 'relapse', and the difference between them, for all age categories

1.5% 'switching'

	ERR=0.08			ERR=0.11		
Age interval	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'
13 - 17	0	997,252	997,252	0	997,252	997,252
18 - 22	0	993,650	993,650	0	993,650	993,650
23 - 27	2	988,755	988,757	3	988,754	988,757
28 - 32	11	982,030	982,041	10	982,028	982,038
33 - 37	30	972,773	972,803	28	972,769	972,797
38 - 42	65	960,009	960,074	64	959,998	960,062
43 - 47	125	942,365	942,490	121	942,345	942,466
48 - 52	216	917,914	918,130	209	917,878	918,087
53 - 57	343	883,935	884,278	331	883,875	884,206
58 - 62	502	836,612	837,114	482	836,519	837,001
63 - 67	675	770,700	771,375	648	770,562	771,210
68 - 72	832	679,420	680,252	793	679,233	680,026
73 - 77	918	555,408	556,326	869	555,176	556,045
78 - 82	868	394,864	395,732	814	394,615	395,429
83 - 87	631	209,035	209,666	585	208,828	209,413
88 - 92	245	44,797	45,042	222	44,709	44,931
93 - 97	0	4	4	0	4	4
98 - 102	0	0	0	0	0	0

Table E_H1: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking' ('master model'); mortality rates for women

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631
18 - 22	0	0	0	996,656	996,422	996,877	996,656	996,423	996,877	0	0	0	996,656	996,422	996,877	996,656	996,423	996,877
23 - 27	12	10	14	994,175	993,819	994,511	994,186	993,831	994,522	11	9	13	994,175	993,819	994,511	994,186	993,831	994,521
28 - 32	52	44	60	990,793	990,308	991,256	990,845	990,363	991,303	49	42	57	990,793	990,308	991,256	990,842	990,360	991,301
33 - 37	142	122	162	986,111	985,492	986,712	986,252	985,642	986,842	135	116	155	986,111	985,492	986,712	986,246	985,635	986,836
38 - 42	309	267	352	979,521	978,754	980,281	979,830	979,081	980,569	294	253	336	979,521	978,754	980,281	979,816	979,065	980,555
43 - 47	589	510	670	970,094	969,141	971,029	970,683	969,783	971,576	560	484	639	970,094	969,141	971,029	970,654	969,753	971,548
48 - 52	1,028	892	1,168	956,369	955,198	957,540	957,398	956,312	958,477	976	844	1,110	956,369	955,198	957,540	957,345	956,256	958,429
53 - 57	1,674	1,453	1,899	936,029	934,569	937,506	937,703	936,391	939,015	1,584	1,371	1,800	936,029	934,569	937,506	937,613	936,296	938,932
58 - 62	2,560	2,222	2,906	905,333	903,479	907,243	907,894	906,317	909,514	2,413	2,090	2,744	905,333	903,479	907,243	907,746	906,159	909,379
63 - 67	3,687	3,204	4,181	858,218	855,797	860,609	861,905	859,917	863,905	3,455	2,994	3,927	858,218	855,797	860,609	861,674	859,665	863,692
68 - 72	4,950	4,302	5,619	784,991	782,039	787,940	789,941	787,554	792,339	4,605	3,988	5,241	784,991	782,039	787,940	789,595	787,187	792,021
73 - 77	6,024	5,236	6,844	671,075	667,696	674,396	677,099	674,369	679,756	5,546	4,804	6,319	671,075	667,696	674,396	676,621	673,862	679,314
78 - 82	6,218	5,387	7,084	498,612	495,053	502,115	504,829	501,767	507,840	5,642	4,870	6,451	498,612	495,053	502,115	504,254	501,173	507,290
83 - 87	4,521	3,806	5,279	261,599	256,994	266,145	266,120	261,440	270,767	4,018	3,367	4,709	261,599	256,994	266,145	265,617	260,956	270,242
88 - 92	743	177	1,317	20,927	15,029	26,772	21,670	15,362	27,853	635	150	1,124	20,927	15,029	26,772	21,562	15,315	27,693
93 - 97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E_H5: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'additional initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking'; mortality rates for women

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631
18 - 22	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877
23 - 27	10	9	12	994,175	993,819	994,511	994,185	993,830	994,521	10	8	12	994,175	993,819	994,511	994,184	993,829	994,520
28 - 32	49	42	57	990,793	990,308	991,256	990,842	990,360	991,301	47	40	54	990,793	990,308	991,256	990,840	990,358	991,299
33 - 37	138	118	158	986,111	985,492	986,712	986,248	985,638	986,838	131	112	150	986,111	985,492	986,712	986,242	985,631	986,832
38 - 42	302	261	345	979,521	978,754	980,281	979,824	979,074	980,563	288	248	329	979,521	978,754	980,281	979,809	979,058	980,549
43 - 47	580	501	659	970,094	969,141	971,029	970,673	969,773	971,567	551	476	629	970,094	969,141	971,029	970,645	969,743	971,539
48 - 52	1,015	880	1,153	956,369	955,198	957,540	957,385	956,298	958,466	964	833	1,096	956,369	955,198	957,540	957,333	956,242	958,417
53 - 57	1,657	1,438	1,880	936,029	934,569	937,506	937,686	936,374	939,002	1,568	1,358	1,783	936,029	934,569	937,506	937,598	936,280	938,919
58 - 62	2,540	2,204	2,883	905,333	903,479	907,243	907,874	906,293	909,495	2,394	2,074	2,723	905,333	903,479	907,243	907,728	906,139	909,360
63 - 67	3,665	3,185	4,156	858,218	855,797	860,609	861,883	859,891	863,885	3,436	2,977	3,905	858,218	855,797	860,609	861,654	859,642	863,675
68 - 72	4,930	4,283	5,593	784,991	782,039	787,940	789,920	787,531	792,320	4,587	3,973	5,219	784,991	782,039	787,940	789,578	787,167	792,006
73 - 77	6,010	5,226	6,824	671,075	667,696	674,396	677,085	674,350	679,745	5,536	4,797	6,308	671,075	667,696	674,396	676,611	673,848	679,310
78 - 82	6,217	5,388	7,081	498,612	495,053	502,115	504,829	501,761	507,845	5,646	4,873	6,453	498,612	495,053	502,115	504,258	501,173	507,300
83 - 87	4,535	3,814	5,298	261,599	256,994	266,145	266,134	261,447	270,783	4,034	3,380	4,729	261,599	256,994	266,145	265,633	260,974	270,264
88 - 92	752	175	1,339	20,927	15,029	26,772	21,679	15,359	27,865	644	148	1,145	20,927	15,029	26,772	21,571	15,311	27,706
93 - 97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E_H8: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

0% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631
18 - 22	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877
23 - 27	-1	-1	-1	994,175	993,819	994,511	994,173	993,818	994,510	-2	-2	-2	994,175	993,819	994,511	994,173	993,817	994,510
28 - 32	-5	-6	-5	990,793	990,308	991,256	990,788	990,302	991,250	-6	-7	-6	990,793	990,308	991,256	990,787	990,301	991,250
33 - 37	-15	-15	-14	986,111	985,492	986,712	986,096	985,477	986,698	-17	-18	-16	986,111	985,492	986,712	986,094	985,475	986,696
38 - 42	-31	-33	-30	979,521	978,754	980,281	979,490	978,722	980,250	-36	-37	-34	979,521	978,754	980,281	979,486	978,718	980,246
43 - 47	-59	-62	-57	970,094	969,141	971,029	970,034	969,082	970,970	-67	-70	-64	970,094	969,141	971,029	970,026	969,074	970,962
48 - 52	-103	-106	-99	956,369	955,198	957,540	956,267	955,097	957,439	-117	-122	-112	956,369	955,198	957,540	956,252	955,081	957,425
53 - 57	-167	-173	-161	936,029	934,569	937,506	935,862	934,402	937,336	-192	-199	-185	936,029	934,569	937,506	935,838	934,377	937,312
58 - 62	-257	-266	-249	905,333	903,479	907,243	905,076	903,221	906,985	-298	-310	-287	905,333	903,479	907,243	905,035	903,180	906,945
63 - 67	-376	-389	-363	858,218	855,797	860,609	857,842	855,420	860,231	-439	-457	-422	858,218	855,797	860,609	857,779	855,353	860,169
68 - 72	-515	-534	-496	784,991	782,039	787,940	784,476	781,528	787,418	-608	-635	-583	784,991	782,039	787,940	784,382	781,433	787,326
73 - 77	-642	-669	-616	671,075	667,696	674,396	670,433	667,054	673,749	-769	-807	-733	671,075	667,696	674,396	670,306	666,924	673,627
78 - 82	-680	-717	-645	498,612	495,053	502,115	497,931	494,373	501,432	-830	-881	-782	498,612	495,053	502,115	497,782	494,220	501,281
83 - 87	-501	-542	-462	261,599	256,994	266,145	261,098	256,492	265,636	-628	-682	-576	261,599	256,994	266,145	260,971	256,374	265,503
88 - 92	-63	-91	-38	20,927	15,029	26,772	20,864	14,977	26,692	-88	-130	-51	20,927	15,029	26,772	20,839	14,969	26,657
93 - 97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E_H8, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

0.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631
18 - 22	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877
23 - 27	-1	-1	-1	994,175	993,819	994,511	994,174	993,818	994,510	-1	-1	-1	994,175	993,819	994,511	994,174	993,818	994,510
28 - 32	-2	-2	-1	990,793	990,308	991,256	990,791	990,307	991,254	-3	-3	-2	990,793	990,308	991,256	990,791	990,306	991,253
33 - 37	-3	-4	-1	986,111	985,492	986,712	986,108	985,489	986,708	-5	-7	-3	986,111	985,492	986,712	986,105	985,487	986,706
38 - 42	-3	-6	1	979,521	978,754	980,281	979,519	978,754	980,277	-8	-11	-4	979,521	978,754	980,281	979,514	978,749	980,272
43 - 47	1	-7	9	970,094	969,141	971,029	970,094	969,148	971,027	-9	-17	-2	970,094	969,141	971,029	970,084	969,137	971,017
48 - 52	10	-4	25	956,369	955,198	957,540	956,380	955,217	957,542	-8	-21	6	956,369	955,198	957,540	956,361	955,197	957,525
53 - 57	29	4	54	936,029	934,569	937,506	936,058	934,616	937,514	-3	-26	21	936,029	934,569	937,506	936,026	934,583	937,483
58 - 62	59	21	100	905,333	903,479	907,243	905,393	903,569	907,269	7	-29	45	905,333	903,479	907,243	905,340	903,514	907,220
63 - 67	103	46	164	858,218	855,797	860,609	858,321	855,959	860,667	21	-33	77	858,218	855,797	860,609	858,239	855,871	860,588
68 - 72	154	76	238	784,991	782,039	787,940	785,145	782,259	788,016	32	-41	109	784,991	782,039	787,940	785,022	782,130	787,902
73 - 77	196	99	300	671,075	667,696	674,396	671,271	667,976	674,506	28	-61	123	671,075	667,696	674,396	671,103	667,807	674,343
78 - 82	199	97	309	498,612	495,053	502,115	498,810	495,326	502,244	-2	-93	99	498,612	495,053	502,115	498,610	495,122	502,049
83 - 87	136	47	230	261,599	256,994	266,145	261,735	257,130	266,273	-35	-111	48	261,599	256,994	266,145	261,564	256,961	266,101
88 - 92	35	-28	99	20,927	15,029	26,772	20,962	15,017	26,825	1	-41	46	20,927	15,029	26,772	20,928	15,005	26,778
93 - 97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E_H8, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

1% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631
18 - 22	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877
23 - 27	0	-0	0	994,175	993,819	994,511	994,175	993,819	994,511	-0	-0	-0	994,175	993,819	994,511	994,174	993,819	994,511
28 - 32	2	1	3	990,793	990,308	991,256	990,795	990,311	991,258	1	0	2	990,793	990,308	991,256	990,794	990,310	991,257
33 - 37	9	6	12	986,111	985,492	986,712	986,120	985,501	986,719	6	4	9	986,111	985,492	986,712	986,117	985,499	986,716
38 - 42	26	19	33	979,521	978,754	980,281	979,547	978,783	980,303	20	13	27	979,521	978,754	980,281	979,541	978,777	980,298
43 - 47	60	46	75	970,094	969,141	971,029	970,154	969,209	971,083	48	34	63	970,094	969,141	971,029	970,142	969,196	971,071
48 - 52	121	94	149	956,369	955,198	957,540	956,491	955,336	957,643	100	74	126	956,369	955,198	957,540	956,469	955,314	957,622
53 - 57	221	174	269	936,029	934,569	937,506	936,250	934,825	937,689	183	139	229	936,029	934,569	937,506	936,212	934,785	937,652
58 - 62	370	295	447	905,333	903,479	907,243	905,704	903,914	907,546	306	236	380	905,333	903,479	907,243	905,640	903,846	907,486
63 - 67	572	460	689	858,218	855,797	860,609	858,790	856,473	861,097	471	366	582	858,218	855,797	860,609	858,689	856,366	861,002
68 - 72	808	653	973	784,991	782,039	787,940	785,799	782,996	788,601	657	513	812	784,991	782,039	787,940	785,647	782,833	788,462
73 - 77	1,014	821	1,219	671,075	667,696	674,396	672,089	668,888	675,248	805	625	995	671,075	667,696	674,396	671,880	668,669	675,046
78 - 82	1,055	851	1,272	498,612	495,053	502,115	499,667	496,255	503,029	806	618	1,007	498,612	495,053	502,115	499,418	495,999	502,782
83 - 87	756	580	943	261,599	256,994	266,145	262,356	257,743	266,894	543	389	708	261,599	256,994	266,145	262,142	257,533	266,681
88 - 92	131	1	262	20,927	15,029	26,772	21,059	15,049	26,966	88	-12	189	20,927	15,029	26,772	21,015	15,034	26,902
93 - 97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E_H8, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

1.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631
18 - 22	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877
23 - 27	1	0	1	994,175	993,819	994,511	994,175	993,820	994,512	0	0	1	994,175	993,819	994,511	994,175	993,819	994,511
28 - 32	6	5	8	990,793	990,308	991,256	990,799	990,315	991,261	5	3	6	990,793	990,308	991,256	990,798	990,313	991,260
33 - 37	21	16	26	986,111	985,492	986,712	986,132	985,514	986,731	18	14	22	986,111	985,492	986,712	986,128	985,511	986,728
38 - 42	55	44	65	979,521	978,754	980,281	979,576	978,813	980,330	48	38	58	979,521	978,754	980,281	979,569	978,806	980,323
43 - 47	119	97	141	970,094	969,141	971,029	970,213	969,276	971,138	105	85	127	970,094	969,141	971,029	970,199	969,261	971,125
48 - 52	231	191	272	956,369	955,198	957,540	956,601	955,455	957,741	206	167	245	956,369	955,198	957,540	956,575	955,429	957,717
53 - 57	411	341	482	936,029	934,569	937,506	936,440	935,028	937,861	366	299	433	936,029	934,569	937,506	936,395	934,979	937,817
58 - 62	675	564	789	905,333	903,479	907,243	906,009	904,255	907,822	600	494	709	905,333	903,479	907,243	905,934	904,175	907,752
63 - 67	1,031	864	1,204	858,218	855,797	860,609	859,250	856,982	861,516	912	754	1,076	858,218	855,797	860,609	859,130	856,855	861,402
68 - 72	1,447	1,215	1,688	784,991	782,039	787,940	786,438	783,701	789,169	1,267	1,050	1,497	784,991	782,039	787,940	786,258	783,506	789,003
73 - 77	1,812	1,523	2,117	671,075	667,696	674,396	672,887	669,776	675,951	1,563	1,294	1,848	671,075	667,696	674,396	672,638	669,509	675,722
78 - 82	1,890	1,582	2,215	498,612	495,053	502,115	500,502	497,163	503,800	1,592	1,311	1,893	498,612	495,053	502,115	500,204	496,847	503,519
83 - 87	1,361	1,095	1,642	261,599	256,994	266,145	262,961	258,351	267,510	1,106	870	1,357	261,599	256,994	266,145	262,705	258,105	267,246
88 - 92	225	29	423	20,927	15,029	26,772	21,153	15,091	27,100	173	14	333	20,927	15,029	26,772	21,100	15,066	27,024
93 - 97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E_H8, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

2% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631
18 - 22	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877
23 - 27	1	1	2	994,175	993,819	994,511	994,176	993,821	994,512	1	1	2	994,175	993,819	994,511	994,176	993,820	994,512
28 - 32	10	8	12	990,793	990,308	991,256	990,803	990,319	991,265	9	7	11	990,793	990,308	991,256	990,802	990,317	991,264
33 - 37	33	27	39	986,111	985,492	986,712	986,143	985,526	986,741	29	24	35	986,111	985,492	986,712	986,140	985,523	986,738
38 - 42	83	69	97	979,521	978,754	980,281	979,604	978,843	980,356	75	62	89	979,521	978,754	980,281	979,596	978,835	980,349
43 - 47	177	149	207	970,094	969,141	971,029	970,271	969,338	971,192	162	134	190	970,094	969,141	971,029	970,255	969,321	971,177
48 - 52	340	286	394	956,369	955,198	957,540	956,709	955,574	957,840	311	259	363	956,369	955,198	957,540	956,680	955,543	957,813
53 - 57	597	505	690	936,029	934,569	937,506	936,626	935,227	938,033	546	458	635	936,029	934,569	937,506	936,575	935,171	937,985
58 - 62	975	827	1,125	905,333	903,479	907,243	906,308	904,592	908,090	889	749	1,032	905,333	903,479	907,243	906,222	904,501	908,008
63 - 67	1,481	1,260	1,709	858,218	855,797	860,609	859,699	857,477	861,920	1,343	1,134	1,560	858,218	855,797	860,609	859,562	857,331	861,790
68 - 72	2,071	1,765	2,388	784,991	782,039	787,940	787,062	784,391	789,729	1,864	1,575	2,166	784,991	782,039	787,940	786,854	784,164	789,532
73 - 77	2,590	2,207	2,992	671,075	667,696	674,396	673,665	670,632	676,656	2,302	1,943	2,681	671,075	667,696	674,396	673,377	670,328	676,385
78 - 82	2,703	2,295	3,133	498,612	495,053	502,115	501,315	498,046	504,554	2,358	1,983	2,758	498,612	495,053	502,115	500,970	497,691	504,227
83 - 87	1,951	1,598	2,324	261,599	256,994	266,145	263,550	258,906	268,124	1,654	1,339	1,990	261,599	256,994	266,145	263,253	258,626	267,813
88 - 92	317	56	583	20,927	15,029	26,772	21,244	15,154	27,229	256	39	474	20,927	15,029	26,772	21,183	15,118	27,148
93 - 97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E_H8, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

2.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631
18 - 22	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877
23 - 27	2	2	3	994,175	993,819	994,511	994,177	993,821	994,513	2	1	2	994,175	993,819	994,511	994,176	993,821	994,513
28 - 32	14	11	16	990,793	990,308	991,256	990,807	990,323	991,269	12	10	15	990,793	990,308	991,256	990,805	990,321	991,267
33 - 37	44	37	52	986,111	985,492	986,712	986,155	985,539	986,752	41	34	48	986,111	985,492	986,712	986,151	985,535	986,749
38 - 42	111	93	129	979,521	978,754	980,281	979,632	978,873	980,383	102	85	119	979,521	978,754	980,281	979,624	978,864	980,375
43 - 47	235	199	271	970,094	969,141	971,029	970,329	969,402	971,246	218	183	252	970,094	969,141	971,029	970,311	969,383	971,229
48 - 52	447	380	514	956,369	955,198	957,540	956,816	955,685	957,937	414	350	478	956,369	955,198	957,540	956,783	955,652	957,908
53 - 57	780	666	896	936,029	934,569	937,506	936,810	935,430	938,199	723	613	834	936,029	934,569	937,506	936,752	935,367	938,145
58 - 62	1,269	1,086	1,455	905,333	903,479	907,243	906,602	904,918	908,357	1,172	998	1,350	905,333	903,479	907,243	906,505	904,808	908,264
63 - 67	1,921	1,648	2,203	858,218	855,797	860,609	860,139	857,969	862,312	1,766	1,506	2,034	858,218	855,797	860,609	859,984	857,802	862,166
68 - 72	2,681	2,302	3,073	784,991	782,039	787,940	787,672	785,070	790,283	2,447	2,089	2,820	784,991	782,039	787,940	787,437	784,820	790,066
73 - 77	3,349	2,874	3,845	671,075	667,696	674,396	674,424	671,463	677,334	3,023	2,577	3,492	671,075	667,696	674,396	674,098	671,118	677,032
78 - 82	3,496	2,989	4,031	498,612	495,053	502,115	502,108	498,891	505,285	3,105	2,637	3,603	498,612	495,053	502,115	501,717	498,483	504,914
83 - 87	2,526	2,087	2,988	261,599	256,994	266,145	264,125	259,476	268,734	2,188	1,796	2,607	261,599	256,994	266,145	263,787	259,154	268,372
88 - 92	407	81	736	20,927	15,029	26,772	21,334	15,188	27,360	337	63	614	20,927	15,029	26,772	21,264	15,165	27,257
93 - 97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E_H8, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

3% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631
18 - 22	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877
23 - 27	3	2	4	994,175	993,819	994,511	994,178	993,822	994,514	2	2	3	994,175	993,819	994,511	994,177	993,822	994,513
28 - 32	17	14	20	990,793	990,308	991,256	990,810	990,326	991,272	16	13	19	990,793	990,308	991,256	990,809	990,325	991,271
33 - 37	56	47	65	986,111	985,492	986,712	986,167	985,552	986,763	52	43	61	986,111	985,492	986,712	986,163	985,547	986,759
38 - 42	139	118	160	979,521	978,754	980,281	979,660	978,903	980,409	129	109	150	979,521	978,754	980,281	979,651	978,893	980,400
43 - 47	292	249	335	970,094	969,141	971,029	970,386	969,463	971,298	273	232	314	970,094	969,141	971,029	970,366	969,442	971,281
48 - 52	552	473	632	956,369	955,198	957,540	956,922	955,798	958,035	516	440	593	956,369	955,198	957,540	956,885	955,760	958,001
53 - 57	961	825	1,098	936,029	934,569	937,506	936,990	935,621	938,361	897	767	1,029	936,029	934,569	937,506	936,926	935,553	938,300
58 - 62	1,557	1,340	1,779	905,333	903,479	907,243	906,890	905,226	908,613	1,449	1,242	1,661	905,333	903,479	907,243	906,783	905,116	908,512
63 - 67	2,352	2,027	2,687	858,218	855,797	860,609	860,570	858,447	862,696	2,180	1,869	2,499	858,218	855,797	860,609	860,398	858,262	862,539
68 - 72	3,277	2,825	3,742	784,991	782,039	787,940	788,267	785,730	790,811	3,016	2,590	3,460	784,991	782,039	787,940	788,007	785,449	790,568
73 - 77	4,089	3,525	4,677	671,075	667,696	674,396	675,164	672,274	677,997	3,726	3,197	4,284	671,075	667,696	674,396	674,801	671,884	677,663
78 - 82	4,268	3,667	4,904	498,612	495,053	502,115	502,880	499,715	506,006	3,833	3,275	4,424	498,612	495,053	502,115	502,444	499,260	505,592
83 - 87	3,086	2,564	3,635	261,599	256,994	266,145	264,685	260,023	269,313	2,709	2,238	3,208	261,599	256,994	266,145	264,308	259,658	268,921
88 - 92	494	106	888	20,927	15,029	26,772	21,421	15,232	27,486	416	85	749	20,927	15,029	26,772	21,343	15,196	27,370
93 - 97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E_H8, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

3.5% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631
18 - 22	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877
23 - 27	4	3	4	994,175	993,819	994,511	994,178	993,823	994,514	3	2	4	994,175	993,819	994,511	994,178	993,822	994,514
28 - 32	21	18	25	990,793	990,308	991,256	990,814	990,331	991,276	20	16	23	990,793	990,308	991,256	990,813	990,329	991,274
33 - 37	68	57	78	986,111	985,492	986,712	986,178	985,565	986,773	63	53	73	986,111	985,492	986,712	986,174	985,560	986,769
38 - 42	166	142	191	979,521	978,754	980,281	979,688	978,932	980,435	156	133	180	979,521	978,754	980,281	979,677	978,921	980,425
43 - 47	348	299	399	970,094	969,141	971,029	970,442	969,523	971,352	327	280	376	970,094	969,141	971,029	970,421	969,501	971,332
48 - 52	656	565	748	956,369	955,198	957,540	957,026	955,909	958,132	617	529	706	956,369	955,198	957,540	956,986	955,868	958,092
53 - 57	1,138	981	1,297	936,029	934,569	937,506	937,168	935,818	938,523	1,068	917	1,220	936,029	934,569	937,506	937,097	935,744	938,457
58 - 62	1,840	1,588	2,096	905,333	903,479	907,243	907,173	905,535	908,868	1,722	1,482	1,966	905,333	903,479	907,243	907,055	905,410	908,757
63 - 67	2,774	2,399	3,160	858,218	855,797	860,609	860,992	858,924	863,075	2,585	2,227	2,954	858,218	855,797	860,609	860,803	858,713	862,904
68 - 72	3,859	3,338	4,396	784,991	782,039	787,940	788,849	786,375	791,341	3,572	3,079	4,085	784,991	782,039	787,940	788,563	786,068	791,073
73 - 77	4,811	4,160	5,491	671,075	667,696	674,396	675,886	673,056	678,634	4,412	3,800	5,055	671,075	667,696	674,396	675,487	672,635	678,271
78 - 82	5,022	4,327	5,755	498,612	495,053	502,115	503,633	500,511	506,699	4,542	3,895	5,224	498,612	495,053	502,115	503,153	500,020	506,239
83 - 87	3,632	3,029	4,267	261,599	256,994	266,145	265,231	260,561	269,870	3,216	2,669	3,794	261,599	256,994	266,145	264,815	260,168	269,432
88 - 92	580	131	1,036	20,927	15,029	26,772	21,507	15,280	27,615	493	107	882	20,927	15,029	26,772	21,420	15,232	27,482
93 - 97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E_H8, cont.: Numbers of survivors in the base case and counterfactual scenario and difference in survivors, counterfactual versus base case, for all age categories based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

4% 'switching'

	ERR=0.08									ERR=0.11								
	Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual			Difference in survivors			Number of survivors, base case			Number of survivors, counterfactual		
Age interval	Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI		Mean	95% PI	
13 - 17	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631	0	0	0	998,522	998,406	998,631	998,522	998,406	998,631
18 - 22	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877	-0	-0	-0	996,656	996,422	996,877	996,655	996,422	996,877
23 - 27	4	3	5	994,175	993,819	994,511	994,179	993,824	994,515	4	3	5	994,175	993,819	994,511	994,179	993,823	994,515
28 - 32	25	21	29	990,793	990,308	991,256	990,818	990,335	991,279	23	19	27	990,793	990,308	991,256	990,816	990,333	991,278
33 - 37	79	68	91	986,111	985,492	986,712	986,190	985,577	986,784	74	63	86	986,111	985,492	986,712	986,185	985,572	986,779
38 - 42	194	166	221	979,521	978,754	980,281	979,715	978,961	980,461	182	156	209	979,521	978,754	980,281	979,704	978,950	980,450
43 - 47	404	348	461	970,094	969,141	971,029	970,498	969,582	971,403	381	328	436	970,094	969,141	971,029	970,475	969,559	971,382
48 - 52	759	656	864	956,369	955,198	957,540	957,128	956,017	958,229	716	616	817	956,369	955,198	957,540	957,085	955,972	958,187
53 - 57	1,313	1,135	1,493	936,029	934,569	937,506	937,342	936,005	938,682	1,237	1,066	1,409	936,029	934,569	937,506	937,266	935,925	938,612
58 - 62	2,118	1,832	2,408	905,333	903,479	907,243	907,451	905,841	909,118	1,989	1,717	2,267	905,333	903,479	907,243	907,323	905,701	909,001
63 - 67	3,187	2,762	3,624	858,218	855,797	860,609	861,405	859,382	863,446	2,981	2,576	3,399	858,218	855,797	860,609	861,199	859,158	863,258
68 - 72	4,428	3,837	5,034	784,991	782,039	787,940	789,418	787,003	791,858	4,116	3,557	4,695	784,991	782,039	787,940	789,106	786,669	791,569
73 - 77	5,516	4,779	6,284	671,075	667,696	674,396	676,591	673,833	679,269	5,081	4,387	5,807	671,075	667,696	674,396	676,156	673,366	678,865
78 - 82	5,756	4,969	6,584	498,612	495,053	502,115	504,368	501,277	507,393	5,233	4,499	6,008	498,612	495,053	502,115	503,844	500,748	506,889
83 - 87	4,164	3,482	4,883	261,599	256,994	266,145	265,764	261,079	270,425	3,711	3,090	4,366	261,599	256,994	266,145	265,310	260,642	269,945
88 - 92	663	155	1,182	20,927	15,029	26,772	21,590	15,324	27,734	568	130	1,012	20,927	15,029	26,772	21,495	15,269	27,599
93 - 97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table E_H3: Mean numbers of survivors in the 'master model' (no 'relapse'), the counterfactual scenario with 50% 'relapse' in the 'master model', and the difference between them, for all age categories; mortality rates for women

Age interval	ERR=0.08			ERR=0.11		
	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'
13 - 17	0	998,522	998,522	0	998,522	998,522
18 - 22	0	996,656	996,656	0	996,656	996,656
23 - 27	1	994,185	994,186	2	994,184	994,186
28 - 32	6	990,839	990,845	5	990,837	990,842
33 - 37	15	986,237	986,252	16	986,230	986,246
38 - 42	34	979,796	979,830	34	979,782	979,816
43 - 47	67	970,616	970,683	65	970,589	970,654
48 - 52	120	957,278	957,398	115	957,230	957,345
53 - 57	199	937,504	937,703	192	937,421	937,613
58 - 62	311	907,583	907,894	299	907,447	907,746
63 - 67	452	861,453	861,905	435	861,239	861,674
68 - 72	613	789,328	789,941	585	789,010	789,595
73 - 77	749	676,350	677,099	711	675,910	676,621
78 - 82	774	504,055	504,829	729	503,525	504,254
83 - 87	563	265,557	266,120	523	265,094	265,617
88 - 92	90	21,580	21,670	81	21,481	21,562
93 - 97	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0

Table E_H6: Mean numbers of survivors in the 'master model' without 'alternative initiation' (no 'relapse'), the counterfactual scenario with 50% 'relapse' in the 'master model' without 'alternative initiation', and the difference between them, for all age categories; mortality rates for women

