

New study questions value of fluoride varnish

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Fluoride varnish has become a popular anti-cavity treatment for children, and it isn't hard to see why. It's relatively easy to apply, and not just for dentists or dental hygienists. Pediatricians can do it as well, with

minimal instruction. The sticky varnish goes on with a brush and then dries in a few hours. There's little risk of children swallowing the fluoride, as they might with other topical treatments such as gels.

Nor is it very expensive, with treatment costs generally ranging from about \$25 to \$55. That doesn't seem to be a prohibitive price to pay to guard a child against tooth decay.

Yet a new study by two University of Washington researchers and their colleagues questions the cost-effectiveness of [fluoride](#) varnish for preschoolers and calls its anti-cavity effects "modest and uncertain" in this age group.

Dr. Joana Cunha-Cruz and Dr. Philippe Hujoel of the UW School of Dentistry and four research colleagues came up with their conclusion after reviewing 20 clinical trials of fluoride varnish in 13 countries. They examined trials in which fluoride varnish was used by itself or in an oral health program, and also checked the results of using fluoride varnish compared with placebo, usual care, or no treatment.

"As much as we want fluoride varnish to be effective, the current evidence doesn't support a huge benefit for its use in young children," Dr. Cunha-Cruz said.

In their new study, which was recently published in the journal *Caries Research*, she and her colleagues noted that fluoride varnish applications are aimed especially at children with a high risk of caries, or [tooth decay](#). It's not considered a primary form of treatment, but rather a complement to other fluoride treatments such as toothpaste or fluoridated water.

Nonetheless, the researchers reported that more recent clinical trials in both low-risk and high-risk groups "failed to show a protective effect of

fluoride varnish applications."

"Cost-effectiveness analyses are needed to assess whether fluoride varnish should be adopted or abandoned by dental services," they said in their study.

The researchers don't assert that fluoride varnish doesn't work. Their analysis showed that the risk of developing new cavities declined by 12 percent among the children who received fluoride varnish, compared with those who did not. And they added that fluoride varnish could still be a cost-effective alternative in some cases. However, they also stated, "This was a rather modest benefit, as a large number of the children developed new dentine caries lesions, regardless of fluoride varnish use."

Concentrations of fluoride can also vary among different varnishes, Dr. Cunha-Cruz said.

That's not to say that there aren't highly effective topical treatment alternatives. Sealants do a good job of protecting the teeth, especially those hard-to-reach ones in the rear of the mouth, Dr. Cunha-Cruz said. Even better are sealants with glass ionomer, which releases fluoride, as opposed to resin-based sealants, which don't have it.

Sealants are more difficult to apply than varnish, but Dr. Cunha-Cruz said that they remain effective for two to three years. Silver diamine fluoride has also been growing in popularity and is very effective in stopping decay, she said, but more research is needed on its preventive effect. It can also discolor teeth, but that isn't as much of a concern for preschoolers who still haven't lost their primary teeth.

"The evidence still supports the use of fluoride toothpaste, which is easy and low-cost," Dr. Cunha-Cruz said. "The value of toothpaste lies in how it creates a daily presence of fluoride in the mouth." Fluoride rinse is

also effective in this way, she said.

For now, she and her research colleagues are calling for more studies of fluoride varnish's cost-effectiveness among different populations and application settings. She suggests caregivers discuss the pros, cons and alternatives to fluoride varnish to prevent cavities with a child's dentist.

Meanwhile, aside from using fluoride toothpaste and rinses each day, Dr. Cunha-Cruz suggests another approach: "Reducing sugar intake is an even more cost-effective strategy."

More information: Fernanda Santos de Oliveira de Sousa et al, Fluoride Varnish and Dental Caries in Preschoolers: A Systematic Review and Meta-Analysis, *Caries Research* (2019). [DOI: 10.1159/000499639](https://doi.org/10.1159/000499639)

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