

Understanding the design features of tobacco, nicotine and related products and their possible effects

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Key messages

Tobacco, nicotine and related products are carefully designed and engineered to attract and addict new generations of users and to maintain existing ones.

- Products are deliberately designed to appeal to different target groups.
- Slim cigarettes target women, and the health risks they pose are comparable to those of cigarettes.
- Children and young people are aggressively targeted with colourful, candy-like designs and covert packaging.
- Filters do not eliminate harm, and smoking kills, with or without a filter.
- Filters make it easier for young people to start smoking and harder for users to stop.
- Design features are tools to hook new users.
- Many new and emerging products, such as electronic cigarettes and nicotine pouches, are designed to be used discreetly, undermining smoke-free policies.
- Countries should consider removing the appeal of these products by:
 - prohibiting sales or, where that is not feasible, by strict regulations;
 - banning filters to reduce the palatability and appeal of cigarettes, remove consumer misconceptions about filters substantially reducing health harms and reduce a major source of toxic tobacco waste, including the microplastics deposited by cellulose acetate in filters; and
 - creating public awareness about product design features, which is essential to protect current and future generations from the dangers of tobacco and nicotine.

What are product design and appeal in the context of tobacco, nicotine and related products?

Product design and appeal refer to the ways in which these products, including new and emerging products, are engineered and marketed to attract new users, including children and young people, and to retain existing users. The products are deliberately made to be visually appealing, easy to consume and sensorily pleasing, while concealing their harmful effects. The industries carefully design features to increase addictiveness and manipulate perceptions of risk.

What design features attract consumers?

Tobacco, nicotine and related industries continuously develop and design features to attract new users. Common tactics include the following.

- **Attractive packaging.** Vibrant colours and stylish design distract from health warnings and suggest fun or flavoured products – even without labels. This can mislead consumers into associating the products with lower risk, thereby encouraging initiation and continued use.
- **Cigarette filters.** Filters are promoted as “safer” and thus give a false sense of security. They are a deceitful marketing tool. Filters do not eliminate the harms of cigarette smoking, and smoking kills, with or without a filter (1). Filters also make it easier for young people to start smoking and harder for users to stop. In addition, filters, most of which are made of cellulose acetate, a form of plastic, endanger the environment, contributing to the global problem of plastic waste (2).
- **Recessed filters and flavour capsules.** Recessed filters are a type of cigarette filter with an indentation, hole or compartment in the tip, into which users can insert flavour capsules (3). In addition to circumventing regulations, including restrictions on flavours, many people also mistakenly perceive products with recessed filters as less harmful (3).
- **Coloured cigarette filter tips or cigarette paper.** Brightly coloured cigarette tips, elegant fonts and decorative designs are strategically added to make products look trendy, appear less harmful and enhance their desirability (4–6).
- **Filter ventilation.** Filter ventilation refers to microscopic holes in the tipping paper covering the cigarette filter, introduced by manufacturers. These small holes dilute smoke in testing machines but not in actual use. In reality, filter ventilation often does not reduce exposure to toxic substances, as the holes are sometimes unknowingly closed by the lips or fingers of smokers, which may encourage deeper or more frequent inhalation, ultimately increasing health risks (7). The dilution may also give the impression of a lighter, milder smoking experience, which can mislead smokers, including youth, into believing that the product is less harmful than it is (8).
- **Slim cigarettes.** Slim cigarettes are narrower than conventional cigarettes and are often marketed to women, by associating with elegance and sophistication. They can be mistakenly perceived as less harmful, but they deliver the same toxic substances, posing comparable health risks. Some substances, such as formaldehyde, a carcinogen, may even occur at higher levels than in conventional cigarettes (9,10).
- **Small packs.** Packs with fewer sticks lower the price, thus targeting price-sensitive groups, particularly children, young people and individuals with lower purchasing power, making them more accessible and thereby encouraging initiation and sustaining use.
- **Sleek and trendy design.** Products are often deliberately developed and marketed in sleek, modern, and trendy designs. By focusing on the appearance of the products, industries downplay their health risks and enhance their appeal, especially to young people.
- **Youth-appealing design and use of cartoon characters.** New and emerging products, such as electronic cigarettes (e-cigarettes) and nicotine pouches, are sometimes shaped like toys, beverages or candy, and some include cartoon characters,

thus clearly designed to attract young users. By mimicking products that young people use or associate with fun and innocence, the industries potentially lower the perceived risks of use and foster curiosity and experimentation (11).