Age interval	ERR=0.08			ERR=0.11		
	Difference in survivors	Number of survivors, Counterfactual, 'master model' without 'alternative initiation' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model' without 'alternative initiation'	Difference in survivors	Number of survivors, Counterfactual, 'master model' without 'alternative initiation' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model' without 'alternative initiation'
13 - 17	0	998,522	998,522	0	998,522	998,522
18 - 22	0	996,655	996,655	0	996,655	996,655
23 - 27	1	994,184	994,185	1	994,183	994,184
28 - 32	6	990,836	990,842	6	990,834	990,840
33 - 37	16	986,232	986,248	16	986,226	986,242
38 - 42	35	979,789	979,824	33	979,776	979,809
43 - 47	67	970,606	970,673	66	970,579	970,645
48 - 52	121	957,264	957,385	116	957,217	957,333
53 - 57	200	937,486	937,686	194	937,404	937,598
58 - 62	312	907,562	907,874	301	907,427	907,728
63 - 67	455	861,428	861,883	437	861,217	861,654
68 - 72	615	789,305	789,920	588	788,990	789,578
73 - 77	752	676,333	677,085	714	675,897	676,611
78 - 82	778	504,051	504,829	733	503,525	504,258
83 - 87	566	265,568	266,134	525	265,108	265,633
88 - 92	91	21,588	21,679	82	21,489	21,571
93 - 97	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0

Table E_H10: Mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' (no 'relapse'), mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' with 50% 'relapse', and the difference between them, for all age categories; mortality rates for women

0% 'switching'

	ERR=0.08			ERR=0.11		
Age interval	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'
13 - 17	0	998,522	998,522	0	998,522	998,522
18 - 22	0	996,655	996,655	0	996,655	996,655
23 - 27	1	994,172	994,173	1	994,172	994,173
28 - 32	6	990,782	990,788	6	990,781	990,787
33 - 37	17	986,079	986,096	17	986,077	986,094
38 - 42	38	979,452	979,490	37	979,449	979,486
43 - 47	75	969,959	970,034	73	969,953	970,026
48 - 52	137	956,130	956,267	132	956,120	956,252
53 - 57	231	935,631	935,862	224	935,614	935,838
58 - 62	366	904,710	905,076	352	904,683	905,035
63 - 67	539	857,303	857,842	518	857,261	857,779
68 - 72	736	783,740	784,476	703	783,679	784,382
73 - 77	904	669,529	670,433	859	669,447	670,306
78 - 82	935	496,996	497,931	881	496,901	497,782
83 - 87	678	260,420	261,098	629	260,342	260,971
88 - 92	107	20,757	20,864	96	20,743	20,839
93 - 97	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0

Table E_H10, cont.: Mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' (no 'relapse'), mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' with 50% 'relapse', and the difference between them, for all age categories; mortality rates for women

0.5% 'switching'

Age interval	ERR=0.08			ERR=0.11		
	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'
13 - 17	0	998,522	998,522	0	998,522	998,522
18 - 22	0	996,655	996,655	0	996,655	996,655
23 - 27	1	994,173	994,174	2	994,172	994,174
28 - 32	5	990,786	990,791	6	990,785	990,791
33 - 37	17	986,091	986,108	16	986,089	986,105
38 - 42	38	979,481	979,519	37	979,477	979,514
43 - 47	74	970,020	970,094	71	970,013	970,084
48 - 52	135	956,245	956,380	129	956,232	956,361
53 - 57	226	935,832	936,058	218	935,808	936,026
58 - 62	358	905,035	905,393	344	904,996	905,340
63 - 67	526	857,795	858,321	505	857,734	858,239
68 - 72	716	784,429	785,145	684	784,338	785,022
73 - 77	878	670,393	671,271	834	670,269	671,103
78 - 82	909	497,901	498,810	855	497,755	498,610
83 - 87	659	261,076	261,735	611	260,953	261,564
88 - 92	104	20,858	20,962	94	20,834	20,928
93 - 97	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0

Table E_H10, cont.: Mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' (no 'relapse'), mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' with 50% 'relapse', and the difference between them, for all age categories; mortality rates for women

1% 'switching'

	ERR=0.08			ERR=0.11		
Age interval	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'
13 - 17	0	998,522	998,522	0	998,522	998,522
18 - 22	0	996,655	996,655	0	996,655	996,655
23 - 27	2	994,173	994,175	1	994,173	994,174
28 - 32	6	990,789	990,795	5	990,789	990,794
33 - 37	17	986,103	986,120	16	986,101	986,117
38 - 42	36	979,511	979,547	35	979,506	979,541
43 - 47	73	970,081	970,154	71	970,071	970,142
48 - 52	132	956,359	956,491	127	956,342	956,469
53 - 57	221	936,029	936,250	214	935,998	936,212
58 - 62	350	905,354	905,704	337	905,303	905,640
63 - 67	513	858,277	858,790	492	858,197	858,689
68 - 72	697	785,102	785,799	666	784,981	785,647
73 - 77	854	671,235	672,089	811	671,069	671,880
78 - 82	883	498,784	499,667	831	498,587	499,418
83 - 87	641	261,715	262,356	594	261,548	262,142
88 - 92	102	20,957	21,059	91	20,924	21,015
93 - 97	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0

Table E_H10, cont.: Mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' (no 'relapse'), mean numbers of survivors in tipping point analyses for the 'master model' without 'alternative initiation' with 50% 'relapse', and the difference between them, for all age categories; mortality rates for women

1.5% 'switching'

Age interval	ERR=0.08			ERR=0.11		
	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'	Difference in survivors	Number of survivors, Counterfactual, 'master model' with 50% 'relapse'	Number of survivors, Counterfactual, 'master model'
13 - 17	0	998,522	998,522	0	998,522	998,522
18 - 22	0	996,655	996,655	0	996,655	996,655
23 - 27	1	994,174	994,175	1	994,174	994,175
28 - 32	6	990,793	990,799	6	990,792	990,798
33 - 37	17	986,115	986,132	15	986,113	986,128
38 - 42	37	979,539	979,576	35	979,534	979,569
43 - 47	72	970,141	970,213	69	970,130	970,199
48 - 52	130	956,471	956,601	125	956,450	956,575
53 - 57	217	936,223	936,440	210	936,185	936,395
58 - 62	341	905,668	906,009	329	905,605	905,934
63 - 67	500	858,750	859,250	480	858,650	859,130
68 - 72	679	785,759	786,438	648	785,610	786,258
73 - 77	830	672,057	672,887	788	671,850	672,638
78 - 82	859	499,643	500,502	807	499,397	500,204
83 - 87	623	262,338	262,961	578	262,127	262,705
88 - 92	99	21,054	21,153	89	21,011	21,100
93 - 97	0	0	0	0	0	0
98 - 102	0	0	0	0	0	0

Appendix F: Tipping Point Extrapolations

Tipping points were extrapolated from the results tables as shown in the following example. Note that *Table F1* is identical to *Table 3.4*, the results table from the tipping point analysis for the 'master model' without 'alternative initiation' for an ERR of 0.08.

Table F1: Results Table 3.4, Difference in survivors, counterfactual versus base case, for age category 68-72 years based on purchase probability projections for 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'

ERR	Additional Initiation ^a (%)	Gateway Effect ^b (%)	Diversion from Quitting ^c (%)	Switching ^d (%)	Mean	95% PI	
0.08	0.3	50	1.8-20.0	0.0	-616	-641	-592
				0.5	193	98	292
				1.0	984	797	1,176
				1.5	1,758	1,478	2,044
				2.0	2,514	2,145	2,894
				2.5	3,255	2,796	3,724
				3.0	3,979	3,434	4,537
				3.5	4,687	4,057	5,331
				4.0	5,380	4,665	6,109
				4.5	6,058	5,260	6,871
				5.0	6,721	5,845	7,616

^a Probability applied to age intervals 13-17, 18-22 and 23-27 years

^b Probability applied to age intervals 18-22, 23-27 and 28-32 years

^c Refer to *Table 2.3* for age interval-specific probabilities

^d Probability applied to age intervals 18+ years

Let μ and σ be the nearest negative and nearest positive results straddling 0.

In Table 3.4 above,

$\mu = -616$ and $\sigma = 193$

95% $\mu = -641$ and 95% $\sigma = 98$

95% $\mu = -592$ and 95% $\sigma = 292$

Further, let p be the probability of 'switching' corresponding to μ or σ . In Table 3.4 above, $p = 0$ and $p = 0.5$ for the mean and the lower and upper 95% PI. Note that, while not the case in this example, μ and σ may differ between the mean, the lower 95% PI and the upper 95% PI.

Assuming linearity of the mean and the boundaries of the 95% PI between any two modeled probabilities of 'switching',

$$\frac{0 - \text{ERR}}{\text{ERR}} = \frac{\text{ERR} - \text{ERR}}{\text{ERR} - \text{ERR}}$$

where ERR is the tipping point.

Therefore,

$$= (\text{ERR} - \text{ERR}) \frac{0 - \text{ERR}}{\text{ERR} - \text{ERR}} + \text{ERR}$$

The extrapolated tipping points are shown in *Table F2*. For the tipping point analysis in Results *Table 3.4* (ERR=0.08), if, starting at age 18, 0.33% of base case continuing smokers switch to MRTP use in the counterfactual scenario in each age category, then the survival deficit is no longer statistically significant. If, starting at age 18, 0.38% of base case continuing smokers switch to MRTP use in the counterfactual scenario in each age category, then the difference in survivors between the counterfactual scenario and the base case is 0. If, starting at age 18, 0.43% of base case continuing smokers switch to MRTP use in the counterfactual scenario in each age category, then there is a statistically significant survival benefit. Similarly, for an ERR of 0.11, if, starting at age 18, 0.42% of base case continuing smokers switch to MRTP use in the counterfactual scenario in each age category, then the survival deficit is no longer statistically significant. If, starting at age 18, 0.47% of base case continuing smokers switch to MRTP use in the counterfactual scenario in each age category, then the difference in survivors between the counterfactual scenario and the base case is 0. If, starting at age 18, 0.54% of base case continuing smokers switch to MRTP use in the counterfactual scenario in each age category, then there is a statistically significant survival benefit. The results for the other tipping point analyses are interpreted similarly.

