



**Dental Nurse Network**  
Professional growth for dental nurses

## Fluoride Varnish Application

Presented by Stephanie Carter DipDT, DipDH, RDN

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### Aims: Week 6

By the end of this webinar you should:

- 1) Be able to outline the concerns that patients may have regarding systemic and topical fluoride
- 2) Have an understanding of the clinical evidence AGAINST the use of fluoride.
- 3) Be confident in how to handle a situation where a patient has refused consent



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### Patient Care and Communication

**Patient Care and Communication**

**GDC Standards for the Dental Team**

**Put patients interests first:**

- 1.2 – You must treat every patient with dignity and respect at all times.

**Communicate effectively with patients:**

- 2.1- You must communicate effectively with patients, listen to them, give them time to consider information and take their individual views and communication into account.



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Patient Care and Communication


**Respect:**

“Feeling of admiration or deference toward a person, group, ideal, or indeed almost any entity or concept, as well as specific actions and conduct representative of that esteem”

**Dignity:**

“The state or quality of being worthy of honour or respect”

1.4: Take a holistic and preventative approach to patient care which is appropriate to the individual patient.



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Patient Care and Communication

**Good Communication:**

Good communication means clear, unambiguous two way constructive exchange.

**Requires :**

- Accepting people
- Being non-judgemental
- Encouraging positive not negative feelings
- Working as a partnership



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Patient Care and Communication

**Benefits:**

- Create opportunity for patient to ask questions and increase knowledge and understanding of health issues
- Ensure patient comfortable during appointments
- Reassure patient if have any concerns
- Gives us a chance to explain procedures, help patient have information to make informed decisions / give informed consent



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Patient Care and Communication




Picture 1



Picture 2



Picture 3



Picture 4

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Patient Care and Communication

Barriers to Good Communication:

- Social and Cultural Gaps
- Limited Receptiveness
- Negative Attitudes
- Limited Understanding
- Insufficient Emphasis
- Contradictory Messages

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Fluoride Concerns



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### Fluoride Concerns

**"The Dose Makes The Poison"**

A substance can produce the harmful effect associated with its toxic properties only if it reaches a susceptible biological system within the body in a high enough concentration.



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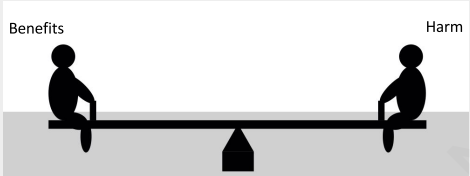
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### Fluoride Concerns



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### Fluoride Concerns: Topical Fluoride?

Topical vs. Systemic Effects

"it would be more advisable to increase plaque fluoride concentration directly by topical application."  
(Hellwig & Lemmon 2004)

**FLUORIDEALERT.ORG**  
Fluoride Action Network



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Fluoride Concerns: Systemic Fluoride

- Dental Fluorosis  
(causes markings on enamel 'enamel defects')
- Mild acute fluoride overdose  
(vomiting, stomach pain, nausea)
- Severe acute fluoride overdose  
(can lead to systemic conditions and can result in death)





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Fluoride Concerns: Systemic Fluoride

Changes to other tissues we cannot see?





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Fluoride Concerns: Systemic Fluoride

**Biochemical Mechanisms:**

"A chemical mechanism involved in vital processes occurring in living organisms."

Dental Fluorosis may be an indicator of wider systemic damage.  
(Groth 1973; Colquhoun 1997).



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Fluoride Concerns: Systemic Fluoride

**Skeletal fluorosis:**

“ A bone disease caused by excessive accumulation of fluoride in the bones.”

Healthy adult kidneys excrete 50 to 60% of the fluoride ingested each day  
(Marier & Rose 1971)

The fluoride concentration in bone steadily increases over a lifetime  
(National Research Centre 2006)



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Fluoride Concerns: Systemic Fluoride



Man with skeletal fluorosis in Turkana, Kenya.  
Photo: protectorsystems.com



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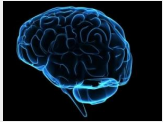
Fluoride Concerns: Systemic Fluoride

**Fluoride and the Brain?**

“Apparent that Fluorides have the ability to interfere with the functions of the brain”  
(National Research Council 2006)

Fluoride accumulates in the brain, alters mental behaviour in a manner consistent with a neurotoxic agent  
(Mullenix 1995)

One animal study found effects on brain at low doses  
(Varner 1998)



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Fluoride Concerns: Systemic Fluoride

Fluoride and IQ?

Study	Fluoride Level found to possibly effect IQ
Xu (1994)	1.8-3.9ppm
Yao (1996)	2.0ppm
Lu (2000)	3.15ppm
Eswar (2011)	2.45ppm
Ding (2011)	0.3-3.0ppm
Choi (2012)	1ppm

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Fluoride Concerns: Systemic Fluoride

'Exposure to Fluoridated water and attention deficit hyperactivity disorder prevalence among children and adolescents in the United States: an ecological association' (Malin, Till, 2015)

**Conclusion:**  
 "Parents reported higher rates of medically-diagnosed ADHD in their children in states in which a greater proportion of people receive fluoridated water from public water supplies."

<http://ehjournal.biomedcentral.com/articles/10.1186/s12940-015-0003-1>

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Fluoride Concerns: Systemic Fluoride

Fluoride and the Thyroid?

"The thyroid function of hyperthyroid patients was effectively reduced at just 2.3 to 4.5 mg/day of fluoride ion" (Galletti, Jovet 1958)

"Lowering Thyroid Function in otherwise healthy individuals at 2.3ppm fluoride in water" (Bachinskii 1985)

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## Fluoride Concerns: Systemic Fluoride

### Ethical?

- Informed Consent
- The dose cannot be controlled
- Subsets of population more vulnerable to fluorides toxicity
- No 'Safe Margin'
- People now receive fluoride from many other sources besides water.



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## Refusal of Consent: Topical Fluoride

- Respect patient's views
- Explain risk of not using topical fluoride to patient
- Ensure patient aware of difference between topical and systemic fluoride
- Record in notes
- Emphasise to patient that they can change their mind in the future!!



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## Refusal of Consent: Topical Fluoride

### Alternatives to Fluoride?

- No real alternatives at present
- Focus on Diet and Oral Hygiene Advice



Made in Sweden, used worldwide



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## Summary

- Need to ensure good communication with patients
- Ensure we respect patients views and beliefs at all times
- Looked at barriers against good communication
- Looked at evidence against systemic fluoride use particularly water-fluoridation
- Looked at ethical issues related to water-fluoridation
- Looked at how to deal with refusal to consent for fluoride application



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## END OF WEEK 6

- Week 1-6 webinars and quiz questions
- ROE
- Send ROE for marking before the course expires.



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