- **Compact and concealable designs.** Many new and emerging products are designed to be used discreetly. For example, some e-cigarette devices resemble everyday items such as USB drive pens, highlighters, cosmetic products and watches. Even hoodies are designed with built-in e-cigarette mechanisms. Smokeless nicotine products, including nicotine pouches, are designed and marketed to enable discreet use, allowing convenience and subtlety. The packages of some products, such as nicotine pouches, include built-in waste compartments for additional discretion and convenience and are also available in various sizes, including “super slim” and “mini”. The emphasis on discretion undermines smoke-free policies.
- **Customization and technology.** Some new and emerging products can be connected to apps, enabling users to record their usage of the products and to control vapour size; some even enable users to play music or make phone calls. These features enhance appeal. Once information is on a smartphone, it could be accessible and potentially be transmitted to the producer for marketing purposes (12).

Are these design features necessary?

No, these design features are not necessary to manufacture the products. Their main purpose is to increase their appeal, particularly to young people, bypassing regulations and often enhancing addictiveness and exposure to harmful constituents.

How can these design features impact addiction and long-term use?

Design features lower perceived risks and increase the likelihood of initiation, sustained use and long-term addiction. Devices such as open system e-cigarettes can be manipulated to deliver high nicotine doses. For

example, raising the device power from 3 to 7.5 W can increase the nicotine yield by four or five times (13).

What effects do design features have on consumers and non-users?

Attractive designs that include technological features can mislead users and non-users into underestimating their harm (4,6). This leads to experimentation and increases the risk of addiction, particularly in children and young people. Over time, they can entrench addiction and increase exposure to toxic substances, with short- and long-term health consequences. For non-users, product emissions, including from manipulated devices or user-mixed e-liquids, can result in second-hand exposure to harmful substances.

Can customizable and open-system design features affect the health of users and non-users?

Yes, customizable devices can increase harmful emissions. For example, the user of an open system of e-cigarettes, by controlling the desired delivery of nicotine, can also often unknowingly increase the extent to which it emits non-nicotine toxicants, as well as emissions to which bystanders (non-users) can be exposed (12,14). Open-system devices may also be used to add unknown or illicit substances, increasing the health risks of both users and bystanders (12,13).

Who produces these appealing products?

All major transnational tobacco companies are actively expanding into “new products” markets, often under the guise of “next-generation” and allegedly “reduced-risk” innovations. While the sales of conventional smoked tobacco products continue to grow globally and account for the largest share of revenue and profits for these companies, the rate of growth of the new and emerging products exceeds that of conventional smoked tobacco (15–18). Japan Tobacco International’s sales volume of conventional smoked tobacco increased by 2.0% in fiscal year 2024 (versus fiscal year 2023), while the sales

volume of their purportedly “reduced risk products” grew by 24.2% in 2024 (16). Philip Morris International saw a growth of 4.0% in fiscal year 2024 (versus fiscal year 2023) in net revenue of smoked tobacco products and a 25% global rise in shipment volume of nicotine pouches or pouch equivalents, fuelled by ZYN nicotine pouch growth in the USA (17). These companies profit from both conventional and newer products, exploiting design to increase their customer base and market share of addictive products.

How can the public protect themselves from these tactics?

Awareness is key. Tobacco, nicotine and related industries design and market products to appear attractive, particularly to children and young people, while concealing or downplaying the associated serious health risks. It is important to rely on credible, independent sources of information. These industries have a long history of distorting science, funding biased research and engaging with affiliated experts to mislead the public and influence policy in their favour. Critical thinking and informed decision-making are key defences against such manipulation.

Of what should users and non-users be aware?

Both users and non-users must understand that tobacco, nicotine and related industries target all segments of the population. Internal tobacco industry documents show that companies deliberately design products to attract new users – especially children and youth – to replace those who die from tobacco-related diseases due to use of their products (19). These products are engineered with features that appear harmless or even beneficial. This is, however, a calculated strategy to mislead and encourage experimentation, foster dependence and maximize profits – at the expense of public health.

What can governments do?