Table F2: Extrapolated tipping points

Results table number	ERR	Tipping point (%)		
		Upper 95% PI	Mean	Lower 95% PI
3.4	0.08	0.33	0.38	0.43
	0.11	0.42	0.47	0.54
3.12	0.08	2.09	2.60	3.23
	0.11	3.39	4.12	5.05
3.13	0.08	2.06	2.43	2.90
	0.11	2.37	2.80	3.35
3.14	0.08	0.82	0.90	0.99
	0.11	1.17	1.29	1.41

Table F3 shows the extrapolated tipping points for the mean difference in survivors for the ‘master model’ without ‘alternative initiation’ after incorporating a 50% return to smoking among base case smoking quitters who switched to MRTP use in the counterfactual scenario (‘diverted quitters’). For an ERR of 0.08, if, starting at age 18, 0.92% of base case continuing smokers switch to MRTP use in the counterfactual scenario in each age category, then the difference in survivors between the counterfactual scenario and the base case is 0. The tipping point for the corresponding analysis without relapse to smoking was 0.38%

(refer to results for Results [Table 3.4](#) in [Table F2](#)). For an ERR of 0.11, if, starting at age 18, 1.01% of base case continuing smokers switch to MRTP use in the counterfactual scenario in each age category, then the difference in survivors between the counterfactual scenario and the base case is 0. The tipping point for the corresponding analysis without relapse to smoking was 0.47% ([Table F2](#)).

Table F3: Extrapolated tipping points for the mean difference in survivors, master model without alternative initiation after incorporating a 50% return to smoking among ‘diverted quitters’^a

ERR	Tipping point (%) for the mean difference in survivors
0.08	0.92
0.11	1.01

^a Tipping points were calculated based on the results in [Table C6](#) in Appendix C

Appendix G: Assessing the Cumulative Effects of Exposure Transitions of 'Switching', 'Diversion from Quitting' and 'Additional Initiation'

Change log for Appendix G

Page number	Location
1	Narrative text
2	Narrative text
3	Table G1
4	Table G2
5	Table G3
6	Table G4

When interpreting results produced by the DPM(+1), it is important to recognize that transition probabilities are applied to a birth cohort and accumulate over time. To illustrate this for the exposure transitions of 'switching', 'diversion from quitting' and 'additional initiation', we present results for differences between different counterfactual scenarios and the base case at the end of age category 68-72 years.¹

Switching to Camel SNUS use among base case continuing smokers ('switching')

If $p\%$ of continuing smokers switch to Camel SNUS use in each age category starting at age 18 years, then $p\%$ of continuing smokers switch in age category 18-22 year, another $p\%$ of (surviving) continuing smokers switch in age category 23-27 years, etc. Therefore, the pool of continuing smokers is not only depleted by smoking cessation and mortality but also by 'switching'.

The numbers of continuing smokers, former smokers and Camel SNUS users at the end of age category 68-72 are shown in [Table G1](#) for counterfactual scenarios that incorporate 'switching' and corresponding counterfactual scenarios assuming no 'switching' for an ERR of 0.08. Also shown are differences in continuing smokers and former smokers between corresponding counterfactual scenarios.

In all counterfactual scenarios exploring net population effects, the number of continuing smokers at the end of age category 68-72 years was just under 23,000 when 'switching' was suspended. In contrast, for the master model, the master model without alternative initiation, and the model combining 'switching' and 'resumed smoking', about 16,500 continuing smokers remained at the end of age category 68-72 years, a decrease of about 27%. When all transition probabilities were reduced by 75% in the master model, about 21,000 continuing smokers remained at the end of age category 68-72 years, a decrease of 7.4%. For the model combining all primary transitions with the exception of 'alternative initiation' and for the model containing only 'switching', only about 12,100 continuing smokers remained at the end of age category 68-72 years, a decrease of about 47% (without 'resumed smoking', more 'switching' occurred in these scenarios).

The tipping point analysis for the master model without 'alternative initiation' suggested that the survival deficit resulting from the combination of harmful transitions was offset when about 0.38% of continuing smokers switched to Camel SNUS use in each age category after age 18 years. At this level of 'switching', just under 22,000 continuing smokers remained at the end of age category 68-72 years, a decrease of about 4% compared to the corresponding model without 'switching'. 'Switching' at levels identified in the two tipping point analyses involving extreme 'additional initiation', resulted in a reduction in the number of continuing smokers at the end of age category 68-72 years of more than 20%. When extreme transition probabilities were assumed for 'diversion from quitting', the tipping point for 'switching' was 0.9% resulting in a reduction in the number of continuing smokers at the end of age category 68-72 years of about 9%.

For all counterfactual scenarios, the percent reduction in former smokers as a result of 'switching' was about half or less than half the corresponding percent reduction in continuing smokers.

Results were generally similar when the ERR was set to 0.11 ([Table G2](#)).

Switching to Camel SNUS use among base case smoking quitters ('diversion from quitting')

The numbers of continuing smokers, former smokers and Camel SNUS users at the end of age category 68-72 are shown in [Table G3](#) for counterfactual scenarios that incorporate 'diversion from quitting' and corresponding counterfactual scenarios assuming no 'diversion from quitting' for an ERR of 0.08. Also

¹ Results for LE and QALE, the total numbers of survivors in the counterfactual scenarios and the base case, and the differences between them are available upon request.

shown are differences in continuing smokers and former smokers between corresponding counterfactual scenarios.

For the master model and the master model without alternative initiation, just over 100,000 former smokers remained at the end of age category 68-72 years when 'diversion from quitting' was suspended compared to just over 93,000 former smokers when 'diversion from quitting' was modeled with transition probabilities from the 'likelihoods of use' study, a decrease of about 7%. When all transition probabilities were reduced by 75% in the master model, about 112,500 former smokers remained at the end of age category 68-72 years, the decrease in former smokers was less than 2%. For the model combining all primary transitions with the exception of 'alternative initiation' and for the model containing only 'diversion from quitting', the number of former smokers at the end of age category 68-72 years decreased by about 7% compared to the corresponding counterfactual scenarios where 'diversion from quitting' was suspended.

The number of current smokers was unaffected by 'diversion from quitting'. Results were very similar when the ERR was set to 0.11 ([Table G4](#)).

Initiating Camel SNUS use among base case never tobacco users ('additional initiation')

In the analysis based on Camel SNUS initiation rates that were identical to smoking initiation rates, under the assumption of no 'switching', the number of current and former tobacco users at the end of age category 68-72 years was more than 80% higher than in the base case, i.e., the number of current and former tobacco users was nearly doubled (see [Table G5](#) for an ERR of 0.08 and [Table G6](#) for an ERR of 0.11).

In the analysis based on 3% of base case never tobacco smokers instead initiating Camel SNUS use in the first three age categories and half of all Camel SNUS initiators switching to smoking, under the assumption of no 'switching', the number of current and former tobacco users at the end of age category 68-72 years was more than 30% higher than in the base case (see [Table G5](#) for an ERR of 0.08 and [Table G6](#) for an ERR of 0.11).

Table G1: Numbers of continuing smokers, former smokers and Camel SNUS users at the end of age category 68-72 for counterfactual scenarios that incorporate 'switching' and corresponding counterfactual scenarios assuming no 'switching'; and differences in continuing smokers and former smokers between corresponding counterfactual scenarios; ERR=0.08

			Original counterfactual scenario			Corresponding counterfactual scenario without 'switching'			Original counterfactual scenario vs. corresponding counterfactual scenario without 'switching'			
Input Table	Result Table		Continuing smokers	Former smokers	Camel SNUS users	Continuing smokers	Former smokers	Camel SNUS users	Continuing smokers	%	Former smokers	%
2.5	3.1	Master model	16,576	93,123	35,560	22,690	108,180	7,688	6,114	26.9	15,057	13.9
2.5b	3.1_2	Master model, 25% of transition probabilities	21,118	110,526	9,517	22,801	114,656	1,934	1,683	7.4	4,130	3.6
2.6	3.2	Master model without 'alternative initiation'	16,659	93,591	35,739	22,804	108,724	7,727	6,145	26.9	15,133	13.9
2.7	3.3	Primary transitions without 'alternative initiation'	12,119	80,791	58,750	22,804	108,724	7,727	10,685	46.9	27,933	25.7
2.8	3.4	Master model without 'alternative initiation', 0.38% 'switching'	21,912	107,337	10,623	22,804	108,724	7,727	892	3.9	1,387	1.3
2.10	3.6	'Switching'	12,140	87,429	52,495	22,840	116,843	0	10,700	46.8	29,414	25.2
2.15	3.11	'Switching' and 'resumed smoking'	16,687	100,917	28,800	22,840	116,843	0	6,153	26.9	15,926	13.6
2.16	3.12	'Extreme additional initiation', 2.6% 'switching'	16,127	100,912	17,910	21,281	109,861	0	5,154	24.2	8,949	8.1
2.17	3.13	'Extreme additional initiation' and 'gateway effect', 2.43% 'switching'	17,372	106,494	17,610	22,486	115,270	0	5,114	22.7	8,776	7.6
2.18	3.14	0.9% 'switching' vs. 'extreme diversion from quitting'	20,775	56,720	62,182	22,840	58,421	56,944	2,065	9.0	1,701	2.9

Table G2: Numbers of continuing smokers, former smokers and Camel SNUS users at the end of age category 68-72 for counterfactual scenarios that incorporate 'switching' and corresponding counterfactual scenarios assuming no 'switching'; and differences in continuing smokers and former smokers between corresponding counterfactual scenarios; ERR=0.11

			Original counterfactual scenario			Corresponding counterfactual scenario without 'switching'			Original counterfactual scenario vs. corresponding counterfactual scenario without 'switching'			
Input Table	Result Table		Continuing smokers	Former smokers	Camel SNUS users	Continuing smokers	Former smokers	Camel SNUS users	Continuing smokers	%	Former smokers	%
2.5	3.1	Master model	16,576	93,123	35,158	22,690	108,180	7,605	6,114	26.9	15,057	13.9
2.5b	3.1_2	Master model, 25% of transition probabilities	21,118	110,526	9,410	22,801	114,656	1,913	1,683	7.4	4,130	3.6
2.6	3.2	Master model without 'alternative initiation'	16,659	93,591	35,335	22,804	108,724	7,643	6,145	26.9	15,133	13.9
2.7	3.3	Primary transitions without 'alternative initiation'	12,119	80,791	58,073	22,804	108,724	7,643	10,685	46.9	27,933	25.7
2.8	3.4	Master model without 'alternative initiation', 0.47% 'switching'	21,705	107,011	11,180	22,804	108,724	7,643	1,099	4.8	1,713	1.6
2.10	3.6	'Switching'	12,140	87,429	51,888	22,840	116,843	0	10,699	46.8	29,414	25.2
2.15	3.11	'Switching' and 'resumed smoking'	16,687	100,917	28,473	22,840	116,843	0	6,153	26.9	15,926	13.6
2.16	3.12	'Extreme additional initiation', 4.12% 'switching'	13,667	96,135	26,901	21,281	109,861	0	7,614	35.8	13,726	12.5
2.17	3.13	'Extreme additional initiation' and 'gateway effect', 2.8% 'switching'	16,694	105,239	19,877	22,486	115,270	0	5,792	25.8	10,031	8.7
2.18	3.14	1.29% 'switching' vs. 'extreme diversion from quitting'	19,934	56,004	63,754	22,840	58,421	56,419	2,906	12.7	2,417	4.1

