F3 (Practice Innovation) Open Wide: Broadening the NP Role

Purpose: The learning outcomes of this poster are to increase the knowledge base of NPs by discussing the scope of early childhood caries (ECC) and evidence-based practice changes to improve oral health in children, including education of the primary care nurse practitioner on the application of fluoride varnish.

Problem: Early childhood caries (ECC) is defined as “one or more decayed (non-cavitated or cavitated lesions), missing (due to caries) or filled tooth surfaces” in any primary tooth in a child under the age of six years (American Academy of Pediatric Dentistry, 2014). According to the National Health and Nutrition Examination Survey (NHANES) data from 1988-1994 and 1999-2004 showed the prevalence of dental caries among children ages 2-5 years to be increasing from 24% to 28%, making it the most common chronic disease in childhood, five times more common than asthma. Additionally, 72% of tooth surfaces in children ages 2-5 years with caries were untreated. The Centers for Disease Control and Prevention (CDC) made a goal in the Healthy People 2010 initiative setting the prevalence threshold of ECC at 11% of children ages 2-5 years as a health determinant. Unfortunately, this goal was not met. When the data was examined, it was revealed that there was a 33% increase of caries in this population. In 2014, the US Preventive Services Task Force (USPSTF) published simplified recommendations on risk factor identification, systemic fluoride supplementation, and fluoride varnish application to the primary teeth of all children 5 years and younger beginning at eruption of the first primary tooth. These preventive strategies call for primary care providers to incorporate oral health services into the well-child visit. The American Academy of Pediatrics (AAP), found that approximately 90% of infants and 1-year-olds have seen a primary care clinician yet less than 2% have seen a dentist. This clearly positions the NP as an obvious resource for recommended services. It is estimated that only 4% of primary care practices perform fluoride varnish application, citing training deficits as a major barrier.

Description: Through a textual and pictorial display, NPs will learn epidemiology of ECC and the feasibility of incorporating oral health preventive recommendations into primary care. These strategies will include oral health screening, fluoride varnish application and caregiver education.

Question: How will your practice change to align with current guidelines for the implementation of oral health care services in the primary care setting?

Kathleen Kent, DNP, RN, CPNP
Clinical Assistant Professor
Coordinator, Pediatric Nurse Practitioner Program
Indiana University School of Nursing
Indianapolis, Indiana

Carol Clark, DNP, RN, FNP-BC
Clinical Assistant Professor
Coordinator, Family Nurse Practitioner Program
Indiana University School of Nursing
Indianapolis, Indiana
The Problem of ECC

Early childhood caries (ECC) is one or more decayed (cavitated or non-cavitated lesions), missing (due to caries) or filled tooth surfaces in any primary tooth in a child under the age of six years. Primary care providers have been urged for years to include oral health in well-child visits because ECC is the most common chronic disease in children, affecting 28% of those under 5 years of age. Preventive care is effective in reducing ECC and nurse practitioners can provide these services. However, lack of oral health education is the main barrier to including oral health in well-child visits for 96% of primary care providers.

The process of ECC begins at the appearance of the first tooth. It can be prevented and possibly reversed.

1. Plaque adheres to the tooth.
2. *Streptococcus mutans*, transmitted from caregiver or sibling, colonizes the plaque.
3. Sugars from most foods including milk and juice are metabolized by the *S. mutans* resulting in acid production.
4. Acid demineralizes the tooth enamel causing white spot lesions and if not reversed at this point, cavitation will begin.
5. Fluoride remineralizes the enamel.

The Caries Evolution

This knee-to-knee position keeps the child secure during the fluoride varnish application. It also allows for easy inspection of the mouth. Have the child sit facing caregiver while provider sits in front of caregiver then recline child between both laps.

Risk Factor Education

<table>
<thead>
<tr>
<th>Risk Factors for Early Childhood Caries*</th>
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<tbody>
<tr>
<td>Poor socioeconomic status</td>
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<tr>
<td>African American &amp; Mexican American</td>
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<tr>
<td>Tooth enamel defects</td>
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<tr>
<td>No dentist or dental insurance</td>
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<tr>
<td>If/O caries in child, parent or sibling</td>
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<tr>
<td>Infrequent or inadequate oral hygiene</td>
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<tr>
<td>Use of non-fluoridated toothpaste</td>
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<tr>
<td>Poor dietary habits</td>
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<tr>
<td>Drinking water that is low in fluoride (&lt;0.7 mg/L)</td>
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<td>Dry mouth, often a side effect from medication</td>
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</tbody>
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Fluoride Varnish Application

**STEP 1**

Gather needed equipment:
- A few 2 inch gauze squares for drying tooth surfaces
- Examination gloves
- Fluoride varnish with applicator brush (unit dose is most convenient)
- Bright light source from overhead, penlight or otoscope
- Optional equipment: dental rolls and a dental mirror

**STEP 2**

Inspect mouth for evidence of ECC or other problems and document findings:
- Chalky white spot lesions, especially along the gum line
- Dark lesions on any tooth surface - cavitated or not
- Missing teeth from decay vs expected exfoliation
- Broken, filled or restored teeth
- If any findings, proceed to Steps 3/4 and refer to dentist

**STEP 3**

- Working a quadrant at a time, dry teeth with gauze and brush on varnish, covering all surfaces of the teeth
- Move from posterior to anterior to avoid wiping off varnish on adjacent teeth, alternating drying then brushing
- Repeat in all quadrants
- Varnish solidifies on teeth upon contact with saliva
- Resume brushing and flossing the next day

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For Further Information

Please contact kka/kent@iu.edu or cjclark2@iu.edu