Governments can prohibit the sale of these harmful products or where not feasible, adopt strong regulations

to make them less appealing, less addictive, less toxic and less harmful. Articles 9 and 10 of the WHO Framework Convention on Tobacco Control and their Partial Guidelines for Implementation of (3.3.2.2 and Appendix 2) recommend that product disclosure obligations should include disclosure of design features, and that all tobacco product design features that increase the attractiveness of tobacco products be regulated (20). Measures that can be taken by countries include the following:

- Regulation of product characteristics and prohibit those that specifically appeal to children and young people (9,13).
- Mandating standardized product design and plain packaging (9,13).
- Requiring manufacturer disclosure of product characteristics, including design features and ingredients (9,13).
- Setting limits on device power and features that allow manipulation and customization (9,13).
- Banning misleading claims about reduced harm or the benefits for cessation (13).
- Banning filters to reduce the palatability and appeal of cigarettes, remove consumer misconceptions about filters substantially reducing health harms and reduce a major source of toxic tobacco waste, including the microplastics deposited by cellulose acetate in filters (21).
- Enforcing regulations and monitor compliance regularly (9,13).

What can the public do to raise awareness about these deceptive design features?

Everyone has a role to play in countering the industries’ deceptive tactics, through their products:

- **Media, including social media**, can be used to expose industry practices and to educate the public and particularly young people, who are heavily targeted by the industries.
- **Parents, teachers and health professionals** can shape risk perceptions by talking openly about the dangers of these products and correcting false beliefs about their safety.

- **Youth advocates and civil society organizations** can be powerful voices in demanding stronger protection and in spreading evidence-based information.
- **Public pressure influences policymakers.** By staying informed and engaged, individuals help to create an environment in which harmful products are challenged and regulated effectively. Raising awareness strengthens public health and builds momentum for regulatory change.

Where can individuals find reliable information?

- World Health Organization;
- National health authorities;
- Independent public health institutions and peer-reviewed journals; and
- Sources free of industry influence.

Summary

In summary, the design features of tobacco, nicotine and related products are deliberately engineered by the industries to increase their consumer base and to maximize their profits. These features are intended to conceal the true dangers of the products, foster initiation and sustain addiction – particularly among young people. By using filters, slim designs, vibrant colours and discreet or playful designs, the industries create a misleading perception of reduced harm. Comprehensive, forward-looking regulatory action is necessary to counter these tactics and to protect public health, especially that of the most vulnerable segments.

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Methods

The information sheet, Understanding the design features of tobacco, nicotine and related products and their possible effects, was conceptualized by the World Health Organization (WHO) in response to requests by WHO Member States after a Global Consultation held in June 2023. The scientific evidence underpinning the normative content on flavours and flavouring agents is well documented in the WHO Technical Report Series of the Study Group on Tobacco Product Regulation (Study Group), which represents each WHO region; however, WHO Member States requested that the scientific basis be simplified to make the information accessible to a broader audience, allowing for wider dissemination and visibility.

WHO, in consultation with the Study Group, invited experts to review the most recent empirical scientific evidence and regulations on design features. This was used to write three background papers, Cigarette filters and other characteristics with a potential impact on health, Emerging trends of cigarettes, including design features and considerations, and Product standards: overview, toxicity, addictiveness, appeal and implementation, prepared for the twelfth meeting of the Study Group, held on 10–13 December 2024. The evidence was evaluated, and the recommendations were extensively reviewed and discussed by members of the Study Group and by subject matter experts before, during and after the meeting. The extensive evidence available in the literature serves as the basis of the Study Group's recommendations, which were finalized after further deliberations among members, in consultation with the WHO secretariat. Subsequently, WHO, in collaboration with research agencies, universities, regulators and members of the Study Group, wrote the information sheet. The recommendations in the information sheet are aligned with the main recommendations of the Study Group's report to the 157th session of the WHO Executive Board, which can be found at https://apps.who.int/gb/ebwha/pdf_files/EB157/B157_14-en.pdf. Two of the three recommendations are related to design features.

Summary of evidence

Tobacco and nicotine products are often deliberately designed to be attractive – with flavours, packaging and device features – to encourage uptake, particularly by youth. Evidence shows that these design elements significantly contribute to product appeal and use. Prohibiting or strictly regulating such products, with public education about their manipulative design, are essential to reduce initiation and protect public health, especially among younger populations.

Contributors

The Information Sheet was conceptualized by WHO, in consultation with subject matter experts on design features of tobacco, nicotine and related products. All contributors, including the WHO FCTC Convention Secretariat, provided critical comments and approved the final version of the Information Sheet.

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