Table G3: Numbers of continuing smokers, former smokers and Camel SNUS users at the end of age category 68-72 for counterfactual scenarios that incorporate 'diversion from quitting' and corresponding counterfactual scenarios assuming no 'diversion from quitting'; and differences in continuing smokers and former smokers between corresponding counterfactual scenarios; ERR=0.08

			Original counterfactual scenario			Corresponding counterfactual scenario without 'diversion from quitting'			Original counterfactual scenario vs. corresponding counterfactual scenario without 'diversion from quitting'			
Input Table	Result Table		Continuing smokers	Former smokers	Camel SNUS users	Continuing smokers	Former smokers	Camel SNUS users	Continuing smokers		Former smokers	
									Decrease	%	Decrease	%
2.5	3.1	Master model	16,576	93,123	35,560	16,576	100,272	28,625	0	0.0	7,149	7.1
2.5b	3.1_2	Master model, 25% of transition probabilities	21,118	110,526	9,517	21,118	112,468	7,632	0	0.0	1,942	1.7
2.6	3.2	Master model without 'alternative initiation'	16,659	93,591	35,739	16,659	100,776	28,769	0	0.0	7,185	7.1
2.7	3.3	Primary transitions without 'alternative initiation'	12,119	80,791	58,750	12,119	87,302	52,437	0	0.0	6,511	7.5
2.12	3.8	'Diversion from quitting'	22,840	108,873	7,736	22,840	116,843	0	0	0.0	7,970	6.8

Table G4: Numbers of continuing smokers, former smokers and Camel SNUS users at the end of age category 68-72 for counterfactual scenarios that incorporate 'diversion from quitting' and corresponding counterfactual scenarios assuming no 'diversion from quitting'; and differences in continuing smokers and former smokers between corresponding counterfactual scenarios; ERR=0.11

			Original counterfactual scenario			Corresponding counterfactual scenario without 'diversion from quitting'			Original counterfactual scenario vs. corresponding counterfactual scenario without 'diversion from quitting'			
Input Table	Result Table		Continuing smokers	Former smokers	Camel SNUS users	Continuing smokers	Former smokers	Camel SNUS users	Continuing smokers		Former smokers	
									Decrease	%	Decrease	%
2.5	3.1	Master model	16,576	93,123	35,158	16,576	100,272	28,300	0	0.0	7,149	7.1
2.5b	3.1_2	Master model, 25% of transition probabilities	21,118	110,526	9,410	21,118	112,468	7,546	0	0.0	1,942	1.7
2.6	3.2	Master model without 'alternative initiation'	16,659	93,591	35,335	16,659	100,776	28,442	0	0.0	7,185	7.1
2.7	3.3	Primary transitions without 'alternative initiation'	12,119	80,791	58,073	12,119	87,302	51,831	0	0.0	6,511	7.5
2.12	3.8	'Diversion from quitting'	22,840	108,873	7,652	22,840	116,843	0	0	0.0	7,970	6.8

Table G5: Numbers of continuing smokers, former smokers and Camel SNUS users at the end of age category 68-72 for counterfactual scenarios that incorporate extreme 'additional initiation' and the base case; and differences in continuing smokers and former smokers between the counterfactual scenarios and the base case; ERR=0.08

			Original counterfactual scenario			Base case			Original counterfactual scenario vs. base case	
Input Table	Result Table		Continuing smokers	Former smokers	Camel SNUS users	Continuing smokers	Former smokers	Camel SNUS users	All current and former tobacco users	
									Decrease	%
2.16	3.12	'Extreme additional initiation', no 'switching'	21,281	109,861	129,483	22,819	116,875	0	120,930	87
2.17	3.13	'Extreme additional initiation' and 'gateway effect', no 'switching'	27,030	132,201	23,784	22,819	116,875	0	43,321	31

Table G6: Numbers of continuing smokers, former smokers and Camel SNUS users at the end of age category 68-72 for counterfactual scenarios that incorporate extreme 'additional initiation' and the base case; and differences in continuing smokers and former smokers between the counterfactual scenarios and the base case; ERR=0.11

			Original counterfactual scenario			Base case			Original counterfactual scenario vs. base case	
Input Table	Result Table		Continuing smokers	Former smokers	Camel SNUS users	Continuing smokers	Former smokers	Camel SNUS users	All current and former tobacco users	
									Decrease	%
2.16	3.12	'Extreme additional initiation', no 'switching'	21,281	109,861	127,725	22,819	116,875	0	119,173	85
2.17	3.13	'Extreme additional initiation' and 'gateway effect', no 'switching'	27,019	132,177	23,490	22,819	116,875	0	42,992	31

Change log for Appendix H

Page number	Location
1	Narrative text
2	Narrative text
2	Table H1
3	Table H2
4	Table H3
4	Table H4
5	Narrative text
6	Table H5
6	Table H6
7	Table H7

‘Net’ population health effect of all primary beneficial and harmful transitions, and secondary harmful transitions of ‘gateway effect’/‘delayed smoking’ and ‘resumed smoking’, combined; secondary harmful transition ‘relapse’ addressed in sensitivity analyses, as is effect of different ERRs [refer to [Table 2.5](#)]; based on mortality rates for women

These analyses evaluated, among women, the ‘net’ population health effect of all primary beneficial transitions (‘alternative initiation’ and ‘switching’), all primary harmful transitions (‘additional initiation’ and ‘diversion from quitting’) and the secondary harmful transitions of ‘gateway effect’, ‘delayed smoking’ and ‘resumed smoking’ –referred to as the ‘master model’. Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Empirical data on primary beneficial and harmful transitions were based on projected purchase probabilities, as provided by the first execution of RAIS’s ‘likelihood of use’ study. Specifically, the probability that base case cigarette initiators would instead initiate tobacco use with Camel SNUS (‘alternative initiation’) was projected to be 0.5% (refer to [Table 2.2](#)); this transition occurs in the first three age categories. ‘Switching’ to the use of Camel SNUS instead of continuing to use cigarettes among base case current smokers was projected to range from 2.3% to 16.5%, depending on age category (refer to [Table 2.3](#)). The probability that base case never tobacco users would initiate use of Camel SNUS instead of remaining never users (‘additional initiation’) was projected to be 0.3% (refer to [Table 2.2](#)); similar to ‘alternative initiation’, this transition occurs in the first three age categories. Finally, the probability that base case current smokers would switch to using Camel SNUS instead of quitting tobacco use (‘diversion from quitting’) was projected to range from 1.8%-20.0%, depending on the age category (refer to [Table 2.3](#)).

In the absence of empirical data on secondary harmful transitions from RAIS’s ‘likelihood of use’ studies, the effect of these unintended changes in tobacco exposure patterns were evaluated using hypothetical and, in many instances, extreme scenarios. Specifically, both ‘gateway effect’ (the probability that some portion of ‘additional initiation’ Camel SNUS users would transition to cigarette use) and ‘delayed smoking’ (the probability that some portion of ‘alternative initiation’ Camel SNUS users would transition to cigarette use) were evaluated using scenarios whereby 50% of all Camel SNUS initiators transition to cigarette smoking in the age category following initiation (ages 18-22, 23-27 and 28-32 years). In addition, the secondary harmful transition of ‘resumed smoking’ was evaluated using a scenario whereby 50% of those smokers who switched to using Camel SNUS instead of continuing to smoke subsequently resumed cigarette use. Under the assumption that ‘resumed smoking’ would likely occur in the same 5-year age category as ‘switching’, this transition was modeled by reducing the transition probabilities for ‘switching’ from smoking to Camel SNUS use by 50%. Finally, sensitivity analyses conducted within the context of the ‘master model’ evaluated the ‘net’ population health effect of an extreme scenario for ‘relapse’, whereby 50% of base case current smokers who would have quit tobacco use but instead switched to Camel SNUS use (‘diversion from quitting’) subsequently relapsed to smoking.

For ERRs of 0.08 and 0.11, the ‘net’ population health effect of all primary beneficial and harmful transitions and the secondary harmful transitions of ‘gateway effect’/‘delayed smoking’ and ‘resumed smoking’ (‘master model’) was a survival benefit in the counterfactual scenario of 4,950 and 4,605 additional survivors, respectively (refer to [Table H1](#)). Sensitivity analyses for the ‘master model’ that additionally included the secondary harmful transition of ‘relapse’ (refer to transition probabilities in [Table H2](#)) provided

a smaller survival benefit of 4,337 and 4,020 additional survivors for ERRs of 0.08 and 0.11, respectively (refer to [Table H3](#)).¹

Net results based on mortality rates for women differed from those for men due to different mortality risks for men and women in the Kaiser-Permanente cohort; the 'net' population effect was about 19% lower for women than for men (refer to [Table H4](#)).

Table H1: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'additional initiation' with 'delayed smoking', 'alternative initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking' ('master model'); mortality rates for women

ERR	Additional Initiation ^a (%)	Alternative Initiation ^a (%)	Gateway effect/ Delayed Smoking ^b (%)	Diversion from Quitting ^c (%)	Switching ^d (%)	Mean	95% PI	
0.08	0.3	0.5	50	1.8-20.0	1.2-8.3	4,950	4,302	5,619
0.11	0.3	0.5	50	1.8-20.0	1.2-8.3	4,605	3,988	5,241

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years.

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

^c Refer to [Table 2.3](#) for age interval-specific probabilities

^d Probabilities from 'likelihood of use' study reduced by 50% to model 50% return from Camel SNUS use to smoking ('resumed smoking'); refer to [Table 2.3](#) for age interval-specific probabilities.

