

Tobacco products, related products and cigarette flavourings: minors increasingly exposed to the risk of poisoning



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The market for tobacco products, related products (that contain nicotine rather than tobacco) and accessories for flavouring them is constantly expanding. An analysis of the calls about these products to poison control centres showed that some were responsible for poisoning cases in young children, through accidental ingestion of heated tobacco, chewing tobacco or flavour beads, as well as in adolescents who consumed «snus» or nicotine pouches. They suffered symptoms of nicotine poisoning of varying degrees of severity. These products must never be left within the reach of children and in some cases a clear regulatory framework is needed.

TOBACCO PRODUCTS, RELATED PRODUCTS AND FLAVOURINGS: A MARKET THAT IS CONSTANTLY EXPANDING, SOMETIMES ON THE FRINGES OF CURRENT REGULATIONS

The range of tobacco products and related products (i.e. products that do not contain tobacco but may contain nicotine) is constantly expanding. These products are marketed as less harmful alternatives to cigarettes. As a reminder: it is illegal to sell tobacco products to minors in France.

Heated tobacco was launched on the French market in 2017. It comes in the form of tobacco sticks that are inserted into a heating device to produce an inhalable aerosol (Photo 1). Heated tobacco is one of the novel tobacco products covered by Directive 2014/40/EU on the manufacture, presentation and sale of tobacco and related products. Due to a sharp increase in the volume of sales since it was launched on the market, its regulation has been tightened by European Directive (EU) 2022/2100, transposed into French law by the Act of 9 March 2023.

Photo 1 – Heated tobacco

(Source FDA)



Some tobacco products are older, such as chewing tobacco, which is regulated by Directive 2014/40/EU as a smokeless tobacco product (Photo 2).

Photo 2 – Chewing tobacco

(Source Uffe Johansson)



Recently, some new related products have appeared on the market and are particularly promoted on social media: tobacco-free nicotine pouches for oral use, also known as nicopods (Photo 3). These permeable fabric pouches contain no tobacco; instead, they have polymer fibres impregnated with flavoured or unflavoured nicotine. They are intended to be placed between the lip and gum, where they deliver the substance through the oral mucosa. These products are not governed by any regulations in France, and there is no harmonised framework in Europe.

Photo 3 – Tobacco-free nicotine pouches for oral use

(Source Alexclere)



Snus, which is tobacco for oral use also presented in the form of a tobacco pouch to be placed between the lip and gum, is banned throughout the European Union under Directive 2014/40/EU, except in Sweden where it has been marketed for over 40 years (Photo 4).

Photo 4 – Snus or oral tobacco

(Source Lisa Risager)



Furthermore, cigarettes and roll-your-own tobacco containing clearly perceptible flavours other than tobacco, also known as «characterising flavours», have been prohibited from sale since 2016 under Directive 2014/40/EU. This ban, which was extended to menthol flavouring in May 2020, has been circumvented by using devices and accessories used to flavour cigarettes or tobacco but sold separately from them. They include small flavour beads that can be inserted into the filter to modify the flavour of the cigarette smoke (Photo 5).

Photo 5 – Flavour beads for cigarettes

(Source Anses)



Following their arrival on the market, these five types of product (heated tobacco, chewing tobacco, snus, nicotine pouches and flavour beads) led to calls being made to French poison control centres (PCCs), which then alerted ANSES to their increase or persistence, particularly the calls concerning snus and nicotine pouches, products that are attracting more and more adolescents. This prompted a review of these poisoning cases and their characteristics [1].

AN INCREASE IN CALLS TO PCCS ABOUT POUCHES AND FLAVOUR BEADS

This study analysed calls for medical advice following exposure to these five types of product, received by the PCCs between 1 January 2017 and 31 December 2022, whether or not the patient was symptomatic. This analysis excluded cases where it was possible to rule out a link between the symptoms and the assumed product. All records of symptomatic patients were examined by toxicology experts.

In some cases, it was not possible to determine precisely whether the product consumed was snus or nicotine pouches, due to their similar mode of use and the absence of more precise information on the product.

Au Over the six-year study period, 295 calls concerned intentional or accidental consumption of the products of interest, broken down as follows:

- heated tobacco: 12 calls;
- chewing tobacco: 98 calls;
- snus or unspecified pouches: 31 calls;
- nicotine pouches: 16 calls;
- flavour beads: 138 calls.

