

Successful Strategies for Keeping Kids Cavity-Free

Overview

The financial and human costs associated with children's dental disease are severe and can last a lifetime. Tooth decay, and the resultant pain and suffering, is the most common chronic childhood disease, yet it is preventable. Dental disease inhibits a child's ability to learn, grow and thrive, while also increasing Medicaid and other health care costs.

The most important interventions for a cavity-free childhood include community water fluoridation, topical fluoride treatments, dental sealants, and the reduction of behaviors that contribute to dental disease. Early oral health promotion is critical because the habits that result in dental disease are learned at a young age, and once dental disease occurs it tends to be chronic.¹

Oral health promotion and disease prevention are good health policy and good fiscal policy. The New York State Department of Health highlighted the importance of oral health in its 2013-2017 Prevention Agenda and identified the reduction of tooth decay in children as one of its goals.² According to Medicaid data, it is approximately ten times³ more expensive to provide inpatient dental care for decay-related conditions than to provide preventive care.

There are different types of dental disease that impact children and adults but cavities—the holes in the teeth caused by bacteria—are of special concern for children because they are almost entirely preventable. Keeping New York kids cavity-free through effective prevention is a smart public investment in their health and development today and for the future.

Evidence-Based Strategies Prevent Disease and are Cost-Effective

Use Primary Care to Improve Oral Health of Pre-School children

Primary care providers, such as pediatricians and family physicians, can reduce dental decay among low-income children by providing fluoride treatment, educating parents about oral health, and referring children to dentists. During the first three years of life, even healthy infants and toddlers are much more likely to see a



physician or other primary medical care providers than a dentist. Children's first teeth begin to break through the gums at about six months of age and are susceptible to decay as soon as they appear in the mouth. Infection from decayed primary teeth can damage the permanent teeth developing under them.⁴

The U.S. Preventive Services Task Force recently issued the recommendation that primary care clinicians apply fluoride varnish to the primary teeth of all infants and children, beginning as soon as the first teeth erupt.⁵ New York's Medicaid program reimburses medical providers for varnish programs. Studies show that this method is effective in reducing decay-related treatments and costs. The effectiveness of the varnish program for low-income children in a state depends upon physicians integrating it into their practices. North Carolina began a pilot program in 2000 and has steadily increased the reach of the program. A study evaluating the results of this program concluded that it had reduced tooth decay among vulnerable low-income children, which helped reduce oral health disparities among preschool-aged children in the state.⁶

Build Oral Health into the School Day

Schools can promote health and healthy lifestyles among pre-school and school age children by providing health education and enacting policies that guide choices toward healthy foods and beverages during and after school. Given the burden of tooth decay on school attendance and academic achievement, oral health should be included in education and policies.

School-based programs to change behavior have been shown to be effective in reducing the incidence of decay when combined with other strategies. New York can make oral health part of the school day by investing in programs that strive to influence behavior (such as healthy eating and proper brushing and flossing) combined with other strategies such as providing sealants or fluoride mouthrinse.

Dental Sealants: Added Protection Against Cavities

Dental sealants are clear plastic coatings that are applied to the chewing surfaces of permanent molars, the most cavity-prone teeth. On average, the cost of sealing one molar is less than one-third the cost of filling a cavity.⁷ Sealants have been recognized by both the American Dental Association (ADA) and the Centers for Disease Control and Prevention (CDC) as one of the best strategies to protect children who are at increased risk for developing cavities.⁸

Sealants are effective at preventing cavities over long periods of time. A single application of sealants has been shown to reduce cavities by 60% even four years later.⁹ There is consistent evidence from private insurers and Medicaid alike that the placement of sealants reduces the need for subsequent restorative treatments.¹⁰

In 2002-2004, New York State third graders were similar to third graders nationally with respect to the prevalence of dental sealants, with 27% of the third graders in New York State having dental sealants on one or more molars, compared to 26% nationally.¹¹ Within New York State, access to dental sealants is uneven; the most recent survey of third grade children in New York found the percentage of children receiving at least one sealant ranged from 14 to 74% depending upon the county in which they lived.¹² The last comprehensive U.S. survey (2009-2010)

revealed that only half of teens ages 13-15 had received even one sealant on permanent teeth.¹³