¹ Modeling results for the current analyses are presented as the difference in the number of survivors for the counterfactual scenario compared to the based case at the end of age interval 68-72 years; the total numbers of survivors in the counterfactual scenario and the base case, and the differences between them are shown for all age categories in [Tables E_H1](#) and [E_H3](#) in [Appendix E](#). Results for life expectancy (LE) and quality of life-adjusted life expectancy (QALE) are presented in [Tables D_H1](#) and [D_H3](#) in [Appendix D](#).

Table H2: Transition probabilities for continued smoking, 'switching' and 'diversion from quitting' used in the 'master model' (with or without 'alternative initiation') and corresponding adjusted transition probabilities under the assumption of 50% 'relapse'²

Age	Original transition probabilities			Adjusted transition probabilities ^a		
	(continued smoking)	('switching')	('diversion from quitting')	^(continued smoking)	^(switching)	^(diversion from quitting)
13-17	-	-	-	-	-	-
18-22	0.91	0.083	0.200	0.919	0.0822	0.111
23-27	0.905	0.055	0.086	0.909	0.0548	0.045
28-32	0.86	0.043	0.065	0.865	0.0428	0.034
33-37	0.86	0.030	0.045	0.863	0.0299	0.023
38-42	0.86	0.030	0.074	0.865	0.0298	0.038
43-47	0.86	0.029	0.054	0.864	0.0289	0.028
48-52	0.86	0.021	0.055	0.864	0.0209	0.028
53-57	0.86	0.013	0.029	0.862	0.0130	0.015
58-62	0.86	0.017	0.018	0.861	0.0170	0.009
63-67	0.86	0.017	0.021	0.861	0.0170	0.011
68-72	0.86	0.012	0.021	0.861	0.0120	0.011
73+	0.86	0.012	0.021	0.861	0.0120	0.011

^a Using the formulas for $\hat{p}(\text{continued smoking})$, $\hat{p}(\text{'switching'})$ and $\hat{p}(\text{'diversion from quitting'})$ shown in [Appendix C](#)

² 'Relapse' occurs in the same age category as 'diversion from quitting'

Table H3: Difference in survivors, tipping point analysis for 'master model' without 'alternative initiation' (no 'relapse') versus tipping point analysis for 'master model' without 'alternative initiation' with 50% 'relapse'; based on mortality rates for women

ERR	Mean number of survivors, counterfactual		Mean difference in survivors, two counterfactuals	Mean difference in survivors, Counterfactual ^a – base case ^b	Mean difference in survivors ^c , Counterfactual ^d – base case ^e
	No 'relapse'	50% 'relapse'			
0.08	789,941	789,328	613	4,950	4,337
0.11	789,595	789,010	585	4,605	4,020

^a Counterfactual scenario with no 'relapse'

^b Base case with no 'relapse'

^c Identical to the difference between 'Mean difference in survivors, counterfactual¹ – base case²' and 'Mean difference in survivors, two counterfactuals'

^d Counterfactual scenario with 50% 'relapse'

^e Base case with no 'relapse'; base case with 50% 'relapse' must be ignored

Table H4: Comparison of difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for men versus mortality rates for women

ERR	Additional Initiation ^a (%)	Alternative Initiation ^a (%)	Gateway effect/ Delayed Smoking ^b (%)	Diversion from Quitting ^c (%)	Switching ^d (%)	Difference in survivors		
						Men	Women	Difference, men vs. women (%)
No 'relapse'								
0.08	0.3	0.5	50	1.8-20.0	1.2-8.3	6,137	4,950	19
0.11	0.3	0.5	50	1.8-20.0	1.2-8.3	5,695	4,605	19
50% 'relapse'								
0.08	0.3	0.5	50	1.8-20.0	1.2-8.3	5,383	4,337	19
0.11	0.3	0.5	50	1.8-20.0	1.2-8.3	4,977	4,020	19

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years.

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

^c Refer to [Table 2.3](#) for age interval-specific probabilities

^d Probabilities from 'likelihood of use' study reduced by 50% to model 50% return from Camel SNUS use to smoking ('resumed smoking'); refer to [Table 2.3](#) for age interval-specific probabilities.

‘Net’ population health effect of primary beneficial transition ‘switching’, all primary harmful transitions, and secondary harmful transitions of ‘gateway effect’/‘delayed smoking’ and ‘resumed smoking’, combined; secondary harmful transition ‘relapse’ addressed in sensitivity analyses [refer to [Table 2.6](#)]; based on mortality rates for women

To assess, among women, the ‘net’ population health effect of omitting the primary beneficial transition of ‘alternative initiation’ from the ‘master model’, these analyses evaluated the primary beneficial transition of ‘switching’, all primary harmful transitions (‘additional initiation’ and ‘diversion from quitting’), and the secondary harmful transitions of ‘gateway effect’, ‘delayed smoking’ and ‘resumed smoking’. Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Empirical data on primary beneficial and harmful transitions were based on projected purchase probabilities, as provided by the first execution of RAIS’s ‘likelihood of use’ study. Specifically, ‘switching’ to Camel SNUS use instead of continuing to use cigarettes among base case smokers was projected to range from 2.3% to 16.5%, depending on age category (refer to [Table 2.3](#)). The probability that base case never tobacco users would initiate Camel SNUS use instead of remaining never users (‘additional initiation’) was projected to be 0.3% (refer to [Table 2.2](#)); this transition occurs in the first three age categories. Finally, the probability that base case current smokers would switch to using Camel SNUS instead of quitting tobacco use (‘diversion from quitting’) was projected to range from 1.8%-20.0%, depending on the age category (refer to [Table 2.3](#)).

In the absence of empirical data on secondary harmful transitions from RAIS’s ‘likelihood of use’ studies, the effect of these unintended changes in tobacco exposure patterns were evaluated using hypothetical scenarios, which were extreme in many instances. Specifically, ‘gateway effect’ was evaluated using an extreme scenario whereby 50% of Camel SNUS initiators (‘additional initiation’) transitioned to cigarette smoking in the age category following initiation (ages 18-22, 23-27 and 28-32 years). In addition, the secondary harmful transition of ‘resumed smoking’ was evaluated using a scenario whereby 50% of those smokers who switched to using Camel SNUS instead of continuing to use cigarettes subsequently resumed smoking. Under the assumption that ‘resumed smoking’ would likely occur in the same 5-year age category as ‘switching’, this transition was modeled by reducing the transition probabilities for ‘switching’ from smoking to Camel SNUS by 50%. Finally, sensitivity analyses evaluated the effect of an extreme scenario for ‘relapse’, whereby 50% of base case current smokers who would have quit tobacco use but instead switched to using Camel SNUS (‘diversion from quitting’) subsequently relapsed to smoking.

Omitting ‘alternative initiation’ as a possible beneficial exposure transition had a nominal effect on the ‘net’ population health benefit, as projected by the ‘master model’. For ERRs of 0.08 and 0.11, the survival benefit in the counterfactual scenario was estimated to be 4,930 and 4,587 additional survivors, respectively (refer to [Table H5](#)). Sensitivity analyses that additionally included the secondary harmful transition, ‘relapse’ (refer to transition probabilities in [Table H2](#)), indicated that the survival benefit was decreased to an estimated 4,315 and 3,999 additional survivors for ERRs of 0.08 and 0.11, respectively (refer to [Table H6](#)).³

³ Modeling results for the current analyses are presented as the difference in the number of survivors for the counterfactual scenario compared to the based case at the end of age interval 68-72 years; the total numbers of survivors in the counterfactual scenario and the base case, and the differences between them are shown for all age categories in [Tables E_H5](#) and [E_H6](#) in [Appendix E](#). Results for LE and QALE are presented in [Tables D_H5](#) and [D_H6](#) in [Appendix D](#).

Net results based on mortality rates for women differed from those for men due to different mortality risks for men and women in the Kaiser-Permanente cohort; the 'net' population effect was about 19% lower for women than for men (refer to [Table H7](#)).

Table H5: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'additional initiation' with 'gateway effect', 'diversion from quitting', and 'switching' with 'resumed smoking'; mortality rates for women

ERR	Additional Initiation ^a (%)	Gateway Effect ^b (%)	Diversion from Quitting ^c (%)	Switching ^d (%)	Mean	95% PI	
0.08	0.3	50	1.8-20.0	1.2-8.3	4,930	4,283	5,593
0.11	0.3	50	1.8-20.0	1.2-8.3	4,587	3,973	5,219

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years.

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

^c Refer to [Table 2.3](#) for age interval-specific probabilities

^d Probabilities from 'likelihood of use' study reduced by 50% to model 50% return from Camel SNUS use to smoking ('resumed smoking'); refer to [Table 2.3](#) for age interval-specific probabilities.

Table H6: Difference in survivors, tipping point analysis for 'master model' without 'alternative initiation' (no 'relapse') versus tipping point analysis for 'master model' without 'alternative initiation' with 50% 'relapse'; based on mortality rates for women

ERR	Mean number of survivors, counterfactual		Mean difference in survivors, two counterfactuals	Mean difference in survivors, Counterfactual ^a – base case ^b	Mean difference in survivors ^c , Counterfactual ^d – base case ^e
	No 'relapse'	50% 'relapse'			
0.08	789,920	789,305	615	4,930	4,315
0.11	789,578	788,990	588	4,587	3,999

^a Counterfactual scenario with no 'relapse'

^b Base case with no 'relapse'

^c Identical to the difference between 'Mean difference in survivors, counterfactual¹ – base case²' and 'Mean difference in survivors, two counterfactuals'

^d Counterfactual scenario with 50% 'relapse'

^e Base case with no 'relapse'; base case with 50% 'relapse' must be ignored.

Table H7: Comparison of difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for men versus mortality rates for women

ERR	Additional Initiation ^a (%)	Gateway effect/ Delayed Smoking ^b (%)	Diversion from Quitting ^c (%)	Switching ^d (%)	Difference in survivors		
					Men	Women	Difference, men vs. women (%)
No 'relapse'							
0.08	0.3	50	1.8-20.0	1.2-8.3	6,118	4,930	19
0.11	0.3	50	1.8-20.0	1.2-8.3	5,680	4,587	19
50% 'relapse'							
0.08	0.3	50	1.8-20.0	1.2-8.3	5,361	4,315	20
0.11	0.3	50	1.8-20.0	1.2-8.3	4,957	3,999	19

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years.

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

^c Refer to [Table 2.3](#) for age interval-specific probabilities

^d Probabilities from 'likelihood of use' study reduced by 50% to model 50% return from Camel SNUS use to smoking ('resumed smoking'); refer to [Table 2.3](#) for age interval-specific probabilities.

