Vaping Versus Smoking: A Debate Session and ERS Guidance

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THIS YEAR at the European Respiratory Society (ERS) Congress 2025, the Pro-Con debate session titled 'Are e-cigarettes effective smoking cessation tools or public health hazards?' sparked a lively discussion on a controversial topic. Experts presented the latest research on the use of e-cigarettes, or vapes, as they are commonly referred to, through the lenses of respiratory health, harm reduction, and population-level risk.

INTRODUCTION

The session, chaired by Stamatoula Tsikrika, Medical School of the National and Kapodistrian University of Athens, Greece; and Didier Cataldo, University of Liège, Belgium, brought together opposing perspectives on a rapidly evolving issue: e-cigarettes as a 'healthier' alternative to smoking. To tackle a topic which encompasses respiratory health, public health, and socio-political issues, experts were asked to present opposing perspectives on the role of e-cigarettes in smoking cessation and public health. Tsikrika opened by acknowledging the polarising narrative surrounding e-cigarettes: initially promoted as a safer alternative to smoking, they are now under scrutiny for their addictive nature, unknown long-term risks, and rising use among younger populations.

Speaking in favour of e-cigarettes, Hayden McRobbie, Professor of Population Health, Queen Mary University, London, UK, argued that we cannot ignore that e-cigarettes are one of the most effective smoking cessation tools. McRobbie prefaced his talk by acknowledging that e-cigarettes are by no means a magic cure, but they are less harmful than smoking.[1] His position is that e-cigarettes reduce smoking prevalence, but he admitted that there needs to be tighter regulation, with strict restrictions on access for non-smokers, particularly young people. On the other hand, Aslı Görek Dilektaşlı, Department of Pulmonary Medicine, Uludag University Faculty of Medicine, Bursa, Türkiye, presented evidence challenging the notion that vaping serves as an effective smoking cessation strategy. She emphasised the significant health risks associated with e-cigarette use and outlined why it does not constitute a beneficial alternative to conventional smoking.

TOBACCO VERSUS VAPING: WHICH IS MORE HARMFUL?

McRobbie argued that smoked tobacco is "public health enemy number one." In particular, he emphasised the cumulative decline in lung function, particularly forced expiratory volume in 1 second, attributable to smoking.[2] He stressed that cessation, even later in life, slows this decline. Acknowledging the risks associated with e-cigarettes, McRobbie emphasised that e-cigarettes are most beneficial for current smokers, but for non-smokers, they are associated with increased harm. However, according to the Royal College of Physicians (RCP), using medicinal nicotine is classed as low harm risk, whereas combustible tobacco

is high risk.[1] Additionally, McRobbie argued that any studies reporting an association between e-cigarette use and respiratory illness lack causality, as "practically all vapers were smokers or ex-smokers."

He also highlighted that in late 2019, over 2,800 cases of severe lung injury in the USA were initially linked to vaping, termed e-cigarette or vaping product use-associated lung injury, but were later found to be linked to tetrahydrocannabinol-containing devices rather than vaping nicotine products.[3]

Conversely, Dilektaşlı addressed the emerging health risks associated with e-cigarettes. Despite perceptions of reduced risk, e-cigarettes deliver nicotine alongside hundreds of toxic and carcinogenic compounds. Nicotine itself is linked to metabolic dysregulation, cardiovascular strain, and neurological impairment, and *in vitro* studies suggest chronic vaping may induce renal, cardiac, and hepatic fibrosis, and trigger pro-inflammatory responses in the airway epithelium.[4,5]

In addition to the toxic effects of nicotine, the flavouring agents used in e-cigarettes may drive cytotoxicity, as shown by a study in embryonic adult models.[6]

Clinically, Dilektaşlı expressed that patients frequently report cough and throat irritation, while epidemiological data associate e-cigarette use with increased risks of bronchitis, asthma, and e-cigarette or vaping product use-associated lung injury.[7,8] Additionally, a large Korean cohort (over four million individuals) reported a 2.7-fold increase in lung cancer among former smokers using e-cigarettes.[9] Furthermore, in the absence of long-term safety data, vaping cannot be endorsed as a cessation aid, she urged.

