England SimSmoke: The impact of nicotine vaping on smoking prevalence and smoking-attributable deaths in England


Abstract

Background and Aims: Whereas the use of nicotine vaping products (NVPs) is widespread, their impact on smoking prevalence is controversial. This study considered the potential impact of NVPs on smoking prevalence in England. Design: Indirect simulation model. The England SimSmoke model is validated through 2012, before NVP use became more widely used by smokers. Because information on NVP-related transitions is limited, an indirect method is used; the difference in observed smoking prevalence (reflecting NVPs) is compared with a 2012–2019 counterfactual No-NVP scenario (without NVPs) to estimate the impact of NVPs on smoking and smoking-attributable deaths. Setting: England, 2000–2019. Participants: Nationally representative sample of population. Measurements: England's population, mortality rates and smoking prevalence estimates from three national surveys and tobacco control policies. Findings: Between 2000 and 2012, SimSmoke projected a decline in age 18+ smoking prevalence of 23.5% in men and 27.0% in women. These projections, as well as those by specific age groups, were generally consistent with findings from the three national surveys. Comparing 2012–2019 relative reduction in age 18+ prevalence from the Annual Population Survey (males, 27.5%) with the model-predicted No-NVP reduction (males, 7.3%), the implied NVP-attributable relative reduction in adult smoking prevalence was 20.2% (95% CI, 18.8%–22.0%) for males and 20.4% (18.7%–22.2%) for females. The NVP-attributable reduction was 27.2% (22.8%–31.6%) for males and 31.7% (27.4%–36.5%) for females ages 18–24 and 18.6% (15.2%–21.8%) for males and 15.0% (11.1%–18.8%) for females ages 25–34, with similar reductions for ages 35+. The implied reduction in smoking prevalence between 2012 and 2019 equates to 165,660 (132,453–199,501) averted deaths by 2052. Other surveys yielded smaller, but relatively consistent results. Conclusions: An indirect method of simulation modelling indicates that substantial reductions in smoking prevalence occurred in England from 2012–2019 coinciding with the growth in nicotine vaping product use.

Recommended Citation