'Tipping point' related to the primary beneficial transition, 'switching', versus all primary harmful transitions and secondary harmful transition 'gateway effect' [refer to [Table 2.8](#)]; based on mortality rates for women

Beneficial and harmful transitions were evaluated for women within the context of 'tipping point' analyses, used to estimate the magnitude of a beneficial change in tobacco exposure required to offset the population health effects of one or more harmful exposure changes. The analyses described here estimated tipping points between the primary beneficial transition of 'switching' and a combination of primary and secondary harmful transitions ('additional initiation' with 'gateway effect', and 'diversion from quitting').

Based on U.S. rates (refer to [Table 2.4](#)), cigarette smoking initiation among never tobacco users occurs in the first three age categories (ages 13-17, 18-22 and 23-27 years), while smoking cessation can occur throughout life, at any age after smoking initiation has taken place. For these analyses, no smoking cessation was allowed in the first age category (ages 13-17 years), and Camel SNUS cessation was suspended for all ages (the probability of Camel SNUS cessation was set to 0, as worst-case scenario).

Empirical data on primary beneficial and harmful transitions were based on projected purchase probabilities, as provided by the first execution of RAIS's 'likelihood of use' study. Specifically, the probability that base case never tobacco users would initiate Camel SNUS use instead of remaining never users ('additional initiation') was projected to be 0.3% (refer to [Table 2.2](#)); this transition occurs in the first three age categories. In the absence of empirical data on secondary harmful transitions, 'gateway effect' was evaluated using an extreme scenario, whereby 50% of Camel SNUS initiators transition to cigarette smoking in the next age category (in age categories 18-22, 23-27 and 28-32 years). Finally, the probability

that base case smokers would switch to using Camel SNUS instead of quitting tobacco use ('diversion from quitting') was projected to range from 1.8%-20.0%, depending on the age category (refer to [Table 2.3](#)).

The beneficial exposure pattern, 'switching' from cigarettes to Camel SNUS among base case current smokers who would have continued to smoke, was increased incrementally, starting in the second age category (ages 18-22 years) and continuing until the end of follow-up. For ERRs of 0.08 and 0.11, absent the beneficial primary transition of 'switching', the survival deficit in the counterfactual scenario (0.3% 'additional initiation' with 50% 'gateway effect'; and, 1.8-20.0% 'diversion from quitting', depending on age category) was estimated to be 515 and about 600 fewer survivors, respectively (refer to [Table H8](#)). 'Tipping point' analyses indicated that for a concurrent increase in 'switching' of 0.34% and 0.42% (in each age category, ages 18+ years) for ERRs of 0.08 and 0.11, respectively, a decrease in survivors was still observed between the counterfactual scenario and base case but that the decrease was no longer statistically significant. A concurrent increase in 'switching' of 0.38% and 0.48% ERRs of 0.08 and 0.11, respectively, provided a point estimate for the difference in the number of survivors that was 'near zero'; and, a concurrent increase in 'switching' of 0.44% and 0.54% ERRs of 0.08 and 0.11, respectively, provided a population health benefit – as reflected by a statistically significant increase in the number of survivors in the counterfactual scenario (refer to [Figure H1](#) and [Table H9](#)). Introducing the extreme scenario of a 50% 'relapse' to smoking among base case smoking quitters who instead switched to using Camel SNUS (refer to transition probabilities in [Table H2](#)) provided a point estimate that was 'near zero' when there was a concurrent 0.92% and 1.01% increase in 'switching' for ERRs of 0.08 and 0.11, respectively (refer to [Tables H10 and H11](#)). Under the assumption of 50% 'resumed smoking', all tipping points for 'switching' must necessarily be doubled. This is because a 50% resumption of smoking among base case continuing smokers who switched to Camel SNUS ('resumed smoking') was modeled by reducing transition probabilities for 'switching' by 50%.⁴

Net results based on mortality rates for women differed from those for men due to different mortality risks for men and women in the Kaiser-Permanente cohort; the 'net' population effect was about 18% lower for women than for men (refer to [Tables H12 and H13](#)). However, 'tipping point' estimates were almost identical for both genders (refer to [Table H14](#)).

⁴ Modeling results for the current analyses are presented as the difference in the number of survivors for the counterfactual scenario compared to the based case at the end of age interval 68-72 years; the total numbers of survivors in the counterfactual scenario and the base case, and the differences between them are shown for all age categories in [Tables E_H8 and E_H10](#) in [Appendix E](#). Results for LE and QALE are presented in [Tables D_H8 and D_H10](#) in [Appendix D](#).

Table H8: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

ERR	Additional Initiation ^a (%)	Gateway Effect ^b (%)	Diversion from Quitting ^c (%)	Switching ^d (%)	Mean	95% PI	
0.08	0.3	50	1.8-20.0	0.0	-515	-534	-496
				0.5	154	76	238
				1.0	808	653	973
				1.5	1,447	1,215	1,688
				2.0	2,071	1,765	2,388
				2.5	2,681	2,302	3,073
				3.0	3,277	2,825	3,742
				3.5	3,859	3,338	4,396
				4.0	4,428	3,837	5,034
0.11	0.3	50	1.8-20.0	0.0	-608	-635	-583
				0.5	32	-41	109
				1.0	657	513	812
				1.5	1,267	1,050	1,497
				2.0	1,864	1,575	2,166
				2.5	2,447	2,089	2,820
				3.0	3,016	2,590	3,460
				3.5	3,572	3,079	4,085
				4.0	4,116	3,557	4,695

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years.

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

^c Refer to [Table 2.3](#) for age interval-specific probabilities

^d Probability applied to age intervals 18+ years

Table H9: Extrapolated tipping points for age category 68-72 years based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for women

Tipping point (%)			
ERR	Upper 95% PI	Mean	Lower 95% PI
0.08	0.34	0.38	0.44
0.11	0.42	0.48	0.54

Table H10: Difference in survivors, tipping point analysis for 'master model' without 'alternative initiation' (no 'relapse') versus tipping point analysis for 'master model' without 'alternative initiation' with 50% 'relapse'; based on mortality rates for women

ERR	Switching (%) ^a	Mean number of survivors, counterfactual		Mean difference in survivors, two counterfactuals	Mean difference in survivors, Counterfactual ^b – base case ^c	Mean difference in survivors ^d , Counterfactual ^e – base case ^f
		No ‘relapse’	50% ‘relapse’			
0.08	0.0	784,476	783,740	736	-515	-1,251
	0.5	785,145	784,429	716	154	-562
	1.0	785,799	785,102	697	808	111
	1.5	786,438	785,759	679	1,447	769
0.11	0.0	784,382	783,679	703	-608	-1,312
	0.5	785,022	784,338	684	32	-653
	1.0	785,647	784,981	666	657	-9
	1.5	786,258	785,610	648	1,267	619

^a Replaces (' h ') \approx ^(' h ') in [Table C2](#)

^b Counterfactual scenario with no 'relapse'

^c Base case with no 'relapse'

^d Identical to the difference between 'Mean difference in survivors, counterfactual¹ – base case²' and 'Mean difference in survivors, two counterfactuals'

^e Counterfactual scenario with 50% 'relapse'

^f Base case with no 'relapse'; base case with 50% 'relapse' must be ignored

Table H11: Extrapolated tipping points for age category 68-72 years based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting' with 50% 'relapse'; mortality rates for women

ERR	Tipping point (%)
0.08	0.92
0.11	1.01

Table H12: Comparison of difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for men versus mortality rates for women

ERR	Additional Initiation ^a (%)	Gateway Effect ^b (%)	Diversion from Quitting ^c (%)	Switching ^d (%)	Difference in survivors		Difference, men vs. women (%)
					Men	Women	
0.08	0.3	50	1.8-20.0	0.0	-616	-515	16
				0.5	193	154	20
				1.0	984	808	18
				1.5	1,758	1,447	18
				2.0	2,514	2,071	18
				2.5	3,255	2,681	18
				3.0	3,979	3,277	18
				3.5	4,687	3,859	18
				4.0	5,380	4,428	
0.11	0.3	50	1.8-20.0	0.0	-733	-608	17
				0.5	39	32	18
				1.0	794	657	17
				1.5	1,532	1,267	17
				2.0	2,254	1,864	17
				2.5	2,960	2,447	17
				3.0	3,651	3,016	17
				3.5	4,327	3,572	17
				4.0	4,988	4,116	17

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

^c Refer to [Table 2.3](#) for age interval-specific probabilities

^d Probability applied to age intervals 18+ years

Table H13: Comparison of difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting' with 50% 'relapse'; mortality rates for men versus mortality rates for women

ERR	Additional Initiation ^a (%)	Gateway Effect ^b (%)	Diversion from Quitting ^c (%)	Switching ^d (%)	Difference in survivors ^e		Difference, men vs. women (%)
					Men	Women	
0.08	0.3	50	1.8-20.0	0.0	-1,515	-1,251	17
				0.5	-683	-562	18
				1.0	130	111	15
				1.5	926	769	17
0.11	0.3	50	1.8-20.0	0.0	-1,591	-1,312	18
				0.5	-797	-653	18
				1.0	-20	-9	55 ^f
				1.5	739	619	16

^a Refer to [Table 2.2](#); probability applied to age intervals 13-17, 18-22 and 23-27 years.

^b Extreme transition probability, in absence of empirical data (applied to age intervals 18-22, 23-27 and 28-32 years)

^c Refer to [Table 2.3](#) for age interval-specific probabilities

^d Probability applied to age intervals 18+ years

^e Counterfactual scenario with 50% 'relapse'; base case with no 'relapse'; base case with 50% 'relapse' must be ignored

^f Small absolute difference; large relative difference due to small values.

Table H14: Comparison of tipping points for age category 68-72 years based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting'; mortality rates for men versus mortality rates for women

Tipping point (%)				
	ERR	Men	Women	Difference, men vs. women (%)
No 'relapse'	0.08	0.38	0.38	0
	0.11	0.47	0.48	0
50% 'relapse'	0.08	0.92	0.92	0
	0.11	1.01	1.01	0

Figure H1: Difference in survivors, counterfactual versus base case, for age category 68-72 years based on transitions of 'switching' versus 'additional initiation' with 'gateway effect' and 'diversion from quitting' (top: ERR=0.08; bottom: ERR=0.11)

