



# ToxTalks:

A Bulletin for Healthcare Professionals Who Manage Poisoned Patients

In Partnership with the UVA Division of Medical Toxicology – Department of Emergency Medicine

February 2026

## Pediatric Nicotine Ingestions: A Growing Trend in Pouch Exposures

### Background

Nicotine pouch sales have increased over the past decade as an alternative to tobacco and vaping for sources of nicotine. A May 2025 JAMA study showed greatest use in males aged 18-24, closely followed by males 25-34. Occurring simultaneously, pediatric exposures to nicotine pouches has increased markedly. In the early 2010s with the advent of widespread vaping, pediatric nicotine liquid exposure increased by 450% between 2010 and 2015 before declining by 45% between 2015 and 2023. No nicotine pouch ingestions were recorded in the National Poison Data System (NPDS) prior to 2020. Following 2020, there was a 763% increase in pediatric nicotine pouch exposures thru 2023.

### Clinical Effects

Over half of children who ingest nicotine products have no reported effect or minor effects (56.4%) from the ingestion according to cases reported in the NPDS from the U.S. poison centers. From 2010-2023, 39 children had major effects and there were 2 pediatric fatal ingestions of nicotine liquid. The toxic effects range from nausea and vomiting to seizure, coma, and even death. Nicotine liquid is particularly dangerous due to the high concentration of nicotine found in many liquids that is rapidly absorbed. Pediatric clinical effects have been reported in doses as low as 1-4 mg. Ingestions can be fatal in a single swallow or taste in toddlers as the toxic dose of nicotine is estimated between 1-14 mg/kg of body weight. Nicotine pouches are increasingly available in greater strengths of up to 43 mg per pouch, representing a greater opportunity for severe toxicity that can occur in a delayed manner compared to liquids when ingested.

Nicotine absorbed from pouches is variable, between 28-59% across multiple nicotine pouch products, with increasing absorption with increasing duration. In one study, for a 20 mg pouch, nicotine absorption from the



This pack of watermelon-flavored [nicotine pouches from Fre®](#) contains 100 pouches at 15 mg of nicotine each. The container is not child-resistant.



Blue Ridge Poison Center at UVA Health | 1-800-222-1222

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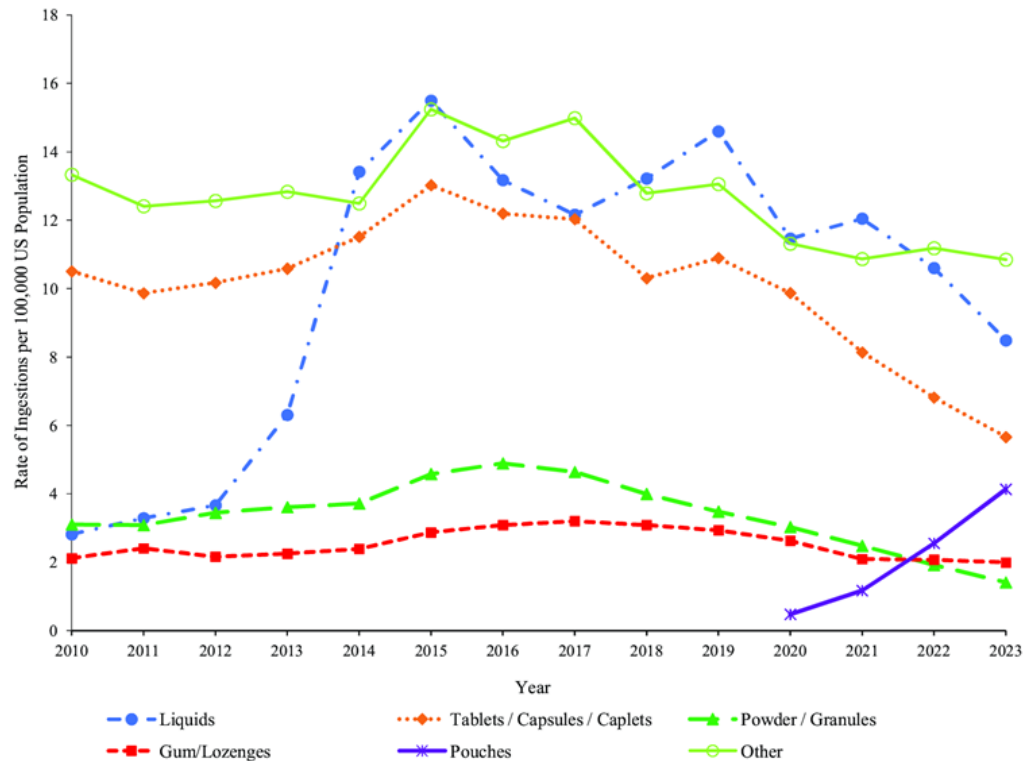
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Pediatric Nicotine Product Exposures Children Under 6: 2010-2023, [Olivas et al](#)