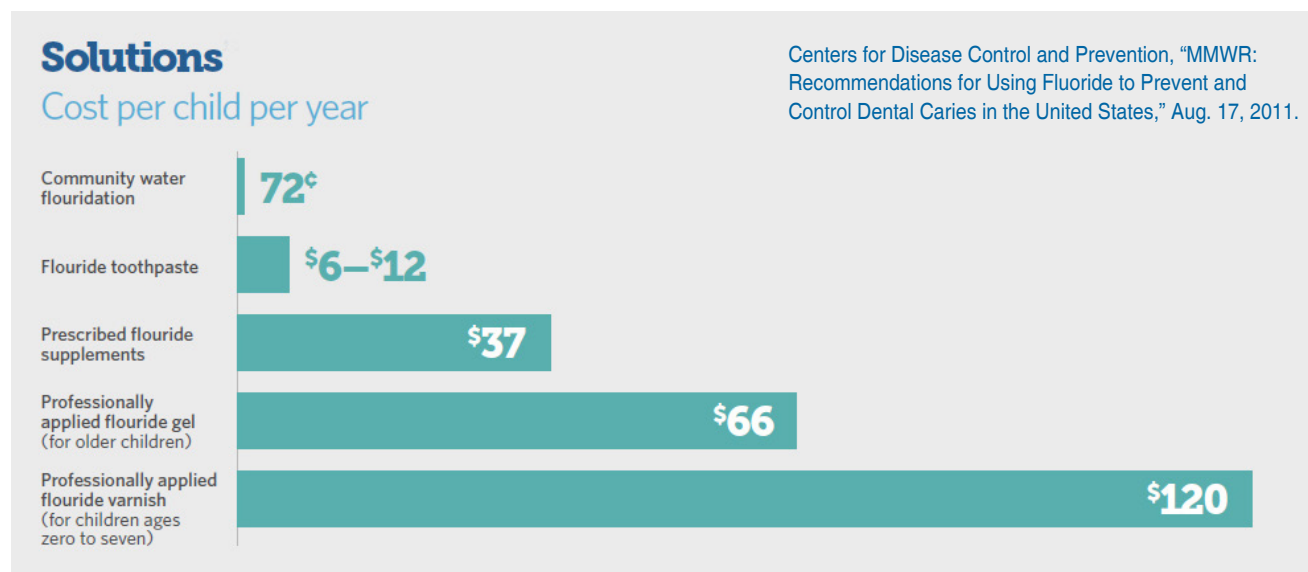
New York can improve access to sealants through school-based programs that provide sealants to children unlikely to receive them otherwise. School-based sealant programs are especially important for reaching children from low-income families who are less likely to receive private dental care, yet more than half of high-need schools in New York lack sealant programs.¹⁴

Fluoride Builds Stronger Teeth

Fluoride Toothpaste

Studies have shown that fluoride toothpaste reduces decay among children by 15 to 30%. This reduction is modest compared with the effect of community water fluoridation, but water fluoridation studies usually measure lifetime effects—rather than exposure for just a few years. Combined use of fluoride toothpaste and fluoridated water offers protection above either used alone.¹⁵

Recently, the American Dental Association’s Council on Scientific Affairs updated its recommendations on fluoride toothpaste use for young children. New York can enhance the appropriate use of fluoride toothpaste by educating parents, caregivers and clinicians about these recommendations. For children younger than 3 years, caregivers should begin brushing children’s teeth as soon as they begin to come into the mouth by using fluoride toothpaste in an amount no more than a smear or the size of a grain of rice. For children 3 to 6 years of age, caregivers should dispense no more than a pea-sized amount of fluoride toothpaste. Teeth should be brushed thoroughly twice per day, and children should be supervised to ensure they use the appropriate amount of toothpaste, and minimize how much paste they swallow.¹⁶



Professionally-applied Fluoride

In the United States, dentists and dental hygienists have been applying high-concentration fluoride compounds directly to patients' teeth for approximately 50 years. In studies conducted from 1970 to 2000, semi-annual treatments are shown to have reduced cavities by 25%, on average, in the permanent teeth of children residing in non-fluoridated areas.¹⁷

In recent years, fluoride varnish has become the preferred mode of administering high-concentration fluoride, especially for very young children. Fluoride varnishes have been in use in the U.S. for nearly two decades. Varnishes are helpful because they are low tech, inexpensive, and child-friendly. Fluoride varnish can be applied outside the dental office without special equipment, so the intervention can be incorporated into places where children are found such as pediatricians' offices and WIC programs. After the varnish is applied to teeth, children can return to normal activities.

