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PHO Rounds: A Key Aspect of an Overall Oral Health Strategy: Fluoride Varnish in Primary Care

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Outline

• Why did we pursue this?
• Niagara region pilot
• Niagara region current state
• Proposed next steps, Niagara and beyond
• Summary
WHY?

• Dental caries are the number one chronic infectious disease in children 5 to 17 years of age (CMOH, 2012)

• Caries rates are increasing among children two to four years of age (CPS, 2013)

• Dental caries are the leading cause of day surgery among children one to five years of age (CIHI, 2013)

• Dental visits cause 2.26 million missed school days
Caries Rates in Preschoolers

NOT GETTING BETTER

SO VERY FRUSTRATING
Toothbrushing is non-negotiable
“This is a social disease, not simply a disease of behaviour,” Carlos Quinonez, Director of Dental Public Health, University of Toronto

Lack of Water fluoridation
Lack of Access to care
Frequent sugars in diet
Child, family, & community influences
Improving Pediatric Oral Health – Multiple Barriers

• Dental home often not established until age three

• Limited training in oral health for primary care

• Oral health may not be a priority for patients, parents or providers
Fluoride Varnish in Primary Care: Key part of systems approach

- Primary care see children eight times or more, before age five
  - Multiple opportunities to provide fluoride varnish
- Power of influence in primary care
- Dental home bridge
- No similar systematic programs in Canada
- FV is on the Rourke
Fluoride varnish (FV) in primary care, what??!!
SIGN (Scotland)

• March 2014- SIGN (Scotland) released their clinical guidelines for fluoride varnish use to prevent dental caries in children
  
  – “A” recommendation: “Fluoride varnish should be applied at least twice yearly in all children”
Meta-analysis showed that fluoride varnish:

- Had a DMFS prevented fraction of 43% (95% CI 30% to 57%) on permanent teeth
- Had a DMFS prevented fraction of 37% (95% CI 24% to 51%) on primary teeth
May 2014- U.S. Preventive Services Task Force released their final recommendation statement on dental caries prevention from birth to 5 years

- “B” recommendation: “The USPSTF recommends that primary care clinicians apply fluoride varnish to the primary teeth of all infants and children starting at the age of primary tooth eruption”
Further studies

- Fluoride varnish studies in Canada, Australia and the U.S. have shown decreases in DFMS by an average of 1.0-2.4 affected tooth surfaces
  - The same studies also showed a decreased risk of dental caries after 2 years
RISK FACTORS

• Known risk factors for dental caries include:
  – Lack of fluoridated water
  – Minority and economically disadvantaged children
  – Regular sugar exposure
  – Inappropriate bottle feeding
  – Frequent snacking
  – Family members who have caries
  – Lack of oral hygiene knowledge
The Evidence

• Universal versus high-risk approach

• The literature focuses on high-risk populations; however, no validated risk screening tool exists to screen for “high-risk” individuals

• Studies show benefit whether water is fluoridated or not; children are high risk or not

• Very few children are truly low risk

• The risk for adverse effects from fluoride varnish is extremely low
WHAT exactly, did we pursue?

- What are caries?
- What is fluoride varnish?
- What was the pilot?
- What’s happening now?
White Spots

Appearance & Symptoms
- White spots and lines are the first clinical signs of demineralized enamel
- Typically begins at the gingival margin
- If the disease process is not managed, lesions will progress to cavities that are initially yellow

Treatment
- Immediate dental referral
- Dietary and oral hygiene counseling
- Topical fluoride varnish to reverse or arrest lesions

Photos: Joanna Douglass, BDS, DDS
Brown Cavitations

Appearance & Symptoms
- Brown cavitations represent areas where loss of enamel has exposed underlying dentin
- Lesions darken as they become stained with pigments from food

Treatment
- Immediate dental referral
- Lesions are small enough that techniques not requiring local anesthesia or handpieces (drills) can be used to stabilize their progression.
- Dietary and oral hygiene counseling
- Topical fluoride to arrest lesions not requiring restorations

Photos: Joanna Douglass, BDS, DDS

Smiles for Life
A national oral health curriculum
Etiology: The Triad

What causes dental caries?

