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Latest recommendations for fluoride

By **JOANN R. GURENLIAN**, RDH, PhD

HE AMERICAN DENTAL Association (ADA) has a policy to update clinical recommendations and evidence every five years. Most recently, they published their report on professionally applied topical fluorides and prescription strength home-use topical fluorides to prevent caries.¹ Since some of you have requested information on fluorides, this column will be devoted to summarizing the panel recommendations from the ADA Council on Scientific Affairs (CSA).

As part of the process of conducting the review of fluoride for caries prevention, the panel evaluated sodium, stannous, and acidulated phosphate fluoride (APF). Varnishes, gels, foams, mouth rinses, and prophylaxis pastes were considered. Seventy-one trials from 82 articles were reviewed to assess the efficacy of various fluoride agents for preventing caries.

The strength of the recommendations were made using a grading system adapted from the U.S. Preventive Services Task Force system and included the following recommendations: strong, in favor, weak, expert opinion for, expert opinion against, and against.

Another element considered was the net benefit rating, taking into consideration whether the benefit outweighs potential harm, the benefit is balanced with potential harm, there is no benefit, or the potential harm outweighs the benefit.

Key recommendations from the CSA panel include:

- **::** Topical fluoride agents are recommended only for people that are at elevated risk of developing caries.
- :: For patients 6 years or older who are at risk, use 2.26% fluoride varnish



- 1.23% fluoride (APF) gel
- Prescription strength, home-use 0.05% fluoride gel or paste
- 0.09% fluoride mouth rinse
- : Only 2.26% fluoride varnish is recommended for children younger than 6 years of age.

The strengths of these recommendations varied from "in favor" to "expert opinion for."

Of interest, the panel found evidence of no benefit from using 0.1% fluoride varnish in children, and no benefit for performing prophylaxis before applying 1.23% APF gel in both the primary and permanent dentitions of children. Further, there was no benefit found for using prophylaxis pastes containing fluoride on the primary or permanent teeth of children.

The panel noted that these recommendations are not meant to represent a standard of care. Rather, they are provided to summarize current evidence and to assist practitioners in evaluating caries risk, patient needs and preferences, and professional judgment.

Further, the panel advocated that in developing a caries prevention plan that includes use of fluoride; the practitioner and patient must balance potential benefits with potential harm. Topical fluoride potential harm includes nausea, vomiting, and dental fluorosis. The panel noted that there is lower potential harm with fluoride varnish dispensed in unit doses. The amount of fluoride placed via fluoride varnish is one-tenth that of other professionally applied fluoride products.²

As with most reviews of this nature, the panel found areas requiring further research using well-designed clinical trials. For example, the panel noted that research is needed for particular subgroups, including adults aged 18 through 65, high-risk adults older than 65, and populations with chronic diseases. Studies are needed to examine strategies for managing xerostomia-induced coronal and root caries. The economic benefit of topical fluoride in various caries risk populations needs to be studied.



Lastly, the panel supports research concerning the best ways to help oral-health professionals use clinical recommendations in practice.

Having an opportunity to review evidence-based clinical recommendations on topical fluoride agents helps us understand several key points. First, research is dynamic and findings change often. Remaining current on best practices is assisted by expert panels that conduct systematic reviews and meta-analyses. Second, even with this information, there are limits based on the designs of the studies conducted. Therefore, we need to be mindful to maintain a context for the findings.

Clinical recommendations are one part of the process for making evidence-based decisions. These recommendations support our critical thinking process and assist us in helping our patients understand our rationale for prevention and treatment interventions. For more information about clinical recommendations for the use of topical fluoride agents for caries prevention, visit http://jada.ada.org.

