Editorial

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Electronic Cigarettes: Friend or Foe?

Electronic cigarettes (EC), also known as electronic nicotine delivery devices (ENDS) were first patented in 1965 by Herbert A Gilbert. An aerosolised technology was later introduced in China and entered the marketplace in 2003 and was patented internationally in 2007. Currently over 466 brands and 7764 unique flavors of EC products are available.

The main purpose of ENDS is to provide an alternative to tobacco cigarette smoking, for the purpose of quitting or reducing tobacco smoking. EC are supposedly safer than tobacco products as they produce vapours instead of smoke, hence they are devoid of tar and carbon monoxide, as well as having significantly lower number of chemicals. They usually contain propylene glycol, glycerol, flavourings and colouring agents in liquid form. Nicotine which is added into these liquids is then heated and aerosolised which is inhaled via the mouthpiece and visually seen as vapours upon exhalation. Therefore EC mimics the act of tobacco smoking to a certain extent and this has been claimed to address the behavioural aspect related to tobacco smoking, particularly cigarettes. These devices are currently widely available online and in retail outlets in many countries across the world, including Malaysia.

Evidence regarding safety and efficacy of EC, especially for the long term is understandably limited as this is a new phenomenon. A recent systematic review and meta-analysis of short-term safety and efficacy for smoking cessation found the odds of quitting cigarettes was 28% lower in those who used EC compared with those who did not use EC (odds ratio (OR) 0.72, 95% confidence interval (CI) 0.57–0.91). Furthermore, the association of EC use with quitting did not differ among studies of all smokers using EC (irrespective of interest in quitting cigarettes) compared with studies of only smokers interested in cigarette cessation (OR 0.63, 95% CI 0.45–0.86 vs. 0.86, 0.60–1.23; p=0.94).[1] This creates the dichotomy among the tobacco control advocates, with regard to the place of EC in management of tobacco dependence, as well as the policy makers in terms of regulating it. Majority of countries opted to ban EC, including our neighbours; Singapore, Thailand and Brunei.

In Malaysia, EC are currently regulated on the basis of nicotine, which is under the Poisons Act 1952 (Revised 1989) and Regulations. This Act stipulates that all preparations containing nicotine are classified as Group C Poisons, and shall only be dispensed by licensed health practitioners (e.g., physicians, dentists and pharmacists). Lately there have been nationwide raids on premises selling EC by enforcement officers from the National Pharmaceutical Control Bureau resulting in strong opposition from local organizations representing the vaping community and industry. They are calling for clear guidelines on regulating EC instead of a complete ban. These groups are quoting statements made by influential bodies like Public Health England (PHE), which states that EC use is approximately 95% safer than smoking. The PHE reasoned that the harmful constituents of cigarette smoke are either absent in the EC vapour or present at levels much below 5% of smoking doses. In addition, they concluded that the main chemicals in EC fall under the category ‘generally safe as food’ for human consumption. Unfortunately recent evidence shows serious respiratory problems, including broncholitis obliterans or ‘popcorn’ lungs associated with diacetyl, a chemical commonly used as a flavouring agent in e-liquids.[2]

The PHE statement have been criticised since the quality of evidence in support of e-cigarettes’ effectiveness in helping smokers quit was assessed as very low to low, and the evidence on smoking reduction was assessed as very low to moderate.[3] Despite the above concerns, the United Kingdom has recently recognised EC as a therapeutic product for smoking cessation. This could provide new data on effectiveness of EC, but doubts have been cast as to whether the decision was influenced by the tobacco industry. The most obvious concern is the re-normalisation of smoking and maintenance of nicotine addiction. More importantly, association between EC use and smoking has been shown among never-tobacco smokers.

This is indeed worrying due to the neurobiological effects of nicotine on the developing brain of adolescents, resulting in increased risk to other substance abuse, diminished cognitive function during adulthood. Evidence supports the involvement of the limbic system, which is actively maturing during adolescence and is uniquely vulnerable to long -term modification by nicotine.[4] Other than the use of EC by adolescents, the emergence of dual-users (EC and tobacco smoking), raises another concern. A good proportion of smokers use EC to replace tobacco in smoke-free areas, and to non-discerning eyes, the exhaled vapours look just like tobacco smoke. This also contributes to the re-normalisation of tobacco smoking as well an impediment to the enforcement officers in the absence of EC

regulations concerning prohibition of vaping in smoke-free areas.

The selling of e-liquids is becoming more of an illicit trade as many vendors opt to display e-liquids without nicotine (termed as vape) while few others decided to just close-down their shops. A technical committee comprising of various experts was setup by the Ministry of Health to look into the body of evidence regarding EC. Although this committee recommended a complete ban, the cabinet decided to regulate the use of EC and e-liquid instead of a complete ban. Various ministries seem to be regulating different components of EC. There have been reports of faulty EC devices resulting in serious injuries and also deaths.[5] Studies are currently on-going to evaluate the presence of other harmful chemicals in the vapour of EC, including formaldehydes and heavy metals, which will exert long-term health effects not only to the users but possibly to others who are exposed to the vapours, much like the detrimental effects of secondhand smoke. It is clear that some of these effects will take decades before they become apparent, as it took almost 30 years before tobacco smoking was associated with lung cancer.

Relevant authorities in Malaysia and globally are currently conducting more research to generate data in terms of prevalence and pattern of EC use among adults and adolescents, as well as the effectiveness and safety of EC for cessation and reduction of tobacco smoking. It is expected that by the year-end, a decision on EC regulations in Malaysia will be announced by the Cabinet. Hopefully, it is one, which will ensure that health is given priority over profits.

References:

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