

FIP HOLDING STATEMENT ON THE USE OF ELECTRONIC CIGARETTES

The health and economic impact of e- cigarette use, and the contribution of the pharmacy workforce to its elimination

INTRODUCTION

Burden of tobacco use

Globally, there are approximately 1.13 billion smokers, and it is estimated that half of them will succumb to tobacco-related diseases.¹ It is the foremost cause of preventable death worldwide, contributing to a variety of diseases and causing premature death.² It is also a direct cause of non-communicable diseases such as lung cancer, cardiovascular disease and chronic obstructive pulmonary disease (COPD).¹

According to the World Health Organization (WHO), over 8 million people lose their lives to tobacco use each year. Of these fatalities, an estimated 1.2 million are attributable to second-hand smoke exposure, typically experienced by those in frequent and close contact with chronic tobacco smokers.³ Tobacco use poses a significant public health challenge and it not only impacts the health of users and those around them, but also has a negative impact on the economic and social status of individuals and communities.⁴ The consequences of tobacco use are particularly severe in low- and middle-income countries (LMICs), where control measures against tobacco use are often lax and the tobacco industry holds substantial influence.⁵ Of note, LMICs are home to more than 80% of the world's tobacco users.³

Range of tobacco products and their health impact

Tobacco smoke contains over 7,000 chemicals, of which 250 are known to cause harm and at least 69 are known carcinogens.⁶ Tobacco smoke can cause negative health effects such as exacerbation of asthma symptoms and symptoms of respiratory infections. The greater the exposure to tobacco smoke and tobacco products, the greater the risk of adverse health effects.⁴

There is a large range of tobacco and tobacco-related products, including conventional products such as cigarettes, cigars, roll-your-own cigarettes, pipes and water pipes, as well as newer products such as electronic nicotine delivery systems, with the most common type being electronic cigarettes (i.e., e-cigarettes).⁵ The range also includes smokeless tobacco products such as chewing tobacco, dry snuff, moist snuff and dissolvable tobacco products.⁵ Regardless of the type of product, they always carry significant health risks, as tobacco is intrinsically toxic.

Impact of electronic nicotine delivery system (ENDS) on health

There are two kinds of electronic delivery system, namely electronic nicotine delivery systems (ENDS) and electronic non-nicotine delivery systems (ENNDS). They function by heating a



liquid to produce an aerosol that the user inhales. These “e-liquids” can contain a range of potentially harmful additives, including flavours and other chemicals, but they do not contain tobacco. ENDS and ENNDS may be difficult to differentiate from each other since they both frequently feature flavours that appeal to youngsters and are commonly perceived to be non-addictive and safer than conventional tobacco products. Also, for some products, the same device can be used for nicotine-containing liquids and non-nicotine-containing liquids, and some look similar in appearance. ENNDS are designed to be nicotine-free, but in reality, some e-liquids labelled as “zero-nicotine” have been discovered to contain nicotine upon testing.⁷

Electronic nicotine delivery systems, also known as electronic cigarettes, e-cigarettes or vape pens, are battery-operated devices that deliver nicotine in the form of an aerosol, which is inhaled into the lungs. E-liquids for e-cigarettes typically contain nicotine, flavourings, and other chemicals like glycerol and propylene glycol. The user inhales the aerosol produced when the device heats the e-liquid, commonly called vapour, hence the term “vaping”. E-liquids also feature chemical compounds different from conventional tobacco products and which have yet to be studied to determine their health effects, however it is important to note that vaping has been associated with serious lung conditions, demonstrating that vaping can carry substantial health risks.^{8,9} Products differ in terms of design, functionality, shape, size and the amount of nicotine and/or flavourings they contain. Some products are disposable devices; vape-pens, tank systems and some that resemble conventional cigarettes.⁵

Often, the tobacco and related industries advertise and promote ENDS as a safer alternative to conventional cigarettes (because they do not contain tobacco), leading many users to believe that they are significantly less harmful to health than tobacco products, particularly cigarettes; however, their safety and long-term effects are still under investigation.^{5,9}

E-cigarette or vaping product use-associated lung Injury (EVALI) is a condition identified by the US Centers for Disease Control and Prevention (CDC) in 2019 following a nationwide outbreak of severe lung disease associated with e-cigarette products or vaping in the USA.¹⁰ Symptoms of EVALI can be similar to those of other respiratory conditions and can include cough, shortness of breath, chest pain, nausea, vomiting and fever. In severe cases, patients can require ventilation, and some cases have been fatal (as of 18 February 2020, 2,807 hospitalised EVALI cases or deaths had been reported to the CDC from all 50 states, the District of Columbia, and two US territories [Puerto Rico and the US Virgin Islands]; and 68 deaths had been confirmed in 29 states and the District of Columbia.)¹¹ Vitamin E acetate, an additive present in some THC-containing e-cigarettes or vaping products, was strongly linked to the EVALI outbreak.¹¹ Although the number of EVALI cases decreased after peaking in 2019, the condition remains a significant public health concern.^{9,10}

Evidence indicates that ENDS products are increasingly popular among young people in many countries globally, including Australia, the UK and the USA,¹²⁻¹⁴ with some research suggesting that using these devices may assist in smoking cessation.¹⁵ Nevertheless, more comprehensive evidence is necessary to confirm this finding. Also, some evidence suggests that ENDS use was not associated with increased success rates in smokers wishing to quit or preventing relapse.¹⁶⁻²⁰

Despite the perception that e-cigarettes are a safer alternative to conventional cigarettes, their potential health effects are still unclear and there is growing evidence of the harmful effects of ENDS (see Table 1). Components, such as the flavourings, have not been well studied but are likely contribute to the toxicity levels of the products according to available evidence.⁵ ²¹ Some short-term effects that have been noted with ENDS use include headaches, respiratory effects, cough, and irritation of the throat and mouth.¹⁵ The impact of e-cigarettes on health is the subject of ongoing research and debate. However, the WHO and other health organisations have expressed concern about the potential negative health effects of e-cigarette use.^{5,22} Some of the WHO’s key messages on ENDS are:⁵

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- ENDS are addictive and not without harm;
- ENDS should be strictly regulated for maximum protection of public health;
- Children and adolescents who use ENDS can double their risk of smoking cigarettes; and
- Tobacco control efforts must remain focused on reducing tobacco use and avoid distractions created by tobacco and related industries.