products into the body was 22.4% at 10 minutes, 29.6% at 20 minutes, and 36.9% at 30 minutes. Given the nicotine retention of used pouches, discarded pouches following use are still dangerous to a small child if swallowed. The slow extraction does infer that simple, brief oral exposures that are spit out likely do not have significant toxicity, and there are no case reports of significant toxicity without ingestion of the pouch.

**Interventions**

Following the severe increase in nicotine liquid exposures, the FDA required child-resistant packing of nicotine liquid packaging. This intervention significantly decreased the number of cases US poison centers received regarding these liquids. Many of the nicotine pouch products have bright packaging and mint or fruit aromas reminiscent of candy to children. In September 2025, the FDA issued a press release urging nicotine pouch manufacturers to use child-resistant containers.

### **Conclusion**

Nicotine pouches have become more ubiquitous in the US in the last 5 years, and cases of accidental pediatric nicotine pouch ingestions have risen significantly in this time. Pouches of 12-15 mg are available and often not in child-resistant containers. At doses available, children under 5 years of age can experience severe toxicity from ingesting just one pouch even if it was previously used by an adult to the residual nicotine present in discarded pouches.

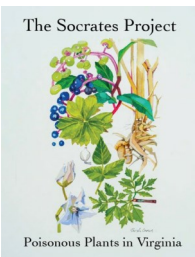
Nicotine pouch users should plan to store their pouches in an elevated area away from children and should preferentially select products with child-resistant containers. Symptoms of toxicity typically develop within 4 hours thus recommended observation time is four hours for asymptomatic patients or four hours symptom free for patients who presented with signs of nicotine toxicity.

For consultation or further assistance, please contact the University of Virginia's Blue Ridge Poison Center/Division of Medical Toxicology directly at **1-800-222-1222** or call the **dedicated provider hotline: 1-800-451-1428**.

*References available upon request.*

## **Honoring the life of Alfred Goossens**

Please join the Blue Ridge Poison Center at UVA Health in honoring the life of Mr. Alfred E. Goossens who died on January 22, 2026. After retiring as a world renowned flavorist, Alfred and his wife moved to central Virginia, where he became a Certified Virginia Master Naturalist in the Old Rag and Rivanna Chapter. Alfred lead a team of individuals from the Master Naturalists and partnered with the UVA Health's Blue Ridge Poison Center to create a [The Socrates Project](#), [The Cleopatra Project](#) and [The Claudius Project](#), educating the public about poisonous plants, venomous/poisonous animals, and poisonous mushrooms native to Virginia, respectively.



Alfred was delightful, energetic, and passionate about our natural world. We are grateful to have known him and benefitted from his wisdom. [Read the obituary](#) for Alfred Goossens.



L to R: William "Bill" Birkhofer, certified Virginia Master Naturalist; Dr. Christopher Holstege, Director, Blue Ridge Poison Center; Alfred E. Goossens. 2019.