

Chapter 5. Tobacco harm reduction

The goal for those who smoke should always be to stop smoking altogether in order to reduce or eliminate the harms from smoking. However, some people are unable or unwilling to give up tobacco or nicotine use completely. For this group of people, a tobacco harm reduction approach has been suggested. Possible approaches to reduce the exposure to toxins from smoking include:

- reducing the amount of tobacco used
- using less toxic products (eg pharmaceutical nicotine, potential reduced-exposure tobacco products [PREPs]) as an alternative to cigarettes.

There is limited available evidence of the health effects that reduced smoking may have on the incidence of tobacco-related diseases.^{1,2} A reduction in smoking by 50% may slightly reduce the risk of lung cancer in people who were smoking 15 or more cigarettes each day,³ however, there is no risk-free level of exposure to tobacco smoke.² A decrease in the number of cigarettes smoked per day (eg to less than 10 per day) does not reduce the risk of:^{1,4-6}

- fatal or non-fatal myocardial infarction
- hospitalisation for chronic obstructive pulmonary disease (COPD)
- all-cause mortality.

While long-term health benefits of smoking reduction is limited, those who embark on this path may have an increased likelihood of quitting, even if they did not initially intend to do so. For example, those who use nicotine replacement therapy (NRT) for smoking reduction are approximately twice as likely to progress to quitting as those who do not.⁷

Reducing to quit with nicotine

Those who are not willing to quit can be advised to partially substitute their cigarette intake with NRT. Gradually, cigarette intake can be reduced and NRT increased. The use of NRT in this way can double the odds of progressing to complete smoking cessation.^{7,8} Long-term partial replacement with nicotine is not recommended as no clear health benefit has been demonstrated.

Reducing to quit without nicotine

Reducing cigarette intake without a nicotine supplement is not recommended and has little proven health benefit.⁴⁻⁶ Research has found that when reducing cigarette intake, those who smoke adjust their smoking topography (ie number of puffs, depth of inhalation) to maintain the desired level of nicotine.⁹

Electronic cigarettes for harm reduction

Electronic cigarettes (e-cigarettes) are battery-powered devices that deliver nicotine in a vapour without tobacco or smoke. The device heats liquid into aerosol for inhalation, simulating the behavioural and sensory aspects of smoking. The liquid is usually made up of propylene glycol and glycerol, with or without nicotine and flavours, stored in disposable or refillable cartridges. The nicotine content of e-cigarettes can vary from zero to up to 50 mg/mL. E-cigarette users are referred to as 'vapers' and e-cigarette use as 'vaping'.¹⁰

The use of e-cigarettes is controversial as its long-term safety profile is still emerging.^{11–13} Nicotine-containing e-cigarettes have a potential role as a tobacco harm reduction strategy for people who do not wish to give up tobacco or nicotine use completely. Proponents of e-cigarettes point to the situation in Sweden where the prevalence of combustible tobacco use is low (5%), perhaps in part related to the use of oral tobacco products.¹⁴ In the United Kingdom, increasing use of e-cigarettes has been associated with a decrease in use of combustible tobacco.¹⁵ Population studies in the United Kingdom and United States suggest a higher uptake of nicotine-containing e-cigarettes by those who smoke and are motivated to quit.^{14,16} However, many contextual factors, including the strength and maturity of tobacco control policies, influence the prevalence of tobacco use;¹⁷ therefore, comparisons between countries need to be made with caution.

Concerns about e-cigarettes include:¹⁷

- lack of evidence for long-term safety
- continued concurrent use with smoking (ie dual use)
- potential to promote nicotine use and renormalise smoking among non-smokers, especially young people.

Data on uptake of vaping products among youth is rapidly changing and varies between countries. The US National Youth Tobacco Survey data found a dramatic increase in current e-cigarette use among high school students: 1.5% in 2011 to 20.8% in 2018.¹⁸ An association has been observed in young people between e-cigarette use and future experimentation with smoking.¹⁹ There has been particular concern about the role of flavourings in attracting young people to e-cigarettes, leading to an immediate ban on these additives in the US.²⁰ It remains to be seen whether such increases will also occur in other countries that allow access to nicotine-containing e-cigarettes as a consumer product.

The potential role of e-cigarettes as a harm reduction strategy is particularly relevant to people with mental illnesses. In recognition of the disproportionately high smoking prevalence and low quit rates among people living with mental health illnesses, the Royal Australian and New Zealand College of Psychiatrists supports the legalisation and regulation of nicotine-containing e-cigarettes and other vaporised nicotine products to facilitate their use as harm reduction tools.²¹ However, other organisations oppose use of e-cigarettes for this purpose. Adding to the uncertainty is the fact that the constituents of the vapour produced by e-cigarettes has not been tested and standardised.

In Australia, a precautionary approach²² to the use of e-cigarettes has been taken. Under Australian law, nicotine is classified as a Schedule 7 poison, and it is illegal to possess nicotine without a valid prescription. No vaping products are currently approved by the Therapeutic Goods Administration (TGA), and sale of nicotine-containing e-cigarettes is illegal.

An important consideration with nicotine e-cigarettes is the regulatory framework within which they are made available. If sold as a consumer product, there is the risk of use for purposes other than cessation or reduction. This includes the risk of marketing to non-smokers, including to young people. The idea that e-cigarettes can ever be a safe consumer product has been called into serious question by the outbreak of lung disease²³ associated with e-cigarette use in the United States. McKee and colleagues have proposed that e-cigarettes should be regulated under the existing provisions for the authorisation, marketing and sales of therapeutic goods.²⁴

For a review of Australian and international position statements on e-cigarettes, health and options for regulation, refer to *Tobacco in Australia: Facts and issues*.²⁵

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