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E-cigarettes need to be strictly regulated

PERSPECTIVES

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The World Health Organization and health authorities in various countries are extremely concerned about the health risks associated with e-cigarettes. However, the Norwegian Institute of Public Health's apparent lack of concern is striking, especially given that their own researchers reported finding 107 carcinogenic substances in e-cigarette vapour.

Properly documenting and acknowledging the health risks of tobacco was a long and slow process. The nicotine industry worked hard to downplay the risks and discredit the researchers behind the findings. They supported sympathetic researchers and misled the public (1). As a result, it took far too long for tobacco use to decline. We need to learn from the past and avoid making the same mistakes again. The e-cigarette health risks that have already been identified are more than sufficient to warrant extensive restrictions on access and use. So why is the Norwegian Institute of Public Health not taking a more active stance on this issue?

The World Health Organization reports that tobacco kills more than eight million people annually and that 80 % of the world's approximately 1.3 billion smokers live in low- and middle-income countries, i.e. countries with limited regulation of tobacco use (2). In Norway, the smoking epidemic began 100 years ago and peaked in the 1960s. In 1973, 52 % of men and 32 % of women were daily smokers. From 1997 to 2024, the proportion of male smokers declined almost linearly, reaching 8 %. Since 1997, smoking rates have been fairly similar for both sexes (3). There is no evidence that the rise in snus or e-cigarette use has contributed to the decline in tobacco use. Although Norway

has one of the world's lowest smoking rates, tobacco continues to cause major health problems in the country, accounting for an estimated 6700 deaths annually (4).

Harmful limitation of health risks

E-cigarettes have been marketed as a virtually risk-free alternative that can help people quit smoking. In 2015, Sanner and Grimsrud published an article in the Journal of the Norwegian Medical Association describing e-cigarettes and posing the question: 'E-cigarettes – harmful or beneficial?' (5). A decade of experience has provided the answer: undeniably harmful and of little benefit. Fortunately, several media outlets have acknowledged and communicated this to the public (6,7).

Using e-cigarettes is known as vaping in English and *damping* in Norwegian. The current generation of e-cigarettes was largely developed in California (8). The U.S. Food and Drug Administration (FDA) sought to classify e-cigarettes as a 'drug delivery system', which would have meant that the products were considered medicinal and would be registered and marketed as such. This alarmed the nicotine industry, which successfully sued the FDA in 2010 (9). There were unsubstantiated claims that vaping was less harmful to health than smoking tobacco. Also unsubstantiated was the sales argument of harm reduction. Even the Norwegian Institute of Public Health uses the term 'harm-reducing alternative' for certain groups of adults and adolescents when referring to e-cigarettes (10).

> ***«There were unsubstantiated claims that vaping was less harmful to health than smoking tobacco. Also unsubstantiated was the sales argument of harm reduction»***

Since 2015, the advertising of e-cigarettes in the United States has been targeted at children and adolescents (8), and the development in the market was aptly summed up by The New York Times in 2021: 'While the tobacco industry was one of the heaviest regulated in the country, the e-cigarettes market was like the Wild West' (11). By that point, 2558 serious injuries and 60 deaths had been reported following the use of e-cigarettes (12). One case report from the United States describes a life-saving lung transplant in a previously healthy adolescent after using e-cigarettes (13). In Denmark, a 19-year-old required long-term intensive care treatment after vaping (14). The Norwegian Institute of Public Health makes no mention of such case reports in its 2024 report on e-cigarettes and health effects (10).

107 carcinogenic substances in e-cigarettes

The most concerning aspect of e-cigarettes is that the health effects of long-term use are still unknown. A total of 133 potentially harmful chemicals in e-cigarettes, of which 107 are known carcinogens, were recently documented in a European report (15). This alone should warrant a halt in the sale of such an unnecessary product. Four researchers from the Norwegian Institute of Public Health contributed to the report.

PubMed contains more than a thousand articles on the health risks of e-cigarettes. A comprehensive meta-analysis has shown that e-cigarette users have a significantly and markedly increased risk of cardiovascular disease, stroke, asthma, COPD and oral health problems compared to non-users. Compared to tobacco smokers, the odds ratio was lower for e-cigarettes, but the difference was not statistically significant (16).

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It is estimated that in 2020, there were 68 million e-cigarette users worldwide (17). In the United States, e-cigarettes are particularly popular among teenagers, with 30 % of high school students vaping daily. E-cigarette use increased by 1800 % between 2011 and 2019 (18).

