

Fluoride Varnish – Method of Choice for Caries Prevention in Children



Dr. Ashwin Jawdekar
MDS (Pediatric Dentistry)

The recent literature confirms that the use of fluoride varnish application is the best mode of caries prevention in children and safest too, when clinicians have made a decision to use a topical fluoride therapy. ¹ It is established that varnishes take less time for application, create less patient discomfort, and achieve greater patient acceptability than gel, especially in preschool children and children with special care needs. **For children at moderate and high risk of dental caries, use of varnishes is recommended for children below age 6 years and varnishes or gels are recommended between ages 6 – 18.**²

Fluoride varnishes were first developed in Europe in the 1960s in an attempt to increase the uptake of topically applied fluoride into enamel.³ The commonly available varnishes are *Fluor Protector* (containing Silane Fluoride) and *Duraphat* (containing Sodium Fluoride) amongst at least 12 products on the marketplace currently.^{1,3} Fluoride varnishes were not available in US until 1990s. However, with more research on varnishes, they are most widely accepted now.⁴ Clinical studies on fluoride varnishes have demonstrated caries reduction rates of 25 – 75%.⁵ As compared to gel applications, the varnishes are much safer, even if virtually all the fluoride applied through the varnish is ingested!⁶

The following text discusses the composition, indications, method and frequency of application, post treatment instructions, and relevant information regarding the use of fluoride varnishes.

Composition:

Fluoride varnish is an alcoholic solution containing 5% Sodium Fluoride (most common) in a natural tree resin (colophony or rosin).

Indications:

- Caries Prevention
- Desensitizing agents

Contra-indications:

- No absolute contraindications
- Contact allergy (rare) may lead to dermatitis or stomatitis
- Concerns have been mentioned regarding use in asthmatic children (no adverse outcomes reported however)

Frequency of application:

- Age: Children 0-18 years ; application can be begun soon as tooth/teeth erupt
- Reapplications recommended every 4-6 monthly.

Method of application:

- Oral prophylaxis- either conventional rubber-cup prophylaxis or tooth-brushing prior to application is recommended
- Dry, isolated teeth- Air-drying and isolation using gauze packs recommended. However, once applied, the varnish may come in contact with moisture.
- Upright chair- Either the child sitting alone or with a parent with minimal physical restriction

- Suction- saliva ejector to be continuously in place
- Quadrant/arch wise application with a soft nylon brush or applicator tip



Varnish being applied on dried enamel

Gel application in tray

Post-op instructions:

- No chewing for 4 hours, soft food and no brushing, flossing for 12 hours
- Not to worry about the dull stained teeth (loss of shine of enamel)

Caries reduction:

Caries reduction up to 74.4% achievable! ⁷

Advantages of varnishes over gels

- Less time consuming (2-4 minutes for both arches as against 4-8 minutes for the gel)
- Safer due to less ingestion
- More acceptable to patients (especially young)
- No rigorous expectoration required to minimize post application ingestion
- Equally effective

Safety issues:

The application of fluoride varnish is safest amongst all topical fluorides used professionally. A review of literature suggests that the ingestion of fluoride after application of varnish is slower and less compared to the gel owing to the tenacious adherence of the former to the teeth. (ingested amount 5-5.2 mg with

varnish Vs 6.5-36 mg with gel).¹ Considering the safely tolerated dose (STD) of fluoride is 8-16 mg/kg and the certainly lethal dose (CLD) of fluoride is 32-64 mg/kg, even though the entire amount of varnish is ingested, the chance of toxicity does not exist.⁶

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Dr. Ashwin Jawdekar

MDS (Pediatric Dentistry)

little smiles (Dental Care Centre for Children)

102, Silverline, Opp. Holy Cross School,
Castle Mill Naka, Thane (W), Pin 400601, India.

Tel: 022 – 25471784, 9821009615

E-mail: drashwin.littlesmiles@gmail.com