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FluoroDose comes in five flavors that are well received by children and adults. My adult patients love the caramel, and a kids' favorite is of course bubble gum. FluoroDose is also an award-winning Fluoride Varnish year after year, as well as one of the least expensive unit-dose varnishes on the market. How often is the least expensive also the best?" **TRY IT FOR YOURSELF! CONTACT US FOR A DEMO:** centrixdental.com/fluorodosedemo or call 800.235.5862

-Donna Brogan RDH, BS

Resources for sealant and fluoride varnish use with pediatric patients

One study recently found that sealant application may be more effective than fluoride varnish application in preventing tooth decay in the permanent teeth of children. Read more about this study and get resources for your treatment decisions below.

By MARIA PERNO GOLDIE, RDH, MS

N A RECENT Cochrane Oral Health Blog, there was discussion about a systematic review of the evidence to determine if (1) dental sealants, (2) sealants together with fluoride varnishes, or (3) fluoride varnishes are more effective for reducing tooth decay on biting surfaces of permanent back teeth in young people. The research was conducted by a team led by Anneli Ahovuo-Saloranta from the Finnish Office for Health Technology Assessment (FinOHTA) on behalf of the Cochrane Oral Health Group. (1)

The methods included data from eight randomized controlled clinical trials. A total of 1,746 children aged 5 to 10 years participated in the trials, and were randomly assigned to receive dental sealant, sealant together with fluoride varnish, or fluoride varnish applications. According to the blog, "some evidence submits that applying resin-based sealants to the occlusal surfaces of permanent posterior teeth in children may reduce tooth decay in the permanent teeth of children by 3.7% over a two-year period, and by 29% over a nine-year period, when compared with fluoride varnish applications" (1). The number increases to 14.4% with resin-based sealants plus fluoride varnish.



Unfortunately, the obtainable evidence is of low to very low quality because of the small number of included studies, and due to problems with the studies' structures. The majority of the studies had a fairly short follow-up time, according to the authors.

There are a multitude of resources on fluoride varnish. According to the Association of State and Territorial Dental Directors, "programs using *fluoride varnish* will be more likely to demonstrate benefits and reduce dental caries in atrisk populations when applications are offered at least at six-month intervals over at least two years in duration in combination with counseling. *Dental sealants* and water fluoridation are the cornerstones of individual and community practice to prevent and control dental caries" (2; emphasis mine).

The National Maternal and Child Oral Health Resource Center (OHRC) developed a publication, "Fluoride Varnish: A Resource Guide," to provide information to health professionals, program administrators, educators, researchers, policymakers, and others about the use and application of fluoride varnish.

New York State published Improving the Oral Health of Young Children: Fluoride Varnish Training Materials and Oral Health Information for Child Health Care Providers, which is a very comprehensive webpage.

South Carolina Department of Health and Environmental Control published "Fluoride Varnish Manual for Health Professionals" in 2011. These are but a few of the available resources.

Similarly, there are guides for the use of dental sealants. "Dental Sealants, A Resource Guide, Third Edition" published in 2010, is one resource, for example.

Examine some of these resources available to us to help formulate your own evidence-based decisions regarding varnish and sealants.



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MARIA PERNO GOLDIE, RDH, MS, is editorial director of RDH eVillage Focus.



Varnish & adults: Are you putting risk assessment to work for your adult dental patients?

By **DONNA LYNN BROGAN**, RDH, BS

RADITIONALLY, DENTAL PROFESSIONALS provided fluoride treatments to children in the caries-active stage, but the face of caries has changed. Large cohort studies have shown that mature people are a caries-active group, experiencing new disease at a rate that is at least as great as that of adolescents.¹ Risk factors such as recession, prescription medication use, poor biofilm removal, multisurface restorations, or recent

carious activity put them at a high risk for developing caries. All of these factors become increasingly prevalent in people in their 40s and 50s, long before they become "seniors." The most recognized use of fluoride varnish in adults is for dentin desensitization, but the practice of caries management by risk assessment (CAMBRA) has opened clinicians' minds and operatories to a more widespread and purposeful use.

In late 2013, the Council on Scientific Affairs of the American Dental



Active root caries undermines extensive restorative work. Courtesy of Dr. Jeff Baggett DDS, Edmond, OK.