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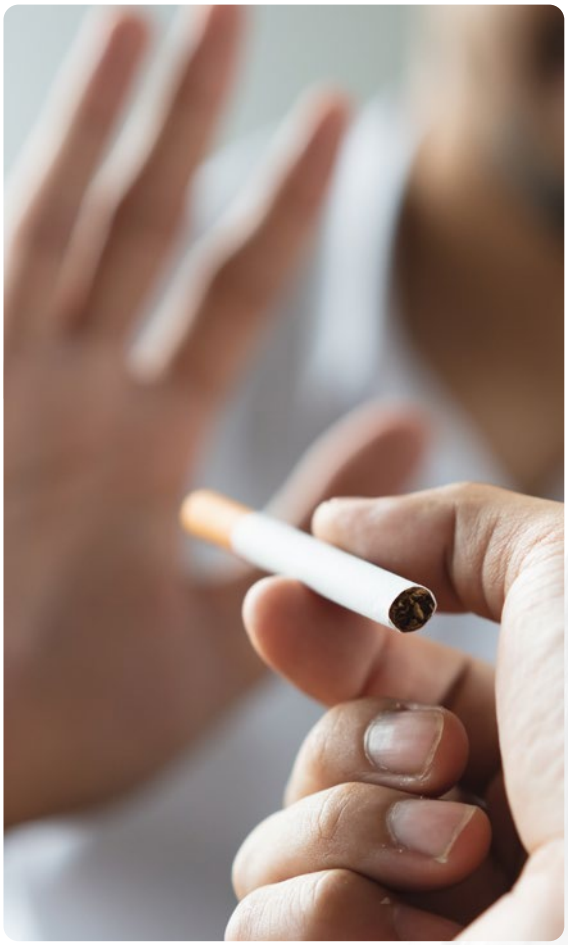
ARE E-CIGARETTES AN EFFECTIVE SMOKING CESSATION TOOL?

McRobbie explained that modern e-cigarette products can deliver very similar blood nicotine levels to smoking, meaning they can act as a good replacement and a harm reduction approach.[10] He reviewed current scientific evidence supporting the use of e-cigarettes for cessation, including data from a systematic review consisting of multiple RCTs comparing nicotine-containing e-cigarettes with conventional nicotine replacement therapy (NRT). In this systematic review, the authors concluded that e-cigarettes were more effective than NRT in promoting smoking cessation.[11] However, McRobbie emphasised that evidence remains limited regarding differences in the incidence of serious adverse events between the two approaches, urging the need for ongoing safety monitoring. He also highlighted research that accounted for socioeconomic factors, referencing a study by Courtney et al.,[12] explaining that individuals from lower socioeconomic groups face greater challenges in quitting smoking. In this context, the use of e-cigarettes was shown to be more effective than single-form NRT (gum or lozenge) in achieving biochemically validated 6-month abstinence rates.



Whilst McRobbie implored that smoking prevalence is still high, Dilektaşlı argued that global tobacco use has been steadily declining for decades, and this decline was achieved before the introduction of e-cigarettes in the UK in 2007. Beyond the direct health risks of vaping, there are broader public health concerns. Specifically, there are three well-established public health harms linked to e-cigarettes: the gateway effect, dual use, and relapse risk among former smokers.

The gateway effect refers to the increased likelihood of initiating smoking following e-cigarette use. In a large cohort study, 30-day e-cigarette use was associated with a four-to-six-fold increase in the odds of starting smoking, providing clear evidence of this effect.[13] Furthermore, the study demonstrated an eight-fold increase in the odds of continued smoking, indicating a pattern of dual use among new smokers. Finally, exposure to e-cigarettes was linked to a three-to-five-fold increase in the risk of relapse among former smokers, demonstrating that e-cigarettes are not an effective way to quit smoking.

Another significant public health concern regarding e-cigarettes is their role in sustaining nicotine addiction at the population level, Dilektaşlı argued. A study utilising data from three UK birth cohorts (1950s, 1970s, and Millennium) demonstrated this clearly.[14] Across these cohorts, overall smoking prevalence declined from 33% to 13%. When the Millennium cohort was stratified by e-cigarette use, predicted smoking

30-day e-cigarette use was associated with a **four-to-six-fold increase** in the odds of starting smoking

probabilities revealed that youth who never used e-cigarettes exhibited very low smoking risk, whereas current e-cigarette users had a 33% likelihood of initiating smoking. These findings depict that e-cigarettes cause sustained nicotine addiction at the population level.

Dilektaşlı next drew attention to the limitations of studies supporting e-cigarettes as cessation tools. One of the most cited trials, led by McRobbie, compared e-cigarettes to user-selected NRT combined with 4 weeks of behavioural counselling.[15] At 1 year, abstinence was 18% for those in the e-cigarette group versus 10% for those receiving NRT. However, a closer examination revealed that four out of five participants in the e-cigarette group were still vaping at the end of the first year. This raises the question: 'Can we really call it smoking cessation, or is it just product switching?'.

