

Fluoride Varnish Application

Presented by Stephanie Carter DipDT, DipDH, RDN

Aims: Week 4

By the end of this webinar you should:

- 1) Be able to confidently explain the different topical fluoride preparations available including mouthwashes, toothpastes and varnishes
- 2) Be able to identify any relevant medical history concerns that may prevent the use of a fluoride varnish
- 3) Be able to identify any contraindications to topical fluoride based on any systemic fluoride being taken (including being aware of how to check local water supplies)
- 4) Know how to handle an acute fluoride overdose and be aware of long term toxicity concerns



Toothpastes

Possible Active Ingredients	Effect
Sodium Fluoride	Caries Prevention
Stannous Fluoride	
Sodium Monofluorophosphate	
Postassium Nitrate	Sensitivity Prevention
Stannous Fluoride	
Arginine	
Calcium sodium phosphosilicate	Antibacterial
Tricolsan	
Bromochlorophene zinc citrate	
Papain and sanguinaria extracts	



Toothpastes

Possible Other Ingredients	Effect
Hydrated Silica	Abrasive for stain removal
Mica	
Sodium Bicarbonate	
Sodium Lauryl Sulphate (SLS)	Foaming Detergent
Cocamidopropyl Betaine	
Pentasodium Triphosphate	
Methylparaben	Preservatives
Sodium Benzoate	
Limonene / Peppermint Oil / Cinnamal	Flavouring and Sweeteners
Glycerine / Sucralose / Sorbitol / Mint	



Toothpastes

Potential Concerns:

Fluoride: NO evidence supporting link between fluoride in toothpaste and health conditions in adults

Triclosan: potentially can affect the endocrine system which controls hormones in the bloodstream
potential environmental concern

SLS: possibly linked with skin irritations including mouth ulcers, 'dry mouth' and condition called Lichen Planus

Limonene, Cinnamal and Peppermint Oil these are all known allergens



Mouthwashes

General Ingredients	Effect
Water	
Alcohol	Preservative Increases solubility of essential oils
Flavour	Essential oils Aromatic Waters
Colouring	Improves appearance
Sweetener	Improve taste (usually Xylitol)




Mouthwashes	
Possible Active Ingredients	Effect
Hydrogen Peroxide	Oxygenating Agent
Sodium Perborate	
Zinc Chloride	Astringents (reduce bleeding)
Zinc Acetate	
Citric Acid	
Essential Oils	Anodynes (pain-relievers)
Chlorine Dioxide	Deodorising Agent
Bisguanides (i.e. chlorohexidine)	Antimicrobial Agents
Phenolic (phenol, thymol)	
Quaternary Ammonium	
Fluoride	Antimicrobial and remineralisation

Mouthwashes

Potential Concerns:

- Staining
- Allergies
- Alcohol Content



Varnishes	
General Ingredients	Effect
Shellac / mastic	Provide flexible, permeable hard surface prevents varnish dissolving in saliva
Ethanol / Beeswax / white wax	Form gel-type structure and stabilise sodium ions.
Flavour (Raspberry essence or bubble gum for example)	Improves taste
Colouring	Improves appearance
Sweetener (sodium saccharin or xylitol)	Improve taste
Kolophonium / Colophony	Flow enhancer


Varnishes

Active Ingredients

Sodium Fluoride

Effect

Desensitiser
Caries Prevention


https://www.researchgate.net/publication/26787893_Uses_of_sodium_fluoride_varnish_in_dental_practice


Varnishes

Potential Concerns / Contraindications:

- Allergy
- Alcohol



“Some fluoride varnishes contain alcohol but it has been agreed on the authority of the West Midlands Shari’ah Council that they are suitable for use by Muslims as they are being used as a medicament and are not an intoxicant, and are used in small amounts well below that which would intoxicate and they are not being used for reasons of vanity.”
(Delivering Better Oral Health Toolkit: An evidence based guide)



Varnishes

Potential Concerns / Contraindications:


- Asthma
- Ulcerative gingivitis

Varnishes

Potential Concerns / Contraindications:


- Stomatitis or other localised pathology of the soft tissues
- Any new abnormality of the lips, face such as cold-sores
- Obvious signs of systemic illness e.g. colds, flu, chicken pox



Varnish

Potential Concerns / Contraindications:

- Systemic Fluoride???



Varnish

Potential Concerns / Contraindications:

“ How much fluoride does Birmingham Water Works water have in it? Why does fluoride need to be added?

The Birmingham Water Works adds one gallon of fluoride to every million gallons of water. More than 20 years ago, the state health officer asked the Birmingham Water Works to begin adding fluoride to its water supply. Fluoride is proven to help prevent tooth decay, and research by the American Dental Association indicates that fluoride is especially critical to the development of healthy teeth in children.”

(<https://www.bwwb.org/faq>)

Medical History

Specific Checks for Fluoride Application:

- Asthma: especially if there is a history of hospitalisation due to asthma.
- Allergies: to any of the listed ingredients in the product you are using
 - Pregnancy / breast-feeding?

Confirm medical history with:

- Patient
- Patient parent or guardian

Medical History

Medical History

CONFIDENTIAL MEDICAL HISTORY FORM

To obtain the best & safest treatment, your dentist needs to know of any problems which may affect your treatment

TITLE	1st PREFERRED NAME	SURNAME
DATE OF BIRTH	OCCUPATION	
ADDRESS	POSTCODE	
TEL NO HOME	WORK	MOBILE

Please tick here to give the Practice permission to use the above numbers to contact you ☐

Please tick here if you **DO NOT** want to be contacted or receive our newsletter by email ☐

NAME OF DOCTOR:	HOW LONG SINCE LAST DENTAL T'MENT?
EXPECTANT MOTHER? YES/NO	CONTACT NUMBER:
NEXT OF KIN:	IF NEW TO THE PRACTICE HOW DID YOU FIND US & IF RECOMMENDED, BY WHOM?
IF BY WEBSITE, HOW DID YOU FIND THE WEBSITE?	

