**S2 Appendix. E-Cigarette-Associated Δ Transition Probability of Cigarette Smoking Initiation**

The cigarette smoking initiation rate in 2006 equaled 6.6% for 12-17 year olds (95% CI 6.1% to 7.1%) and 8.7% for 18-25 year olds (95% CI 7.9% to 9.5%) based on National Survey on Drug Use and Health (NSDUH) data [1]. We selected 2006 because it was the last year before the introduction of e-cigarettes in the US. We assumed the cigarette smoking initiation rates among never e-cigarette users in 2014 equaled these values in 2006. Next, we utilized the meta-analysis results of Soneji et al. [2] that pooled data from seven cohort studies of e-cigarette associated cigarette smoking initiation [3–9] and fit a random-effects meta-analysis model (S2 Figure). Each of the cohort studies estimated the odds ratio of cigarette smoking initiation for ever e-cigarette users, compared to never e-cigarette users, adjusting for demographic, psychosocial, and behavioral risk factors. These factors — correlated with e-cigarette use and with cigarette use — included age, sex, race/ethnicity, parental educational level, parental cigarette smoking, cigarette smoking among friends, sensation-seeking tendency, depressive symptoms, impulsivity, rebelliousness, parental support, and susceptibility to cigarette smoking. The pooled adjusted odds ratio equaled 3.50 (95% CI 2.38 to 5.16). We estimated cigarette smoking initiation rate among ever e-cigarette users based on this pooled odds ratio and the initiation rate among never e-cigarette user.

Let OR equal the pooled odds ratio, p1 equal probability of cigarette smoking initiation among ever e-cigarette users, and p2 equal the probability of cigarette smoking initiation among never e-cigarette users. By definition, the odds ratio, OR, equals the ratio of (1) the odds of cigarette smoking initiation among ever e-cigarette users, and (2) the odds of cigarette smoking initiation among never e-cigarette users, . Then,

We then apply the above formula by age group and set the cigarette smoking initiation rate of 18-25 year olds to 26-29 year olds, both for never e-cigarette users and ever e-cigarette users.

S2 Table shows the e-cigarette associated Δ transition probability of cigarette smoking initiation, which is defined as the difference in the probability of cigarette smoking initiation between ever e-cigarette users and never e-cigarette users by age group. We estimated the variance of Δ probability initiation by performing the bootstrap method N=100,000 times.

**S2 Figure. Odds ratio of cigarette smoking initiation among ever e-cigarette users compared to never e-cigarette users**



Note: CI=Confidence Interval. The size of the point estimate for each study (blue square) is proportional to the weight of the study in the random effects meta-analysis model. The weight of the study is determined by its inverse variance. Source: Soneji et al. [2].

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| --- | --- | --- | --- |
| **S2 Table. Age-Group-Specific Point Estimate and 95% CI for the Δ Transition Probability of Cigarette Smoking Initiation, Ever E-Cigarette Users Versus Never E-Cigarette Users (%)** | | | |
| Age Range | Probability of Cigarette Smoking Initiation Among Never E-Cigarette Users (%) and 95% CI | Probability of Cigarette Smoking Initiation Among Ever E-Cigarette Users (%) and 95% CI | E-Cigarette Associated Δ Transition Probability of Cigarette Smoking  (%) and 95% CI |
| 12-17 | 6.6 (6.1, 7.1) | 20.0 (13.8, 27.3) | 13.41 (7.73, 20.15) |
| 18-29 | 8.7 (7.9, 9.5) | 25.2 (17.6, 33.8) | 16.48 (9.68, 24.34) |

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