Additionally, several design features biased this trial in favour of e-cigarettes, Dilektaşlı argued. Participants could select device type and flavour, perhaps encouraging continued engagement, whereas NRT was provided in fixed quantities. This may explain the difference in adherence rates between groups: 53% in the e-cigarette group versus 10% in the NRT group. Dilektaşlı also identified limitations in several systematic reviews that have been published in favour of e-cigarettes. For example, in one review, only 10 of 90 included trials were at low risk of bias, follow-up periods were short, and real-world cohort studies were excluded. She implored that real world data show a contrasting picture: smokers who use e-cigarettes are 28% less likely to quit compared with smokers who did not vape.[16]

From a public health perspective, Dilektaşlı argued that endorsing e-cigarettes aligns with the financial interests of the tobacco industry, re-normalises smoking behaviour, and enables the industry to position itself as a 'solution' to a crisis it created. Dilektaşlı stated: "History reminds us how doctors once stood in cigarette advertisements claiming safety. So do we really want to be recalled by our future colleagues in the same way?" She concluded that e-cigarettes pose substantial public health risks, and do not meet the principle of "first, do no harm." Instead, policy should prioritise nicotine-free abstinence and evidence-based cessation strategies.

EUROPEAN RESPIRATORY SOCIETY REAFFIRMS OPPOSITION TO E-CIGARETTES

Tsikrika concluded the provocative debate with a reminder of the stance of the ERS. She stated that the ERS does not endorse novel tobacco products or nicotine products, including e-cigarettes, as a safe and effective tool for tobacco cessation. Instead, the safest option for a smoker to quit smoking is to use counselling and evidence-based medicine. The ERS emphasises the fact that these products pose health risks, contribute to nicotine dependence, and that they should be under strict regulation to protect public health.

References

1. Royal College of Physicians (RCP). E-cigarettes and harm reduction: an evidence review. 2024. Available at: https://www.rcp.ac.uk/media/n5skyz1t/e-cigarettes-and-harm-reduction_full-report_updated_0.pdf. Last accessed: 15 October 2025.
2. McRobbie H, Kwan B. Tobacco use disorder and the lungs. Addiction. 2021;116(9):2559-71.
3. Centers for Disease Control and Prevention (CDC). Outbreak of lung injury associated with the use of e-cigarette, or vaping, products. Available at: https://archive.cdc.gov/#/details?url=https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html. Last accessed: 15 October 2025.
4. Bhatnagar A et al. Electronic cigarettes: a policy statement from the American Heart Association. Circulation. 2014;130(16):1418-36.
5. Alexander LEC et al. Chronic inhalation of e-cigarette vapor containing nicotine disrupts airway barrier function and induces systemic inflammation and multiorgan fibrosis in mice. Am J Physiol Regul Comp Physiol. 2018;314(6):R834-47.
6. Bahl V et al. Comparison of electronic cigarette refill fluid cytotoxicity using embryonic and adult models. Reprod Toxicol. 2012;34(4):529-37.
7. Cho JH, Paik SY. Association between electronic cigarette use and asthma among high school students in South Korea. PLoS One. 2016;11(3):e0151022.
8. Joshi D et al. Impact of electronic cigarette ever use on lung function in adults aged 45-85: a cross-sectional analysis from the Canadian Longitudinal Study on Aging. BMJ Open. 2021;11:e051519.
9. Kim YW et al. Association of electronic cigarette use after conventional smoking cessation with lung cancer risk: a nationwide cohort study. Am J Resp Crit Care Med. 2024;209:A3051.
10. Hajek P et al. Nicotine delivery to users from cigarettes and from different types of e-cigarettes. Psychopharmacology (Berl). 2017;234(5):773-9.
11. Lindson N et al. Electronic cigarettes for smoking cessation. Cochrane Database Syst Rev. 2024;1(1):CD010216.
12. Courtney RJ et al. Vaporized nicotine products for smoking cessation among people experiencing social disadvantage: a randomized clinical trial. Ann Intern Med. 2025;178(8):1085-94.
13. McMillen R. E-cigarette use and future cigarette initiation among never smokers and relapse among former smokers in the PATH study. Public Health Rep. 2019;134(5):528-36.
14. Mongilo J et al. Risk of adolescent cigarette use in three UK birth cohorts before and after e-cigarettes. Tob Control. 2025;DOI:10.1136/TC-2024-059212.
15. Hajek P et al. A randomized trial of e-cigarettes versus nicotine-replacement therapy. N Engl J Med. 2019;380(7):629-37.
16. Kalkhoran S, Glantz SA. E-cigarettes and smoking cessation in real-world and clinical settings: a systematic review and meta-analysis. Lancet Respir Med. 2016;4(2):116-28.