



Correspondence

Re: Disregarding the impact of nicotine on the developing brain when evaluating costs and benefits of noncombustible nicotine products


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ABSTRACT

This Letter to the Editor is in response to a letter from Ms. Flannery, titled, “Disregarding the impact of nicotine on the developing brain when evaluating costs and benefits of noncombustible nicotine products”. In our response, we address some concerns raised by Ms. Flannery, and reiterate our position in our original article. In particular, we underline the importance of a rational public health calculus that weighs beneficial and harmful consequences of policies related to noncombustible nicotine product (NNP) use. We further emphasize the need to correct misperceptions about relative risk of different products to encourage smokers to switch to NNPs. Lastly, we are explicit about our assertion that no use of any nicotine-containing products is the only way to avoid harm at any age, but that we must view this issue pragmatically for the benefit of public health.

We appreciate Ms. Flannery's comments. However, we fear she misinterprets our paper when she accuses us of justifying “the rampant spread of NNP use among youth.” On the contrary, our paper (Abrams et al., 2018) notes we must limit as much as possible use of all types of nicotine products by non-smoking youth. Our discussion repeatedly emphasizes the importance of considering the balance of benefits and harms of NNPs, including potential harm for adolescent non-smokers who use e-cigarettes despite prevention policies and communication campaigns.

A rational public health calculus must weigh beneficial and harmful consequences of a policy, considering the beneficial and harmful consequences' magnitude, certainty, and immediacy. Ms. Flannery's worries about adverse consequences must be weighed against the certainty that millions of smokers will die if they continue inhaling cigarette smoke.

Nearly all preventable premature deaths are caused by *smoking, not nicotine* - over 1300 every day in the US alone (U.S. Department of Health and Human Services, 2014). Intermediate outcomes considered, such as transition to other substance use, effect on cognitive or psychological outcomes, and nicotine addiction are indeed important and must be quantified. Our primary outcome, however, is averting the millions of smoking-related deaths experienced each year. Despite our best efforts, 3000 teens start smoking every day (U.S. Department of Health and Human Services, 2014) and smoking at any age is substantially more harmful than NNPs.

Our framework allows for additional harms informed by science and recognizes potential benefits of nicotine use in adults (e.g., increased alertness, concentration, memory, and modulating mood) (Heishman et al., 2010; Newhouse, 2018; Talati et al., 2016). The possible harms to youth of nicotine cited by Flannery are based primarily on animal studies. While concerning, direct causal evidence is sparse from human studies that can quantify nicotine's harms or benefits. Our framework is agnostic to benefits or harms if they can be quantified beyond speculation and weighed against the well-known harms of nicotine when delivered in smoked tobacco with carbon monoxide and its toxins. Nicotine without smoke is preferred to nicotine with smoke.

Transitions into deadly smoking (harm induction), out of deadly smoking (harm reduction) and no use are all considered in our paper (see Fig. 3 in Abrams et al., 2018; Levy et al., 2017). Harms must be over and above those youth who would have smoked anyway. Studies estimate 63% of 1–2 days/month e-cigarette experimenters and 79% of 10+ days/month users already used another tobacco product (Villanti et al., 2016; Villanti et al., 2018). No use states are ideal, but for smokers, substantially less harmful NNPs are preferred. FDA-approved nicotine replacement therapy (NRT) is one example of an NNP, yet smokers and health professionals still mistakenly equate the harms of NRT use with the harms of smoking which reduces its effectiveness for smoking cessation (Shiffman et al., 2008).

We stand by our assertion that we must become more aggressive at correcting the misperceptions that all smokers hold about relative risk and to encourage as many of them to stop smoking as quickly as possible - including by switching completely to NNPs. Simultaneously, we must minimize uptake of both cigarette smoking and NNPs among youth. The balance that we state in our paper may have been lost, so we welcome this opportunity to be explicit: *no use of any nicotine-containing products is the only way to avoid harm at any age*. But the understandable desire to protect youth at all costs from any potential risk ignores the real dangers that smokers face at every age. Our shared concern for youth must not become the enemy of public health pragmatics. The burden of smoking is too great to do otherwise.

Smokers must understand that it is smoke, not nicotine, that is the source of the overwhelming majority of harms. We must support smokers in stopping smoking, including by switching completely to substantially less harmful options if they want to continue using nicotine.

Disclosure statement

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