

Next generation waterpipe devices: the rise of electrical heating elements

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Hookah or waterpipe tobacco smoking (WTS) has become a global epidemic among young adults.¹ Contributing factors include the widespread availability of flavoured tobacco, the perception that WTS is less harmful than other forms of tobacco and the positive portrayal of WTS on the internet and social media.² Well-established evidence shows WTS produces toxicants such as carcinogenic polycyclic aromatic hydrocarbons (PAHs), volatile aldehydes (VAs) and carbon monoxide (CO), which contribute to dire health consequences, including cardiopulmonary disease and malignancies.^{3,4} The inhalation of these harmful chemicals, combined with the prolonged duration of WTS sessions, compounds the risk compared with other forms of tobacco use.^{5,6}

However, the WTS industry is using creative strategies to maintain and grow their customer base by introducing novel products. A recent example is the marketing of so-called waterpipe ‘harm reduction’ devices which lack supportive evidence-based data. These next generation waterpipes are advertised as ‘revolutionary’ devices that use electrical heating elements (EHEs) to heat tobacco without the need for traditional charcoal combustion (figure 1). This technology has been exploited by WTS companies, which often market devices with EHEs as ‘cleaner’, containing ‘no CO’, ‘eliminating harmful carcinogens’ and using ‘pure tobacco’.^{7–9} While an analytical laboratory-based study revealed that the use of EHEs in WTS led to an 80% reduction in total PAHs and a 90% reduction in CO emissions, there was a 30% increase in VA yield.¹⁰ Therefore, the

marketing of WTS using EHEs as ‘absolutely safe to use’ is misleading.⁸

Some of these next generation waterpipes have implemented a pod-based system, similar to the K-Cup of the Keurig Coffee Maker. These waterpipe tobacco pods streamline the waterpipe preparation process, promising ‘convenience’, ‘ease of use’, ‘quick installation’ and a ‘no-mess cleanup’.^{8,9} Their simplistic design ensures that ‘even novice smokers can use’ them, mirroring the user-friendly nature of pod-based e-cigarettes.⁸ Moreover, next generation waterpipes have incorporated a range of other technologies. These include smartphone applications to control EHE functionality, built-in coffee/tea makers, self-cleaning capabilities and multimedia systems with Bluetooth stereo connectivity and LED projectors. By incorporating such technologies, the industry aims to create a more immersive and enjoyable experience, potentially heightening the appeal and attractiveness of WTS and enticing a new generation of users.⁸

To date, manufacturers of next generation waterpipe devices have only shipped orders to a limited number of countries such as the United Arab Emirates, Czech Republic and Slovakia. However, companies such as OOKA, Hookamonk and RAMSIDER are attempting to expand their market by accepting preorders from consumers in the USA, Europe and other international markets, which will be delivered as soon as Spring 2024.



Figure 1 Depictions of waterpipes with electrical heating elements (EHEs) from three brands: (A) Hookamonk,⁹ (B) OOKA⁷ and (C) RAMSIDER.⁸



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In summary, despite the lack of scientific evidence regarding the safety of using EHEs, waterpipe manufacturers are making claims supporting the health benefits of these products. Further research into the health and behavioural impact of using next generation waterpipes that use EHEs and other advanced technologies is necessary to inform tobacco regulatory science and global tobacco control and to protect public health.

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REFERENCES

- 1 Maziak W, Taleb ZB, Bahelah R, *et al*. The global epidemiology of waterpipe smoking. *Tob Control* 2015;24 Suppl 1:i3–12.
- 2 Ben Taleb Z, Laestadius LI, Asfar T, *et al*. Hookahlife: the rise of waterpipe promotion on Instagram. *Health Educ Behav* 2019;46:106–13.
- 3 El-Zaatari ZM, Chami HA, Zaatari GS. Health effects associated with waterpipe smoking. *Tob Control* 2015;24 Suppl 1:i31–43.
- 4 Shihadeh A. Investigation of mainstream smoke aerosol of the Argileh water pipe. *Food Chem Toxicol* 2003;41:143–52.
- 5 Primack BA, Carroll MV, Weiss PM, *et al*. Systematic review and meta-analysis of inhaled toxicants from waterpipe and cigarette smoking. *Public Health Rep* 2016;131:76–85.
- 6 Perraud V, Lawler MJ, Malecha KT, *et al*. Chemical characterization of nanoparticles and volatiles present in mainstream hookah smoke. *Aerosol Sci Technol* 2019;53:1023–39.
- 7 OOKA. Discover OOKA. Available: <https://uae.ooka.com/en> [Accessed 12 Apr 2023].
- 8 Ramsider. Ramsider electronic Hookahs. Available: <https://ramsider.com> [Accessed 27 Apr 2023].
- 9 Hookamonk. Smart electronic hookah for tobacco. Available: <https://www.hookamonk.com/index.html#features> [Accessed 10 May 2023].
- 10 El Hourani M, Talih S, Salman R, *et al*. Comparison of CO, PAH, nicotine, and Aldehyde emissions in waterpipe tobacco smoke generated using electrical and charcoal heating methods. *Chem Res Toxicol* 2019;32:1235–40.