Table 1 - Some of the actual or potential health effects of e-cigarettes

| Health effect | Description |
|-------------------------------------|---|
| Nicotine addiction | E-cigarettes contain nicotine, which is highly addictive. ²² Nicotine in therapeutic doses can be beneficial to wean people off nicotine addiction through nicotine replacement therapy and help people stop smoking. ²³ However, when used by children, adolescents or never-smokers, e-cigarettes can lead to nicotine addiction. ⁵ Significant discrepancies between labelled and actual nicotine concentrations have been identified, with many products containing more nicotine than indicated on the label, and even supposedly nicotine-free products containing nicotine. Also, some e-liquids contain more nicotine than regular cigarettes ever have. ²⁴ |
| Respiratory problems | The aerosol produced by e-cigarettes can contain harmful chemicals such as heavy metals and volatile organic compounds, which can harm the lungs and airways, and increase the risk of lung cancer and diseases, such as chronic obstructive pulmonary disease, and exacerbate symptoms of asthma. E-cigarettes have been associated with respiratory problems such as coughing, wheezing and shortness of breath. ²² |
| Cardiovascular problems | The use of e-cigarettes can increase heart rate and blood pressure, which can lead to cardiovascular problems such as heart attacks and strokes. Daily ENDS use has been associated with increased risk of myocardial infarction. ⁵ |
| Chemical exposure | e-Liquids contain a range of chemicals, some of which are known to be harmful. ⁵ One example is the diacetyl found in flavoured e-cigarettes that when inhaled causes bronchiolitis obliterans, commonly referred to as “popcorn lung”. ²⁵ |
| Exposure to psychoactive substances | Psychoactive substances (e.g., cannabidiol [CBD], synthetic cannabinoid receptor agonists [SCRAs] and tetrahydrocannabinol [THC] have been found in some e-cigarettes, in addition to nicotine. Vaping THC can potentially lead to impaired motor function, altered judgment, and issues with memory and cognition. It can also lead to addiction in some individuals. In addition, vaping THC has been linked to EVALI. ²⁶ |
| Second-hand exposure | The aerosol produced by e-cigarettes can expose non-users to harmful chemicals (including nicotine and carcinogens), which is responsible for 1.2 million deaths per year. Second-hand vapour could raise the risk of heart disease and lung cancer. ⁵ |
| Increased risk of smoking | Children and adolescents who use ENDS are at least twice as likely to use conventional cigarettes and other tobacco products compared with those who do not use ENDS. ⁵ |

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Overall, e-cigarettes pose health risks, and anyone who smokes and is considering their use as an alternative should be aware of these risks and talk to their healthcare provider, including their pharmacist, about quitting smoking and using other smoking cessation tools.



Importance of pharmacists' provision of health information on the use of e-cigarettes

The negative effects of tobacco use on health are well documented. However, quitting can be a challenging process, and the journey towards a tobacco-free life can be made easier with the right support. Pharmacists have an important role to play in helping tobacco users quit and remain abstinent. Their expertise and accessibility make them the ideal providers of evidence-based advice, medication and support to those who want to quit.

Pharmacy professionals can play a crucial role in mitigating the harms of e-cigarette use by informing and guiding patients on the potential health impact of e-cigarettes and their potential use for smoking cessation for smokers who have been unsuccessful with proven interventions. In some countries, such as Australia, pharmacists dispense and advise on these products to adults who wish to quit smoking and have a prescription.²⁷

Pharmacists can also play a role in monitoring and managing potential adverse effects of e-cigarette use, such as nicotine addiction or lung injury. They can offer counselling and support to patients who are trying to quit smoking and provide them with appropriate resources and proven cessation aids. More information and evidence related to the role of pharmacists in supporting tobacco cessation and the treatment of tobacco dependence can be found in the FIP publication "[Supporting tobacco cessation and the treatment of tobacco dependence: A handbook for pharmacists](#)" (2023).

Furthermore, pharmacists can advocate for effective regulation of e-cigarettes to minimise their risks. Pharmacists should ensure that patients are fully aware of the health effects of e-cigarettes, particularly if they are to be used by smokers. This includes collaborative interprofessional efforts to restrict the marketing of e-cigarettes to non-smokers and youth, as well as promoting policies to ensure that e-cigarettes are sold only to individuals who are of legal age to purchase tobacco products.

Overall, pharmacists can play an important role in helping patients make informed decisions about the use of electronic cigarettes and provide them with the support and resources they need to manage the potential risks associated with e-cigarette use. Pharmacists should inform patients about the health impact of electronic cigarettes and explain that the long-term effects are not yet known.²⁸ E-cigarettes also pose health risks, particularly to non-smokers, young adults and children, and while they may play a role in helping some smokers quit, they could hinder cessation in some individuals, thereby prolonging or increasing addiction to nicotine. Therefore, better evidence is needed to understand their health effects, safety and effectiveness in tobacco and smoking cessation.⁹

This FIP holding statement is intended to inform governments and policymakers, FIP member organisations, pharmacy academic institutions and individual pharmacy professionals of the position of FIP on the use of electronic cigarettes.

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