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Pediatric Tooth Care and Fluoride Supplementation in Maine

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Fighting Tooth Decay with Fluoride

- Tooth decay is the most common chronic disease of childhood from ages 6-19.
- Public water fluoridation is safe, efficacious, and the most cost effective method to prevent tooth decay across all socioeconomic classes.
- Fluoridation was found to reduce childhood tooth decay by almost 30% in ages 3-12.
- \$4.6 billion – annual savings in dental costs in the United States due to fluoridated water.
- 1\$ invested in preventative water fluoridation can save up to 38\$ in future dental treatments.
- Even in communities of <5000 people, water fluoridation has been found to save up to \$19 in dental treatment costs for every 1\$ invested.

Fluoridated Water and Access to Dental Care in Maine

- While about 80% of Mainers on public water supply have access to adequately fluoridated water, only about 50% of the state's population is on public water, leaving 50% of the state on private water supplies such as wells.
- Only about 40% of Maine's population has optimally fluorinated drinking water in their homes that is regulated in community systems.
- Additionally, 40% of Maine's population lives in federally designated Dental Health Professional Shortage Areas, and not all dentists will see children less than 2 years old.
- It is therefore imperative that primary care doctors identify at risk children based on where they get their drinking water and whether or not they have regular access to a dentist.
- Parents must be educated about well water testing, how to care for their children's teeth at home, and when to initiate dental care for their children.

Community Perspective

- Parents were questioned regarding their knowledge of their own drinking water, their home dental care, and when they initiate dentist visits for their child during office Well Child Checks.
- No parent, whether on town or private well water, was able to definitively say whether or not their home drinking water was fluoridated.
- No parent that uses private well water said their water had been tested.
- When asked about toothpaste use when brushing their child's teeth, responses reflected mixed techniques and misinformation. Examples below include:
 - "We just brush with water because he's so little and we don't want him to eat it."
 - "I don't know, I just squirt some on the brush." (regarding how much toothpaste is used)
 - "We're waiting to go to the dentist until he's older so it'll be easier."
- Overall, parents were unaware of the fluoride status of their drinking water, did not know current guidelines on fluoride toothpaste use with their child, and tended to initiate dental visits for their child later than recommended, sometimes after a cavity had caused pain.

Intervention / Methods

- PowerPoint slides were created for the office waiting room slide show to educate parents about pediatric dental care.
- The goal of the slides is to help parents reduce the likelihood of their child getting dental caries at a young age by addressing risk factors and properly caring for their child's dental hygiene.
- The slides present the current recommendations regarding pediatric tooth care and fluoride toothpaste, visually show proper toothpaste application, suggest early dental visits, and stress the importance of getting home drinking water sources tested for fluoride levels.
- The information is presented in a simple and clear fashion in hopes that the most parents will be able to understand the guidelines and act on them.

Current Recommendations for Pediatric Fluoride Use, Dentist Visits, and Home Water Testing

- All children with teeth should brush with fluoride toothpaste

According to the American Academy of Pediatrics (AAP) and the American Dental Association (ADA).

- Children less than 3 years old should use only a “smear” of fluoride toothpaste. This amount is a very thin layer that should cover no more than half the bristles of a child sized toothbrush (pictured below).
- Children older than 3 can use a “pea-sized” amount of fluoride toothpaste.
- All homes on private water supplies such as wells should have their water tested for fluoride levels and share that information with their doctor.
- Children who do not have fluoridated drinking water should receive dietary fluoride supplements beginning at 6 months of age.
- While there is a risk of fluorosis with fluoride toothpaste and young children, this risk is minimized by using only small amounts of toothpaste and monitoring children to ensure they do not swallow toothpaste during or after brushing.
- Visits to the dentist should begin at 1 year of age, or when a child’s first teeth begin to appear.



Figure. Comparison of a smear (left) with a pea-sized (right) amount of toothpaste.

Response and Results

- Results will come from dialog between parents and their child's doctor after reading the slide show at the office and discussing the meaning for their child. The recommendations can be clarified during the visit and parents will leave knowing how best to manage their child's teeth.
- Staff has expressed that dental health is an ongoing problem and hope that clear information for parents can help increase at home preventative dental care, thus reducing childhood caries and costly long term management.

Effectiveness and Limitations

- The effectiveness of this project will be measured by the change in home dental care and in dental caries reported in office pediatric patients.
- When parents see this information before their child's check up, it will be up to the doctor to answer all their questions and provide the most up to date information based on the specific risk factors of that patient.
- One common problem is the cost of health and dental care, and parents being able to get their child to appointments. This project does not address access to health care, which is a major concern considering the size and rural nature of Maine and the many medically underserved areas of the state.
- The extra cost to parents of getting their well tested for fluoride can be significant and prohibitive for many.
- This project also relies on parents to start the dialog with their child's doctor after reading the slides and does not provide any specific training on home dental care techniques.

Future project recommendations

- Create a questionnaire for parents to fill out prior to each Well Child Check starting at 1 year to review with their doctor. This questionnaire could explore in depth how parents treat their child's teeth regarding brushing, dentist visits, and fluoride exposure and identify specific risk factors that could be immediately addressed during the visit.
- Modify the Centricity (office EMR) Well Child Check tool to include questions about how parents brush their child's teeth and whether or not they use fluoride toothpaste.
- Create information printouts, similar to diet recommendations for patients with hypertension, that are automatically provided for pediatric patients identified as having home drinking water from a well. This printout could include specific details on how to get the well tested for fluoride and other metals.

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