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EDITORIAL

Beyond smoke and mirrors: unravelling the complexities of e-cigarettes for smoking cessation

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Tobacco is a major cause of mortality worldwide and the World Health Organization (WHO) attributes over 8 million deaths annually to tobacco use including 1.3 million deaths amongst non-smokers exposed to second hand smoke[1]. Smoking is an established risk factor for multiple cancers especially lung cancer; chronic obstructive pulmonary disease (COPD); cardiovascular disease including ischaemic heart disease (IHD), hypertension, and strokes; macular degeneration; and erectile dysfunction, to name a few. Smoking also adversely affects the outcomes of surgical procedures and management of a wide range of acute and chronic conditions including diabetes mellitus (DM), and chronic kidney disease (CKD). The adverse effects of smoking on oral health are also well-established and tobacco smoking is a known risk factor for oral premalignant lesions (e.g., leukoplakia, erythroplakia); oral malignancies especially squamous cell carcinoma; periodontal disease, periimplantitis, xerostomia (which can increase the risk of dental caries); opportunistic oral infections such as oral candidiasis; and delayed wound healing and infections following oral surgical interventions.

Data from Office for National Statistics (ONS) UK shows there were 6.4 million (12.9%) current smokers in the UK in 2022 which is a 7.3 percentage point decrease compared with 2011 when current smokers were recorded at 20.2% of population[2]. The highest proportion of smokers in the UK is found in people aged 24–35 years. Despite a reduction in smoking, particularly in developed countries, tobacco use is the biggest global threat to health and underscores the need for sustained efforts to minimise tobacco use. Current strategies for smoking cessation in the UK are based on advice by healthcare professionals; national helpline; mobile apps; counselling services; nicotine replacement therapies including electronic cigarettes; and non-nicotine pharmacotherapies (e.g., Varenicline, and Bupropion)[3]. The National Health Service (NHS) in the UK offers comprehensive smoking cessation services to the public, making UK one of the top countries to provide such services.

E-cigarettes are one of the most widely used alternative to conventional cigarette smoking. The global market share of e-cigarettes was 22.17 billion USD (~18.26 billion GBP) in 2022 and is forecast to be 168.96 billion USD (~139.39 billion GBP) by 2030 with a compound annual growth rate (CAGR) of 28.9 %[4]. A growing trend of e-cigarette may be attributed to a common public belief that e-cigarettes are harmless or at least less harmful than cigarette smoking. Easy availability in retail and online outlets, option to titrate nicotine levels, wide range of flavours, avoidance of a strong odour associated with cigarette smoke, and lower costs compared to tobacco cigarettes may also contribute to their growing use. The market trends and forecasts indicate healthcare professionals will inevitably encounter patients who use e-cigarettes.

The key challenge for healthcare professionals including dentists is to provide evidence-based advice to patients regarding e-cigarettes. Although the widespread use of e-cigarettes has been observed for 15–18 years, further evidence regarding the long-term risks of e-cigarettes is required. Current evidence related to the side effects of e-cigarettes is largely based on observational and future research based on randomised controlled clinical trials is warranted. Until more concrete evidence becomes available, healthcare professionals may rely on professional guidelines.

This piece will delve into some of the controversies and conflicting advice by leading professional organisations on the use of e-cigarettes to quit smoking. Although the recommended by the National Health Service (NHS) UK as a smoking cessation option, e-cigarettes are not approved for the same by the US Food and Drugs Administration (FDA). Moreover, the NHS advice suggests that e cigarettes may be used by pregnant women while advice by the Centres for Disease Control and Prevention (CDC) USA states that pregnant women must avoid it completely[5]. According to the WHO, harmful effects of e-cigarette vapours are not limited to primary users but may

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harm people who are exposed to second hand vapours[6]. In contrast, the advice on the NHS stop smoking website states that there is no evidence that second hand vape aerosol is harmful. Several other examples of contradictory advice on e-cigarettes by professional organisations can be cited. It would be helpful if such controversies can be resolved to enable healthcare professionals provide clear and unambiguous advice to the patients.

Notwithstanding the challenges of quantification of health risks with e-cigarettes and associated controversies, it is fair to say that e-cigarettes are not free from adverse effects on health and should not be recommended as a “harmless alternative” to cigarette smoking. Like tobacco cigarettes, e-cigarettes, especially those containing nicotine, are highly addictive and users may find it difficult to quit the habit or may even switch to tobacco cigarettes later. As further research is awaited to ascertain the long-term health risks of e-cigarettes, relevant organisations such as the WHO, NHS and CDC must collaborate to develop more uniform guidelines regarding e-cigarettes so that healthcare professionals can provide more consistent advice to the public. Whilst global differences in regulatory policies and professional guidelines are common, the large scale of e-cigarette use worldwide merits a more common ground. After all, science is a common language!

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COMPETING INTERESTS

The author declares no competing interests.