• Caries is a multi-step process that results in destruction of the tooth structure.
• Oral bacteria (mutans streptococci) metabolize the sugars from dietary carbohydrates into acid
• The acid demineralizes the tooth enamel
• If the cycle of acid production and demineralization continues, the enamel will become weakened and break down into a cavity
Caries Progression

- Cavity-free smile
- Cavities
- White spots
- Cavities with abscess
Fluoride Varnish

• Topical fluoride product
• Safe and effective
• Inexpensive
• Quickly and easily applied
• NOT a controlled act
• Children can eat and drink shortly after application
• Strengthens enamel and prevents initiation of disease
• Can reverse early decay (white spots) and slow enamel destruction in active early childhood caries
Contraindications

- **Colophony (rosin) Allergy** — Colophony (rosin) is derived from the sap of pine trees. It is a solid residue of distillation of turpentine and its major chemical constituent is abietic acid. Rosin is commonly used in adhesives (especially some adhesive bandages), plasticizers, fabrics, asphalt/cements, chewing gum, leather cleaners, photo paper coating, mascaras, and newsprint. Reaction to varnish is very rare, and there have been three reported reactions (ever).

- **Active open sores in the mouth** (to avoid irritation)

Enamel Pro fluoride varnish: NO Gluten, nuts, dyes, egg, dairy including soy or milk, barley, wheat, oats, sulfites, aspartame, sorbitol, phosphoric acid, phthalates
Application

• Apply varnish to teeth using the brush provided

• Ensure application to all surfaces of every tooth

• Saliva contamination after application is fine as varnish sets in contact with saliva

Note: You may choose to dry the teeth with gauze prior to application if you prefer
Niagara Pilot

• Recruitment of participating primary care setting was based on practice model and number of children seen

• The pilot was introduced through a lunch and learn session
  • Evidence around fluoride varnish application in primary care, current successful programs in the U.S., along with a brief overview of the pilot process.
  • Peer to peer model was well received (AMOH)

• Once participation was granted, all staff received additional education on dental caries (etiology, progression, consequences, etc.), key messages/anticipatory guidance and demonstration of fluoride varnish application
Supplies

• Premier Enamel Pro Varnish 5% Sodium fluoride varnish (0.25mL containers)

• Oral health Kits
  • Toothbrush, toothpaste, tooth eruption magnet, programs and services, FV after-care instructions

• Oral health fact sheets, posters, and key messages
Oral Health Key Messages

• Oral hygiene and fluoride toothpaste recommendations
• Bottle and sippy cup use
  – Limiting juice
  – When to transition to an open cup
• Diet and feeding
• Establishment of a dental home
Pilot Findings

• Between the two participating FHT sites in the pilot project there were 78 applications out of 135 offered
  – Of the 57 who did not received fluoride varnish, the reasons that parents declined were because their child had no teeth, they had already received a fluoride varnish application at their dentist or through PH

• 50% of children brushed their teeth twice per day

• 32% of children used toothpaste with fluoride when brushing their teeth

• 79% of children had not seen a dentist

• 74% of children had dental insurance
Pilot Findings

• Focus groups were conducted with the FHT staff
  – Integrating fluoride varnish into their existing primary care practice was relatively easy and seamless
  – Participation not only provided children under the age of five with free fluoride varnish, but it improved awareness around oral health and community dental services
  – Overall, adopting and implementing fluoride varnish into their primary care practice was feasible and despite the conclusion of the pilot project, the FHT has agreed to continue to apply fluoride varnish
Current state: Participating Sites

- Participating:
  - 6 FHT sites
  - 2 Solo Practitioners
  - 1 CHC
  - 2 Paediatric Practices

- Interested:
  - 2 FHT sites
Additional benefits

• Very positive engagement with primary care offices
• Increased knowledge of public health services
• Breaking down barriers between professions
• Cross-training of Niagara College RDH students to increase comfort working with children and increase exposure to community health approaches
• RDH students trained McMaster medical students to apply varnish
Next Steps

- Canadianizing *Smiles for Life* Curriculum

- Standardizing fluoride recommendations
  - Representation from the CPS, CFPC, discussions with HC and CDA
Next steps, suggested

• OPHS (if Ontario adopts this first within Canada)
• Health care systematization
• Continued PH/primary care rollout
  – Numerous approaches to staffing
  – Excellent role for PHUs
Summary: Current State

1. Niagara:
   1. Train the trainer,
   2. Maintenance and support,
   3. Data and accountability

2. Ontario/Canada:
   1. Experience of Niagara and other health units for potential systematization into PH (HSO II?)
   2. Smiles for Life Canadianization
   3. Would require systematization into health care system
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Thank you for your time

Questions?

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