Association published evidence-based clinical recommendations for the use of professionally applied topical fluorides for all ages.² Two types of professionally applied fluoride were recommended: 5% fluoride varnish, and four-minute, tray-applied acidulated phosphate (APF) gel. Since the majority of adults have composite, porcelain, or ceramic restorations that disqualify the use of APF, this article will discuss fluoride varnish.





Existing crown margin and root surface exposed. Courtesy of Dr. Jeff Baggett DDS, Edmond, OK.

Over the years, small interproximal restorations can progress to large lesions and eventually result in a crown. Add xerostomia and recession, and an ominous dark line at the crown margin appears. Adults must be followed closely to put an end to the irreversible restorative cycle that leads to more aggressive treatment and tissue loss.

One of the most significant factors is exposed root surfaces. Enamel demineralizes at a pH of 5.5 but exposed root surfaces demineralize at a pH much closer

to neutral, 6.2 to 6.7.³ Dentin and cementum demineralization occurs twice as fast as it does in enamel because they have as little as half the mineral content. Both the initiation and progression of root caries occurs much more rapidly than in enamel surfaces. For adult patients, root caries is an ugly outcome, and it often has far-reaching negative effects.

Patients with xerostomia are another group at risk for the fast progression of caries.⁴ Over 400 medications contribute to xerostomia.⁵ The Mayo Clinic reports that 68% of Americans take prescription medication. Over half are on two medications, and 21% are on five or more.⁶ These patients may lack the benefits of saliva, which clears away food and debris, and has the capability to buffer acid attacks. Without enough saliva, remineralization cannot occur because the enamel isn't



Example of knee-to-knee application. Courtesy of Dr. Jeff Baggett DDS, Edmond, OK.



Example of face-to-face application while standing. Courtesy of Dr. Jeff Baggett DDS, Edmond, OK.



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exposed to calcium and phosphate.⁷ Instead of the beautiful demineralization/ remineralization balance, teeth are caught in the downward spiral of the demineralization process.

Patients who were diagnosed with decay during the last 24 months are automatically considered high risk.² They are very likely to develop recurrent decay in the same location or at a new site because the bacterial infection is ongoing. Simply removing decay and placing a restoration is not enough; the oral cavity must achieve a bacterial balance in order to reduce the cariogenic attack.⁸ After a restoration of any kind has been placed due to caries activity, a fluoride varnish should be performed at subsequent recall visits until the patient has had two caries-free years.² In addition to professionally applied fluoride, the use of remineralization products, home fluoride, xylitol gum, and/or pH stabilization may be indicated. Many companies provide these therapeutic products, including CariFree, Xlear, and GC America, to name a few.

Numerous risk assessments with simple checklists enable clinicians to determine and show patients the level of risk for caries development. These assessments conveniently divide patients into low-, moderate-, or high-risk groups and can be a wonderful educational tool to involve patients in their preventive treatment plan. Table 1 shows a partial list of proven risk factors for adults.² Depending on the elevated risk category the patient falls into, applying varnish two to four times a year is recommended.⁹ The ADA risk form helps dental professionals quickly and easily explain to their patients their risk level, and encourages patient acceptance for the recommended treatment.

Table 1: Risk factors for adult caries

- : Active caries in previous 24 months (automatically high risk)
- : Presence of exposed root surfaces
- :: Xerostomia (medication-, radiation-, or disease-induced)
- : Poor oral hygiene
- : Many multisurface restorations
- : Restoration overhangs and open margins
- :: Cariogenic diet
- :: Chemo or H/N radiation therapy

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Many clinicians do not routinely apply varnish for adult patients. Reasons include lack of insurance coverage, difficulty placing varnish, poor taste and appearance, and the unacceptable sensation the patient feels for hours after treatment. Another reason for not applying varnish four times a year is that the patient may visit the office only every six months. These objections have limited the use of an important preventive tool that can be very successful in disease prevention, if only put to use.