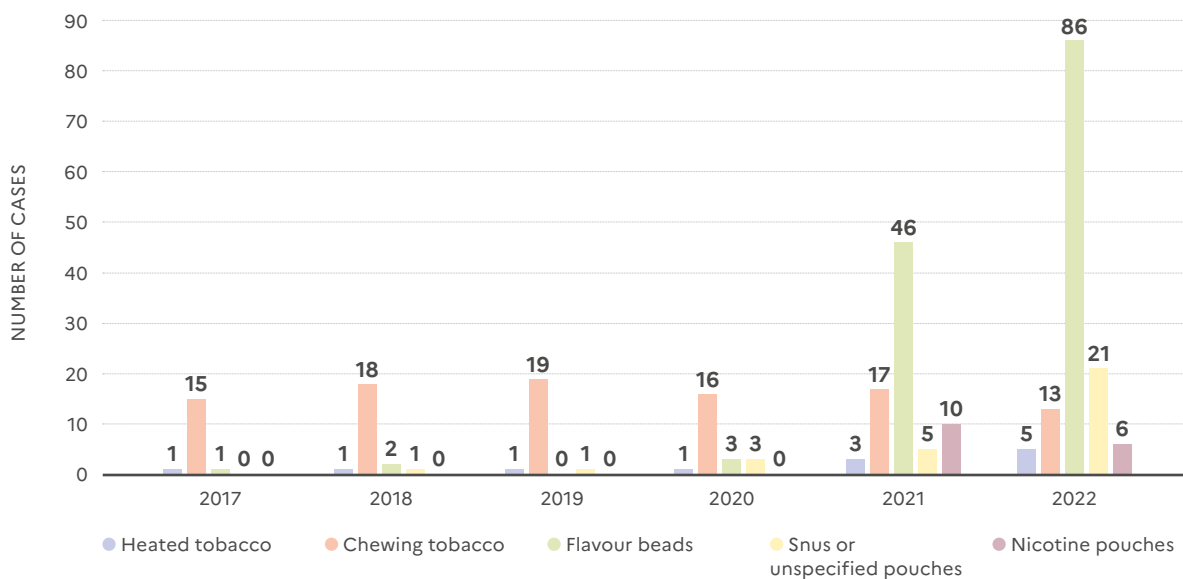
Since 2017, there has been little change in the number of cases of exposure associated with the use of heated tobacco or chewing tobacco: for heated tobacco, numbers increased from one case in 2017 to five cases in 2022; for chewing tobacco, from 15 cases in 2017 to 13 cases in 2022, with a maximum of 19 cases reported in 2019 (see Figure 1).

In contrast, the number of calls concerning exposure to flavour beads rose considerably, from three in 2020 to 86 in 2022 (there had been none before 2020).

For snus and nicotine pouches, the number of calls between 2017 and 2020 was low. From 2021 onwards, this number increased and the data available in the medical records made it possible to define with greater certainty whether nicotine pouches or snus were involved.

Figure 1 – Annual breakdown of the number of calls following exposure to tobacco products, related products and flavourings of interest, reported to PCCs between 01/01/2017 and 31/12/2022

(Source SICAP)



POTENTIALLY SERIOUS NICOTINE POISONING, ESPECIALLY AMONG MINORS

Of the 295 people included in this study, with the exception of four patients whose age was not provided, 83.8% (244 out of 291) of those exposed were minors, all types of products combined. Adults accounted for 16.2% of the exposed patients. Of these 295 cases, 54.6% reported symptoms (Table 1).

For heated tobacco, all the patients were infants aged between 9 and 20 months (median age 12 months). Accidental ingestions accounted for 41.7% of symptomatic cases.

For chewing tobacco, the majority of patients were children from infancy to seven years of age (median age one year). Only three adults were involved. In the cases involving children, exposure concerned exclusively accidental ingestions. For this type of product, 75.5% of cases were symptomatic.

Of the 110 calls concerning heated tobacco and chewing tobacco, 72% of cases were symptomatic (n=79). Most of these symptomatic cases were mild (63 cases, 79.7%), with clinical signs of nicotine syndrome, characterised by at least one of the following symptoms: tachycardia, palpitations, discomfort, nausea, vomiting, pallor, dizziness, tremors. The 16 other symptomatic cases (20.3%) corresponded to poisonings of moderate severity, with a more severe nicotine syndrome, requiring hospital treatment due to prolonged vomiting with a risk of dehydration, hypotension requiring intravenous fluid therapy, convulsions, consciousness disorders or hypotonia. The poisonings involved children aged between six

months and seven years who had accidentally ingested heated tobacco or chewing tobacco left within their reach. These accidents had all taken place in the child’s home or in a home they regularly visited.

Regarding exposure to snus or nicotine pouches (47 calls), most people exposed were aged between 12 and 17 (median age 14 years), with only six adult patients and five young children. Apart from the latter, consumption of the snus or nicotine pouches was intentional. The young children (the youngest being eight months old) had accidentally put these products in their mouths.

The proportion of symptomatic cases was 83.9% when the product could not be identified (snus or unspecified pouches), and 100% for nicotine pouches identified with certainty.

Thirty-one patients had a mild nicotine syndrome. Eleven had severe nicotine syndrome, including ten adolescents aged between 12 and 17, and one 19-year-old. For eight of them, consumption had taken place at a middle or high school.

