

Topical Fluoride Treatments

Editorial Provided By Procter & Gamble

Caries is a lifelong disease that is both infectious and transmissible. It affects approximately 90% of the population. The implementation of a caries risk assessment strategy in your practice to predict future caries activity will help guide decisions for treating and preventing this disease. One system for assessing caries risk may be found at:

<http://www.ada.org/prof/resources/topics/evidencebased.asp>

Once risk has been determined there are many different options for a caries prevention program for each patient.

Fluoride helps to prevent caries during the remineralization and demineralization processes. When fluoride is present in the oral environment at sufficient levels, its release helps inhibit the dissolution of calcium and phosphate in enamel. Topical fluoride and salivary minerals enhance remineralization. The action of fluoride accelerates the rebuilding of enamel and can stop or even reverse the progression of dental decay and, more importantly, makes enamel more resistant to acid demineralization than it was originally.

The remineralization process may be enhanced by in-office and take-home fluoride treatments, in addition to the daily use of toothpaste containing fluoride. The therapy is dependent on the patient's specific needs. Topical fluorides are classified into high and low concentration products based upon the fluoride amount or strength. High concentrations are intended for professionally supervised office use and low concentrations are self-applied at home. High concentration fluorides make teeth

stronger and even heal weakened areas through remineralization. Over time the high level of fluoride is gradually released. The use of low concentration home fluorides helps to maintain a beneficial level of fluoride in the teeth.

Types of fluoride compounds used in in-office and take-home treatments include Acidulated Phosphate Fluoride, Neutral Sodium Fluoride, and Stannous Fluoride. These compounds/fluoride concentration levels may be available as gels, pastes, rinses or foaming solutions.

In-Office Fluoride Treatments

The two popular compounds for in-office use for patients at risk for caries are 1.23% Acidulated Phosphate Fluoride (APF) and 2.0% Neutral Sodium Fluoride. These compounds have been shown to be effective in numerous clinical and laboratory studies.

APF 1.23% produces 12,300 parts per million fluoride; 2.0% Neutral Sodium Fluoride (NaF) yields 9,040 parts per million fluoride. APF has a pH of approximately 3.5 and NaF has a pH of 7.0. Because of the rapid uptake of fluoride, APF is the agent of choice for most caries-prone patients. NaF is the agent of choice for patients with esthetic restorations, glass-filled sealants, reduced salivary flow, as well as those who cannot tolerate acidic fluoride.



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Oral-B® has two in-office topical fluoride products:

- Oral-B® Minute-Foam® 1.23% APF Topical Fluoride
- Oral-B® Neutra-Foam® 2.0% Neutral Sodium Fluoride

Foam is easy for patients to tolerate due to pleasantly mild flavors with no bitter aftertaste. Foam reduces the potential for gagging and ingestion because it is unlikely to overflow the applicator tray. APF foam requires only about one-fifth as much material by weight for adequate coverage of the teeth, which significantly reduces fluoride exposure and retention by the patient.¹

Topical fluoride applications benefit adults as well as children. For adult patients with moderate to high risk for caries, in-office fluoride treatments should be included in the treatment plan, even if insurance does not cover it. Patients must be educated about the benefits of high concentration fluoride administered in the office.

For continued fluoride exposure for patients at high risk of caries, such as patients undergoing radiation therapy or patients with xerostomia, the adoption of an at-home regimen including 1.1% (5000 ppm) neutral sodium fluoride may be warranted. Although a customized tray is the

preferred way of applying topical fluoride at home, the fluoride could also be applied with the use of a toothbrush.

For patients at moderate risk, low concentration fluorides may be self-applied. It is imperative that patients receive low concentrations of fluoride with high frequency to replenish fluoride lost by demineralization attacks, thereby helping to insure that sufficient fluoride is present for the remineralization process. The major types of fluoride compounds used in lower concentrations include APF, neutral NaF and SnF₂. The primary delivery systems are gels, rinses and dentifrices. The products vary in terms of parts per million (ppm) fluoride.

Take-Home Fluoride Treatments

Many dental professionals dispense or prescribe home fluoride gels. Stannous fluoride gels (0.4%) are non-prescription drugs. Traditional stannous fluoride products may produce extrinsic staining, particularly in patients with inadequate plaque control. Since stannous fluoride gels may also provide some bacteriostatic and tubule occlusion properties, they may be preferred for patients needing caries control, plaque reduction and sensitivity reduction.

Due to their much higher fluoride content, 1.1% neutral sodium fluoride gels are available by prescription or directly through the dental office. Neutral sodium fluoride is the agent of choice for patients 1) with cosmetic restorations, 2) with implants, 3) susceptible to root caries or with reduced salivary flow, and 4) for those who cannot tolerate an acidic fluoride. Stannous fluoride and neutral sodium fluoride gels may be applied in custom mouth trays or with a toothbrush.

Most home fluoride rinses use neutral pH sodium fluoride as the anticaries agent. The lower strength rinse is available over the counter and the 0.2% NaF rinse is prescription strength. Although the 0.2% NaF was originally tested for weekly use, it may also be used more frequently by high caries risk patients.

Root Caries

Root caries is a growing concern, especially as our population ages. Adult patients need to receive topical fluoride to effectively manage root caries. Demineralization of root surfaces can occur at a higher pH than coronal caries. Root lesion progression and mineral loss are 2.5 times greater for root surfaces than for enamel (without fluoride therapy). Fortunately, root surfaces have an even greater affinity for topical fluoride uptake than coronal enamel, probably due to relative porosity. Root surfaces are quite receptive to the formation of calcium fluoride. Unless these lesions progress too far, they may be reversed via aggressive topical fluoride therapy.

Like enamel caries, the root caries process is reversible. Root caries can be prevented or arrested using conventional fluoride therapies. Topical fluoride is the method of choice for root caries prevention. Topical fluoride therapy for root caries should include both high strength professional treatments and maintenance levels of fluoride provided via frequent low concentrations.

For high caries prone individuals, a two-prong approach to prevention may be most beneficial. The first step is a high strength professionally applied topical fluoride to serve as a "loading dose" to help reverse the demineralization process. The second step is at-home use products to maintain the fluoride level required for subsequent remineralization.

Many caries prevention regimens include the use of home fluoride products. Oral-B has several options:

- Oral-B® NeutraCare® clear gel home topical (Rx) 1.1% (5000 ppm) neutral sodium fluoride
- Oral-B® Stop® 0.4% stannous fluoride gel
- Oral-B® Fluorinse® 0.2% sodium fluoride rinse (alcohol free)

The primary reason to offer in-office and at-home fluoride therapy to your patients is for the caries prevention benefits they provide. In-office fluoride is an important service for patients at risk for caries and offering take-home fluoride through your office provides convenience for your patients and will likely increase compliance with your recommendation for caries prevention. In addition, offering fluoride therapy to your patients may be a source of revenue for the office.

For more information on the fluoride options Crest Oral-B offers, visit www.dentalcare.com. Contact your Burkhart representative to learn about current promotions for Crest Oral-B products.

1. Jiang H, Bian Z, Tai BJ, Du MQ, Peng B. The effect of a bi-annual professional application of APF foam on dental caries increment in primary teeth: 24-month clinical trial. J Dent Res 2005;84(3):265-8.