Manufacturers have heard the criticisms and have made many adjustments to fluoride varnish products. If fluoride varnish is clumping on the applicator brush, if it tastes bad or is visible on the teeth, try another product. If adults complain about the fuzzy feeling on their teeth or the sticky residue on soft tissue, try another product. A suggested varnish is one that is smooth, clear, never stringy or clumpy, and in a flavor that adults prefer (Fluorodose).

Fluoride varnish can be easy to apply and doesn't require a chair or even an operatory. It does not have to be applied in the supine position and the clinician doesn't even need an overhead light or saliva ejector. If risk assessment determines a patient would benefit from treatment four times a year but the patient has only two recalls, there's an alternative to the chair; the patient can sit in a normal chair in the consultation room or any private area. Application of the varnish takes less than one minute and then patients can go on with their day.

Fluoride varnish application is easiest when done face to face. The clinician should face the patient so they are close to the same height. Have the patient swallow, open, and look slightly down. Using a unit-dose delivery system, the clinician then loads the applicator brush and swipes varnish along the lingual of the mandibular arch. Have the patient look straight ahead with teeth together, retract the left cheek with a mouth mirror, load applicator brush as needed, and swipe the facial of both arches. Retract the right cheek and repeat. Instruct the patient to open and look up, reload the applicator, and swipe the lingual of the maxillary arch. Supply the patient with a disposable cup and tissue so they can expectorate as desired. Use of a saliva ejector is contraindicated as all varnish products have the opportunity to harden inside the hose and clog lines.



This application technique can be used after the recall exam in the operatory but is just as easily performed in a consultation room. It takes just minutes and does not require the effort or cost of turning over a room. Fluoride varnish patients can be scheduled between hourly blocks, and any qualified dental professional available can perform an easy varnish treatment for drop-in patients.

Addressing the insurance question upfront is imperative. Given the possible negative outcomes of caries, varnish application for a small fee is preferable to more extensive treatment later on. Fluoride varnish is very inexpensive (as low as \$1, depending on the product), and this application technique will keep costs minimal for subsequent patient visits.

There is a wide variation in fees across practices, ranging from \$15 to \$95, but a fee of about \$25 is acceptable to most patients for the one-minute application (especially given the cost of alternative treatments down the road). Keeping the fee low will result in more patients accepting treatment. As a result, the practice will treat real oral health needs and provide an additional revenue stream for the practice, which is a win-win for everyone.

Some companies provide educational tools that dental professionals can use to discuss dental health issues with patients. For example, Centrix offers downloadable support tools for adult varnish application, such as waiting room videos and caries-risk assessment forms, at no charge (<u>centrixdental.com</u>). Other companies offering educational and marketing tools include Philips Sonicare (<u>usa.philips.com</u>) and Sunstar GUM (<u>gumbrand.com</u>).

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DONNA BROGAN, RDH, BS, is a graduate and former faculty member of the University of Oklahoma dental hygiene program. She was voted Outstanding Part Time Faculty by her students in 2007, 2012, 2013, and again in 2014. An educational consultant for more than 20 years, Donna has presented a wide range of topics throughout the world and online. Donna serves on numerous boards including as president for the Oklahoma University Alumni Association and secretary for Variety Care Foundation, a non-profit healthcare provider. She has held numerous positions in the Oklahoma Dental Hygienists' Association and is a proud member of the ADHA.



FluoroDose: Prevention for life

A discussion with Donna Brogan, RDH, BS

HROUGHOUT HER MANY years as a dental hygienist, Donna Brogan, RDH, BS, has prided herself on being a prevention specialist, educating her patients on the importance of preventing caries.