Medical History

→

ARE YOU:	YES	NO	DETAILS
1 Covered by a Private Medical Insurance Scheme ?			
2 Receiving treatment from a doctor or hospital ?			
3 Taking any medicines ?			
4 Taking or have taken steroids in the last 2 years ?			
5 Allergic to any medicines, foods or materials (eg Penicillin, peanuts or latex) ?			
HAVE YOU EVER HAD:			
1 Jaundice, liver or kidney disease or hepatitis ?			
2 A heart murmur or heart problem, angina, high blood pressure or a heart attack ?			
3 Any blood tests & if so, for what reason ?			
4 Blood refused by the Transfusion Service ?			
5 A bad reaction to a general or local anaesthetic ?			
6 Been hospitalised and, if so, what for & when ?			
7 Any form of heart or brain surgery ?			

Medical History

→

DO YOU:			
1 Have arthritis ?			
2 Have a cardiac pacemaker ?			
3 Suffer from hay fever, eczema or any other allergy?			
4 Suffer from bronchitis or asthma ?			
5 Have epilepsy, fainting attacks or giddiness ?			
6 Have diabetes ?			
7 Smoke ? If yes, how many per day? Would you like cessation advice?			
8 Drink alcohol ? If yes, how many units per week ?			
9 Bruise easily or bleed for a long time following extractions ?			
10 Ever suffer from cold sores ?			
ARE THERE ANY OTHER ASPECTS CONCERNING YOUR HEALTH THAT YOU THINK THE DENTIST SHOULD BE AWARE OF ?			

Completed & signed by
Date

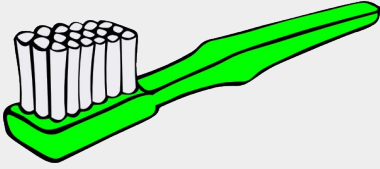

Rechecked
Data/Initial

Medical History

What to do in an emergency...

- Assess the emergency – Is it a heart attack? A faint? A stroke? The patients medical history will provide clues!!
- Call for help – Shout for someone in the practice
- Ask them to bring over the emergency drugs, oxygen and defibrillator machine
- Call 999 if necessary (If you are not sure call 999 to be safe)
- Ensure you are up to date with your CPR training and confirm you are aware of the location of emergency drugs / kit in the practice

Adverse Reactions

Adverse Reactions

GUIDELINES FOR YELLOW CARD REPORTING

Please use the Yellow Card Scheme to tell us about:

All suspected adverse drug reactions for new medicines - identified by the black triangle ▼ symbol.

All suspected adverse drug reactions occurring in children, even if a medicine has been used off-label. All serious* suspected adverse drug reactions for established vaccines and medicines, including unlicensed medicines, herbal remedies, and medicines used off-label.

*Reactions which are fatal, life-threatening, disabling or incapacitating, result in or prolong hospitalisation, or medically significant are considered serious.

If you are unsure, please report anyway For more information contact:
The Yellow Card Information Service on Freephone 0800 731 6789
Visit the Yellow Card website - www.mhra.gov.uk/yellowcard
http://yellowcard.mhra.gov.uk/_assets/files/Healthcare-professional-Yellow-Card-reporting-form.pdf

Fluoride Varnish Side-effects

Immediate Side-effects:

- Discolouration of teeth
- Feeling of 'stickiness'



Fluoride Side-effects

Long term side-effects:

- Dental Fluorosis

Unicef Big - 09-09-06

Rating Dental Fluorosis Severity using the Dean's Index (DI) and the Thylstrup-Fejerskov Index (TFI)

Fluoride Toxicity

Toxicity:

“ The degree to which a substance can harm humans. Acute toxicity involves harmful effects through a single or short-term exposure”

Effects of Acute Fluoride Toxicity:

- Small amounts: stomach irritation, nausea, vomiting
- High amounts: systemic toxic signs usually gastrointestinal tract but can include neurological or cardiovascular effects can lead to death in severe cases!

Fluoride Toxicity

Treatment:

- If concerned patient ingested excess levels give glass of milk
- Call 999 – need for immediate medical assessment and treatment

NO antidote for fluoride toxicity

Fluoride Toxicity


Toxic Levels:

Estimated toxic dose estimated as 5mg per 1Kg body weight

Therefore...


If child weighs 25Kg the toxic level would be 125mg
 If adult weighs 75Kg the toxic level would be 375mg

This seems small until you realise that Duraphat 10ml tube contains 500mg sodium fluoride, therefore if a child accidentally ingested approximately a quarter a tube they would receive a TOXIC dose of fluoride.



Summary

- Different active ingredients in different toothpastes aimed at different oral conditions
- Looked at potential concerns and contraindications for fluoride varnish:
 - Allergies
 - Asthma
 - Stomatitis and other soft tissues conditions
- Care with post –fluoride varnish application use of any systemic fluoride being taken
- Ensure you check medical histories yourself and look specifically at known allergies or asthma especially any history of hospitalisation for asthma
- Toxic doses: 5 mg per 1 Kg body weight
- Give milk and call for immediate medical assistance (999)
- NO antidote for fluoride!!!



Summary

Remember though that good preparation and ensuring you are working safely there is very little risk of such overdose occurring!!