In England, a 2014 report estimated – despite lacking evidence – that e-cigarettes are 95 % less harmful than cigarettes (19). The report had a significant impact and helped entrench the concept of harm reduction. It later emerged that six of the report's authors had ties to the nicotine industry (20). Initially, vaping in England was mainly limited to smokers. Since then, the proportion of adolescents who vape has increased from 4.0 % in 2021 to 8.6 % in 2022 (21). A need has been identified to establish a dedicated clinic to treat nicotine addiction in children as young as 11 years old after using e-cigarettes (22). In Australia, health authorities in New South Wales are implementing strict measures to prevent damage to health from vaping (see Figure 1).

Figure 1 Billboard with health information in Sydney, Australia, December 2024. Photo: Yngvar Nilssen.

The number of daily vapers in Norway has so far been relatively low. However, there are indications that the figures are rising here as well. In 2020, 2 % of people aged 16–24 reported occasional vaping. By 2024, this had increased to 11 % (3). Along with reports from schools, youth environments and customs authorities (6,7,23), this gives cause for serious concern and highlights the urgent need for stringent restrictions on access to e-cigarettes.

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Nicotine and the nicotine industry

Nicotine is the main ingredient in e-cigarettes, snus and tobacco. Sweet-flavoured nicotine-free e-cigarettes designed to resemble toys are effective for acclimatising children and adolescents to vaping. This reduces the barrier to accessing highly addictive nicotine products that harm developing brains (24). Nicotine is classified as a poison and has no real beneficial value. Its addictive properties became public knowledge in the 1970s, but the nicotine industry had known since the 1960s (25). Evidence shows that nicotine use in adolescents causes biochemical, molecular and functional changes in the brain that increase the risk of subsequent substance abuse. Nicotine is therefore considered a gateway drug (26). The extent to which e-cigarettes serve as a gateway to other products is also something that the Norwegian Institute of Public Health has failed to discuss (10).

The traditional tobacco industry, which should now be called the nicotine industry, entered the e-cigarette market around 2015 (8) and has continued its unscrupulous practices. As early as 1967, Johan H. Andresen, CEO of the Norwegian tobacco factory *Tiedemanns Tobaksfabrik,* stated: 'Make the cigarettes cheap, we can then throw half of it away. The butt is the most dangerous' (27). He was therefore fully aware that he was building his enormous fortune on disease, suffering and death. As late as 1994, during a congressional hearing in the United States, seven executives from the nicotine industry lied under oath, saying that cigarettes were not addictive (28). In 2024, the Norwegian interest group for the nicotine industry, the Information Office for Nicotine Products (ONIK), published a report with the bizarre title 'The Societal Benefits of Nicotine'. It is clear here that ONIK has drawn heavily on the work of the nicotine industry-friendly researchers at the Norwegian Institute of Public Health (29).

> ***«Almost all published material reporting positive effects of e-cigarettes has been supported by the nicotine industry»***

Almost all published material reporting positive effects of e-cigarettes has been supported by the nicotine industry (30). The Lancet has published several articles and comments on e-cigarettes' risks to health, including the editorial *E-cigarettes: Public Health England's evidence-based confusion* (20). In a recent comment, they highlight the industry's delay tactics (filibustering) to hinder regulations and how nicotine industry-friendly science causes confusion (1).

Legislation and health administration

Despite the opposition from the nicotine industry, anti-smoking efforts in Norway have been successful. The sale of tobacco to children was banned in 1899. Tobacco advertising and smoking in restaurants were banned in 1975 and 2004, respectively. In 2012, the Norwegian Ministry of Health and Care Services established a precautionary approach for effective public health work, stating that '... the burden of proof lies with those responsible for ... the exposure'. However, the nicotine industry has still managed to bypass this principle.

Unfortunately, the ban on e-cigarette sales in Norway seems poised to be lifted to align with EU regulations. Several organisations and professional groups have called for the ban to continue (7). Given the concerns that the EU also has regarding this issue, it should be possible to prevent this alignment.

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E-cigarettes are advertised and sold almost exclusively online. The Ministry of Health and Care Services is currently preparing a proposal to ban online sales of nicotine products. In England, the House of Commons has passed a generational ban, meaning that from 2027, anyone born in 2009 or later will not be allowed to purchase tobacco or e-cigarettes (31). The ban was introduced by Prime Minister Sunak in 2023 and adopted by the Starmer government in 2024. The outlook for its implementation is therefore promising.

Preventing the widespread uptake of e-cigarettes requires active engagement from professional communities, the media, patient organisations and health authorities, including the Norwegian Institute of Public Health.

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