"Prevention isn't just for kids, it is for patients of all ages, to protect against the harmful effects we face as we age," she explains. "The NIH reports that 92% of adults age 20 to 64 have had dental caries in their permanent teeth and, according to the ADA, there remains one age group with an increasing rate of caries—older Americans. From early developmental needs of children, to the recession and systemic health changes as we age, including the devastating effects of xerostomia caused by prescription medications, patients of all ages deserve great preventive care. So, I decided to get more active in prevention/ risk assessment with my adult patients, including finding a fluoride varnish that adults and kids enjoy, and that I could place very quickly and easily without all of the mess of the old varnishes that had been available."

Brogan selected FluoroDose from Centrix after the product hit all her marks. "It's inexpensive, easy to place, has great flavors, and my patients, adult patients specifically, really accept it much better than the previous varnishes I had been using," she says.

She estimates that the product costs between 83 cents to \$1 per application. "How often is the least expensive also the best?"

The American Dental Association considers the use of fluoride varnish to be a safe and efficacious part of a caries prevention program, which includes caries diagnosis, risk assessment, and regular dental care. FluoroDose contains 5% sodium fluoride, the maximum dosage allowed, in a convenient single-use LolliPack.





Dental teams appreciate that the product is smooth, not stringy or clumpy, so "It is the easiest, cleanest, fastest-to-apply varnish I have ever tried. It doesn't clump on the applicator brush when it comes in contact with moisture—so I don't have to clean the brush halfway through the application. It goes on the patient's teeth with long swipes and wicks interproximally; this saves me time because I don't have to precisely paint each surface," adds Brogan.

FluoroDose dries in seconds on contact with saliva, remains on the tooth for six to eight hours, and provides optimum fluoride uptake. FluoroDose is approved by the United States Food and Drug Administration for treating dentinal sensitivity, can be applied four times a year, and is routinely applied on children's teeth after cleaning.

The product doesn't just help children have better oral health for life. Adults can also benefit, particularly if they show frequent decay, gingival recession, sensitive teeth, xerostomia, cariogenic bacteria, plaque buildup, etc.

"If my patient reports sensitivity on a specific tooth before I scale, we stop and discuss varnish as a desensitizer and how it occludes tubules. I open a unit-dose pack and apply varnish to the root surface that is sensitive. I then set the varnish aside and continue with the appointment; the patient will notice a reduction in discomfort. At the end of the appointment, I apply varnish to the rest of the teeth and again to the sensitive root surfaces," asserts Brogan.

It also is not a food allergen risk, as it is free of all dairy, egg, gluten, soy, peanut, tree nuts, tree nut derivatives, fish/shellfish and seed products. In addition, this varnish is available in five great-tasting flavors to suit everyone's preferences: caramel, bubble gum, mint, cherry, and melon.

"Children seem to always ask for cherry or bubble gum, teens like mint and melon, and adults prefer caramel, mint, and melon. I would say caramel is the most popular but it might be because it's my favorite flavor, so I must 'sell' it better to my fellow coffee/sweet lovers," says Brogan.

An added bonus to this varnish is that it stays clear on the teeth, with no yellowing. According to Brogan, her adult patients love this feature and have



remarked that FluoroDose has a much smoother, thinner coating and tastes better than all other varnishes they've had in the past.

"Whether they're six months old or 90 years old, FluoroDose is with them every step of the way. It truly is prevention from their first tooth all the way through their lives."





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We provide our customers with the highest-quality products possible and superior service, listening to their ideas and concerns so they in turn may better serve their patients. We celebrate our successes and learn from failures. "Making Dentistry Easier" is our unending quest!

LINKS:

Centrix online learning

This website gives you immediate access to our multimedia training library where you can learn about new techniques and products and earn related CE from an ADA CERP provider.

- Fluoride varnish and risk assessment kit (free download) We worked with Donna Brogan RDH, BS, to develop Centrix's Adult Prevention Program—a series of tools to help your patients more easily understand the role prevention plays.
- FluoroDose (fluoride varnish with xylitol) Visit this site for product information.
- Donna Brogan, RDH, BS, website Additional educational materials may be found here.
- Request a sample/demo Try award-winning FluoroDose!

