

E-cigarette use in low-income and middle-income countries: opportunity or challenge for global tobacco control



Tobacco smoking kills more than 8 million people worldwide annually, with a disproportionately high burden of these deaths occurring in low-income and middle-income countries (LMICs).¹ About 80% of the world's 1.3 billion tobacco users live in LMICs.¹ The emergence of electronic nicotine delivery systems (ENDS) could contribute to either reducing or exacerbating this burden, depending on how their accessibility and use is regulated. Although ENDS have gained some popularity in LMICs, their prevalence still lags behind the current usage rates in high-income countries (HICs).¹ The adoption of ENDS varies across countries and regions, and this variation is influenced by diverse cultural and policy environments, often swayed by tobacco industry interests.^{2,3} Several key factors affect the prevalence of ENDS use, including economic conditions, cultural norms, laws and regulations around tobacco products, and marketing tactics used by tobacco industry.^{1,3} These factors shape how socially or culturally acceptable and accessible ENDS use is within both LMICs and HICs.

As the majority of research investigating the long-term effects of ENDS on population health⁴ and its potential to help smokers quit⁵ has been conducted in HICs, how and when ENDS products will evolve and be treated in LMICs is unclear. For example, a Cochrane review regarding the potential of ENDS to facilitate smoking cessation highlights studies conducted in the USA (24 studies), the UK (9), and Italy (7), with almost all randomised clinical trials occurring in HICs⁵ and no predictive modelling studies of ENDS conducted in LMICs (at the time of writing).⁴ This research gap calls for more country-specific studies in LMICs to better understand the unique effects of ENDS products across settings and inform appropriate regulations and policies. The gap also underscores inequities in tobacco control research fundings and outputs between LMICs and HICs.

Currently, ENDS products are prohibited in 34 countries.¹ In other countries, they are subject to various regulations and classifications, such as tobacco products, consumer products, and therapeutic products, or are completely unregulated.¹⁻³ Many countries—

mostly LMICs—regulate ENDS with tobacco product legislation not originally intended for ENDS products.² This approach could complicate (and hinder) the effective implementation of regulations against all tobacco products.⁴ Therefore, enhancing efforts to discourage tobacco use in LMICs is crucial to expand evidence-based cessation tools and programmes with different approaches. For example, in Lebanon (a country with an exceptionally high tobacco use burden), a new project is connecting patients to phone-based counselling in a health-care system with nicotine replacement therapy being recommended as the most effective alternative to tobacco smoking.⁶

Although cigarette smoking constitutes the most popular form of tobacco used in HICs, nicotine and tobacco consumption modes widely vary across LMICs. For example, alongside cigarettes, highly prevalent forms of nicotine and tobacco use include waterpipe tobacco smoking in north Africa and the eastern Mediterranean, smokeless tobacco in south Asia, and cigars in South America. These variations can complicate the regulation of emerging products such as ENDS, can hinder opportunities to ease the burden caused by combustible tobacco products in LMICs, and could pose a challenge for tobacco control efforts in these nations.^{3,7} Diverse tobacco product use in LMICs highlight the need for a comprehensive ENDS regulatory approach. One solution is updating the WHO Framework Convention on Tobacco Control (FCTC) treaty to include ENDS rules.¹ Although FCTC pre-dates ENDS, WHO has offered separate guidelines.³ Merging ENDS into FCTC articles would unite global tobacco control, aiding countries, especially LMICs, in context-specific regulations.

The use of ENDS is now widespread in HICs, despite regulatory restrictions in some jurisdictions.^{1,3} The complexities of these products present a regulatory challenge globally. Lessons learned from regulatory actions, mostly in HICs, emphasise the importance of comprehensive ENDS regulations that address all aspects, including advertising promotion and sponsorship, and taxation. Additionally, restricting or banning the sale of ENDS products with enticing flavors that appeal to young people can have a crucial

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For more on tobacco users see
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role in preventing youth use.⁸ However, in LMICs, evidence regarding the magnitude of ENDS use and its efficacy and safety remains sparse. Moreover, ENDS products have penetrated consumer markets in most LMICs rapidly, often overtaking the development of clinical practice guidelines or regulatory frameworks.⁹ According to WHO's 2023 report, 85% of HICs have either a regulation or a sales ban in effect, yet 40% of middle-income and about 80% of low-income countries have taken no regulatory action against ENDS.¹

Moving forward, consistent monitoring of population-based ENDS use in LMICs is crucial to establishing and implementing evidence-based ENDS policies. On the basis of WHO's 2023 report,¹ of the 59 countries that monitor ENDS use, 38 are HICs, 21 are middle-income countries, and zero are low-income nations. In addition, health-care professionals and the public require further research on the risks of ENDS in local populations to inform evidence-based policies and practices. These efforts require additional investments from global and regional funding agencies, such as WHO and the National Institutes of Health. Maximising efforts and research on the effects of ENDS is crucial to effectively prevent and control tobacco and nicotine products use not only in LMICs, but also on a global scale.

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See Online for appendix

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