

For Discussions

You cannot Buy a New Brain

Purpose

The purpose of this paper is to highlight the importance on prohibiting the import, manufacture or sale or use in certain places, of prescribed alternative smoking products; to restrict the giving, possession, advertising or promotion of the products; and to make related and miscellaneous amendment to the Smoking (Public Health) (amendment) Bill 2019, from environmental and public health viewpoints.

Background

2. Electronic cigarettes (e-cigarettes) are battery-powered electronic nicotine delivery devices (ENDD) that can deliver nicotine and flavorings to the user in the form of an aerosol resembling a cigarette designed for the purpose of providing inhaled doses of nicotine by way of a vaporized solution to the respiratory system. This device provides a flavor and physical sensation similar to that of inhaled tobacco smoke, while no smoke or combustion is actually involved in its operation.

3. An e-cigarette is composed of the following key components: (1) the inhaler - also known as 'cartridge' (a disposable non-refillable plastic mouthpiece - resembling a tobacco cigarette's filter - which contains an absorbent material that is saturated with a liquid solution containing nicotine); (2) the atomizing device (the heating element that vaporizes the liquid in the mouthpiece and generates the mist with each puff); (3) the battery component (the body of the device - resembling a tobacco cigarette - which houses a lithium-ion re-chargeable battery to power the atomizer). The body of the device also houses an electronic airflow sensor to automatically activate the heating element upon inhalation and to light up a red LED indicator to signal activation of the device with each puff.

4. Some believe e-cigarettes could help smokers quit due to its “lowered toxicity”. However, the US Food and Drug Administration, which currently regulates nicotine products, has announced that it will expand its regulations to include e-cigarettes. [1]

1. <https://www.fda.gov/tobaccoproducts/labeling/productsingredientscomponents/ucm456610.htm>

Addiction vs Quitting

5. There are over 250 brands of e-cigarettes but the information about their life cycles is largely unknown. There are a variety of nicotine solutions, cartridge sizes, heating elements and batteries, additives and flavorings, and potential toxic substances in the vapor. Evaluations of the said product from raw materials, manufacturing, packaging, distribution and disposal is absent. Unlike other food products, there do not carry any ingredients and safety labels telling the users on the harmful substances carried and disposal method. **E-waste is a huge global problem.**

6. Manufacturers advertise e-cigarettes as a good way to help people quit smoking. However, this evidence is not very solid. The conclusion mainly comes from surveys or reports, not from scientific studies. In fact, there are many proven effective measures for smoking cessations, for example, acupuncture, pharmacotherapy and counselling.

7. People may start using e-cigarettes simply because they are said-to-be “less harmful” than tobacco cigarettes. This may be especially true for young people, who are the targets for e-cigarette marketing. Many e-cigarettes package as snacks and USBs to attract our youth and they are sold everywhere without any regulation, unlike wine and tobacco. **Even our mosquito repellent fluid contains information on health hazards, an e-cigarette should also have clear health warning!** Absence of which should prohibit from import, production, selling and advertising with an aim to protect our community health.

8. According to studies from CDC, the e-cigarette “smoking” population has been kept rising. Youngsters might start using e-cigarettes and then add or switch to tobacco cigarettes or other tobacco products, which have severe known health risks, including addiction. [2]

Environmental Problems

9. E-cigarette capsules and nicotine-filled pods contain **plastics, electronic circuitry and nicotine residue**, which are generally regarded as hazardous wastes. These devices can leach **heavy metals** such as mercury, copper, lead and bromines, as well as battery acid, into the environment causing **second and third-hand health risks**. [3][4] When an e-cigarette battery malfunctions, it could cause burns on the hands and face, fractured bones and loss of eyesight. The particles may also pose choking hazards for small children and animals. [5]

2. https://www.cdc.gov/tobacco/basic_information/e-cigarettes/Quick-Facts-on-the-Risks-of-E-cigarettes-for-Kids-Teens-and-Young-Adults.html

3. Environmental Pollution 198 (2015) 100-107

4. Waste Management 39 (2015) 57-62

5. American Journal of Public Health 108, no. 11 (November 1, 2018): pp. 1489-1490.

Health Problems

10. Manufacturers of e-cigarettes have been **misleading the public**, especially younger generations that smoking with their products is trendy and does no harm to their body. Toxic and carcinogenic substances, however, are often found in their e-cigarettes, for instance, **butane from lighter fluid, cadmium from the battery, carbon monoxide from burning, nicotine, and flavoring agents like diacetyl** which could cause popcorn lung.

11. Particles of **second hand aerosol** caused by e-cigarettes are smaller than 1000 nanometers, (smaller than tobacco smoke) and at least 10 chemicals identified inside the aerosol are **carcinogens** and **reproductive toxins**, including but not limited to: **Acetaldehyde, Benzene, Cadmium, Formaldehyde, Isoprene, Lead, Nickel, Nicotine, N-Nitrosornicotine, Toluene**, depending on the chemical composition of the electronic cigarette liquid, the e-cigarette device operation, and user vaping preferences. [6] [7] [8]

12. Nicotine is highly addictive and can harm brain development, which continues until about age 25. It is linked to damage to the nervous, cardiovascular and respiratory systems; cancerous tumor development; preterm deliveries and stillbirths in pregnant women; and interference with brain and lung development during fetal stage, childhood and adolescence.

Way Forward

13. To protect our young generation over e –cigarettes needs political will and bold actions. With careful consideration over environmental and health aspects, there is simply absence of support to regulate than prohibit the import, manufacture, sales or advertise e-cigarettes in Hong Kong.

14. Friends of the Earth (HK) with a mission to promote healthy and sustainable environment for all, hope to gain support from the LegCo members, medical professionals, patient groups, parent groups and community stakeholders in better understanding of the hazards of the e-cigarettes and join hands in promoting environmental health.

Friends of the Earth (HK)

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6. Thornburg, J.; Malloy, Q.; Cho, S.; Studabaker, W.; Lee, Y.O., "Exhaled electronic cigarette emissions: what's your secondhand exposure?," *RTI Press Research Brief*: 1-4, March 2015.
 7. Goniewicz, M.L.; Knysak, J.; Gawron, M.; Kosmider, L.; Sobczak, A.; Kurek, J.; Prokopowicz, A.; Jablonska-Czapla, M.; Rosik-Dulewska, C.; Havel, C.; Jacob, P.; Benowitz, N., "Levels of selected carcinogens and toxicants in vapour from electronic cigarettes," *Tobacco Control* [Epub ahead of print], March 6, 2013.
 8. Williams, M.; Villarreal, A.; Bozhilov, K.; Lin, S.; Talbot, P., "Metal and silicate particles including nanoparticles are present in electronic cigarette cartomizer fluid and aerosol," *PLoS ONE* 8(3): e57987, March 20, 2013.