In the case of flavour beads (138 calls), three-quarters of those exposed were children, most of them between one and three years of age. Just over a quarter of the exposed individuals were over 18 (from 18 to 54 years of age). In each case, the product was accidentally ingested, including with the adults – for example, confusion with sweets or inhalation of an incorrectly inserted bead from the filter into the mouth. Less than one third of exposure cases were symptomatic (29.0%, n=40) with 82.5% (n=33) of these exposed orally and 37.5% (n=15) by the ocular route.

Table 1 – Number and proportion of symptomatic cases by type of product of interest, reported to poison control centres between 1 January 2017 and 31 December 2022

(Source SICAP)

	TOTAL	NUMBER (%) OF SYMPTOMATIC CASES
Heated tobacco	12	5 (41.7%)
Chewing tobacco	98	74 (75.5%)
Snus or unspecified pouches	31	26 (83.9%)
Nicotine pouches	16	16 (100%)
Flavour beads	138	40 (29.0%)
TOTAL	295	161 (54.6%)

Clinical signs were mild (e.g. abdominal or gastric pain, nausea) except for a three-year-old child who accidentally ingested flavour beads and suffered repeated and persistent vomiting for several hours, with a risk of dehydration. The eye symptoms reported in 15 people were due to splashes from a burst bead.

HEATED TOBACCO, CHEWING TOBACCO AND FLAVOUR BEADS: DO NOT LEAVE WITHIN REACH OF CHILDREN!

The figures presented here may seem low in relation to the period and the general population, but it should be remembered that generally speaking, not all poisoning cases result in a call to the poison control centres for medical advice. Their numbers are therefore always underestimated.

In this study by ANSES and the poison control centres, the clinical outcome of the poisoning – when known – was always favourable.

The accidents reported to poison control centres involving heated tobacco and chewing tobacco indicated that these products had been left unattended within the reach of young children. They caused nicotine poisoning that was sometimes severe and required hospital treatment, because of vomiting potentially leading to dehydration, loss of consciousness and even convulsions.

Flavour beads are a new source of accidents in the home, affecting young children as well as adults. As they are sold by circumventing a regulation banning the direct addition of characterising flavours to certain tobacco products, their presentation needs to be regulated to reduce their appeal to children: some packaging contains brightly coloured drawings of fruit, and the beads can be mistaken for sweets.

In order to prevent accidents, and because the packaging for these products does not currently have a safety seal, these products must never be left within the reach of children.

NICOTINE POUCHES: NOVEL PRODUCTS EXPOSING ADOLESCENTS TO POISONING

Particular attention should be paid to nicotine pouches. The study found cases of acute nicotine syndrome in adolescents who had used these products, sometimes in a school setting. Moreover, regular consumption of the nicotine they contain can lead to addiction in the medium and long term. These products are heavily advertised on social media, targeting young consumers.

The Finnish poison control centre has reported growing use of these products among young people. The number of calls about nicotine poisoning related to these pouches rose from 11 in 2017 to 51 in 2022, of which 27% in 2017 and 49% in 2022 respectively involved minors [2]. A 2020 study in the Czech Republic showed that among nicotine pouch users, the largest age group was 15- to 24-year-olds (6.6%), of whom 2% used them daily. This study concluded that, contrary to the arguments put forward by the manufacturers and distributors of these products, it is impossible to state that nicotine pouches are used only by smokers or ex-smokers [3].

In Europe, nicotine pouches are not covered by Directive 2014/40/EU and are therefore not subject to the provisions relating to tobacco products¹. They could, however, be covered by Regulation (EC) 1272/2008 on classification, labelling and packaging of chemical substances and mixtures (the CLP Regulation), as a hazardous mixture containing nicotine, because this substance has been classified as lethal if swallowed, in contact with the skin or inhaled (Acute toxicity Category 2).

Pending a harmonised European position, several European countries began proposing ad hoc national regulations as early as 2020. These imposed, for example, the introduction of the status of medication for cessation of tobacco use, the application of the CLP Regulation involving regulatory labelling with hazard symbols and warning labels on packaging, making such packaging more secure, a limit on nicotine concentrations per pouch, and a ban on sales to minors. In June 2023, a French bill was tabled to prohibit tobacco-free nicotine products for oral use, including nicotine pouches.

The rapid emergence on the market of nicotine pouches, their appeal to young consumers, their non-harmonised regulatory status, the absence of any control over nicotine concentrations and the lack of data on their toxicity call for the introduction of a European legal framework for these products.

¹ https://health.ec.europa.eu/tobacco/product-regulation_fr

It is now necessary to raise awareness among school supervisory and medical staff, general practitioners, paediatricians and emergency doctors about the nature of these products, the differences between snus and nicotine pouches, and the risks of nicotine poisoning.

Children, adolescents and their parents also need to be made aware of these risks, through information in schools and appropriate communication campaigns, particularly on social media. Indeed, the toxicity and addictive nature of the nicotine contained in these pouches have been widely documented, and this study showed that exposure and, above all, poisoning mainly affect children and adolescents.



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