Multiple applications of the varnish are necessary to reverse and arrest decay. The NYS Medicaid program allows for four applications of fluoride varnish per year, which has been estimated to reduce new tooth decay by about 30%.¹⁸ Fluoride varnish is estimated to cost up to \$120 per child, per year.¹⁹

Community Fluoridated Water

Fluoridation, or the practice of adjusting the level of naturally occurring fluoride in water to the optimal level to protect teeth, has been proven to prevent about 25% of decay throughout the lifespan.²⁰ Regardless of age, income or education, optimally fluoridated drinking water benefits everyone in a community by strengthening tooth enamel and even reversing early tooth decay. About 72% of New Yorkers on community water systems have access to this time-tested prevention practice.²¹ However, less than half of those outside New York City do,²² leaving millions of New Yorkers without the benefit of fluoridated water.

Community fluoridated water is the most cost effective method of reducing tooth decay in children or adults.²³ The per capita cost of water fluoridation over a person's lifetime is less than the cost of one dental filling.²⁴ A recent study modeling oral health promotion practices in New York found that raising the share of children outside of New York City who have access to fluoridated water from 49 to 87% would save the state Medicaid program \$27.7 million over 10 years by reducing the need for fillings and other dental treatment. This strategy would save \$6.13 for every dollar spent.²⁵

Conclusions

There are a variety approaches to help prevent tooth decay, benefit the health of New Yorkers, and save money for the state and individuals. The most cost-effective strategy is community water fluoridation, which safely protects the teeth of everyone who drinks it, including many children and adults who do not have access to other prevention programs.

Simply by drinking water, everyone can benefit from fluoridation's protection whether they are at work, home, or school. By reducing the need for fillings and tooth extractions, fluoridation saves money for families and taxpayers. In 2006, the Council of State Governments passed a



Expectant Mothers and Caregivers

Good oral health protects a woman's health and quality of life before and during pregnancy. Hormonal changes, changes in diet and oral hygiene, and nausea and vomiting during pregnancy can lead to an increased risk of disease for both teeth and gums.²⁶ New York was the first state to develop prenatal dental care standards for all women. Those standards include assessment of oral health at the first prenatal care visit, education about the importance of oral health, and appropriate referral to a dentist.

Dental disease can be passed between parent and child, so it is important for parents to maintain good oral health and make an effort to minimize the transmission of bacteria that cause tooth decay.

The New York State Dental Association encourages oral health professionals to suggest fluoride toothpaste along with fluoride rinses, depending on the fluoridation status of the water, for their pregnant patients.²⁷ Having mothers chew xylitol gum 3 times a day has been shown to reduce the transmission of decay-causing bacteria from mother to child during the first two years. Prices for xylitol products range from around \$1.50 for xylitol-sweetened gums to more than \$50 for xylitol sweetener.²⁸

This is the second in a series of Issue Briefs on the prevention of dental disease in New York. To see our other reports, visit: www.scaany.org

resolution encouraging state and local policy makers to “support and adopt community water fluoridation as an economical public health measure in preventing tooth decay—particularly among those at greatest risk.”

Other prevention strategies have shown to reduce cavities beyond the protections afforded by water fluoridation for children and adults who are at the highest risk of poor dental health. Increasing access to these programs, coupled with fluoridation, will continue the trend toward better teeth for all New Yorkers.

1. Expand community water fluoridation to protect the teeth of all New Yorkers.
2. Ensure all children have a regular source of preventive dental care.
3. Expand preventive dental services in schools so they can more easily reach the most vulnerable children.
4. Develop public health infrastructure for oral health that can provide technical assistance and education in schools, medical offices, and communities about oral health and develop programs at the state and local levels that prevent dental disease.

Endnotes

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