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Cite this as: *BMJ* 2024;386:q1508

<http://dx.doi.org/10.1136/bmj.q1508>

The rise of disposable e-cigarettes in England and implications for public health

Rapidly evolving marketing of e-cigarettes poses regulatory challenges

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More than a decade after the introduction of electronic cigarettes, their impact on public health remains a hotly debated topic. Governments around the world have struggled to find the optimal balance between preventing uptake among young people and embracing vaping as an opportunity to help adults stop smoking. Until recently, England was notable for achieving higher rates of vaping among adult smokers while maintaining lower levels among young people.^{1,2} However, as Jackson and colleagues report in a linked paper (doi:10.1136/bmj-2023-079016), vaping has markedly increased in recent years, particularly among young people: by 2023, almost one quarter (23%) of 18 year olds in England reported long term vaping, including 16% of 18 year olds who had never smoked.³

These increases in vaping coincided with the rising popularity of disposable e-cigarettes in England. Use of disposable devices increased from negligible levels before 2021 to about half of the vaping market by 2023.³ The popularity of disposable devices was driven primarily by the brand Elf Bar, which dominated the adolescent and young adult market.^{4,5} Elf Bar featured a suite of attributes that were especially appealing to young people: enticing flavours, youthful brand imagery and packaging, low prices, widespread promotion in corner shops, and large reservoirs of e-liquid.⁵ In addition, Elf Bar and virtually all other disposable e-cigarette brands use e-liquids with nicotine salts, arguably the most important change in e-cigarette design over the past decade. Nicotine salts include acids that alter the chemical composition and pH level of vaping aerosol in ways that enhance the sensory experience of vaping and facilitate nicotine inhalation.^{6,7} Since their introduction by JUUL in the US, vaping products with nicotine salt have been associated with more frequent vaping and higher levels of dependence among young people who vape.⁸⁻¹¹

As in England, other countries have also experienced large increases in daily vaping among young people coinciding with the increased uptake of nicotine salt products—for example, 12% of high school students in Canada vape daily,¹² as do 23% of 18-24 year olds in New Zealand.¹³ Although it is plausible that products with nicotine salts may have greater efficacy as smoking cessation aids, the increased risk to young people warrants greater consideration.

The extent to which the rise of vaping in England may have contributed to reduced smoking rates is an important question. Previously published findings from Jackson and colleagues' study suggest otherwise: "Despite a tripling in vaping among young adults, smoking continued to decline at the same rate

pre- and post-disposables (whereas smoking prevalence may have started to increase in those over 45 years-old)."¹⁴ These findings are consistent with other analyses indicating no association between the prevalence of vaping and smoking in England, either among young people or among the general population.^{15,16} Thus, although vaping can be an effective smoking cessation aid for individuals,¹⁷ higher vaping rates have not translated into lower smoking rates at the population level. Rather, the clearest effect seems to be an expansion in overall nicotine use among young people. As Jackson and colleagues note, "Since disposable vapes started becoming popular in England, historic declines in nicotine use have reversed."¹⁴

The search for policies that can maximise the trade-off between initiation of vaping in young people and vaping for smoking cessation continues. The grounds to prohibit disposable devices based on their environmental impact alone are sufficient. However, a ban on disposable devices—or any other single product design—is unlikely to substantially alter vaping rates, given the ease with which the market can adapt. Manufacturers have already begun to incorporate replaceable cartridges in disposable brands in anticipation of regulatory action. Vaping policies in the US also provide a cautionary tale for regulatory measures that only target a single product type. In 2020, the Food and Drug Administration restricted e-cigarette flavours to reduce vaping among young people, but only among the pod and cartridge systems that were most popular among this population. The restrictions accomplished little more than to shift use from pod and cartridge devices to disposable products.¹⁸

Instead of trying to isolate disposable products from other types of e-cigarettes, regulations should consider the underlying attributes that attract young people to them, including colourful brand imagery and ubiquitous marketing at the point of sale. Almost a century of marketing restrictions on tobacco products indicate that these measures are likely to reduce uptake among young people but with a negligible effect on the use of vaping for quitting smoking.¹⁹ In fact, it is plausible that removing attributes that overtly target young people may increase the appeal and credibility of vaping as a way to quit smoking among middle aged and older smokers—key populations who are substantially less likely to vape.³ Such measures also have the potential to reassure health professionals, many of whom remain sceptical about the benefits of vaping for smoking cessation.²⁰

Competing interests: The BMJ has judged that there are no disqualifying financial ties to commercial companies. The authors declare the following other interests: None.

Provenance and peer review: Commissioned; not externally peer reviewed.

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