A Report of the Schuyler Center Oral Health Leadership Team

January 2015

The Power of Prevention

The Potential for a Generation of Cavity Free Kids

Schuyler Center for Analysis and Advocacy

Keep NY smiling

Acknowledgements

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The Power of Prevention

The Potential for a Generation of Cavity Free Kids

Preface

In a landmark report, *Improving Access to Oral Health Care for Vulnerable and Underserved Populations* (2011), the Institute of Medicine and the National Research Council called oral health, "one of those dimensions of our health care delivery system in which striking disparities exist." It has also been called a "hidden epidemic." Hidden because dental disease is not always apparent in a child until the pain becomes unendurable or until it manifests in an inability to eat, sleep or concentrate in school. It is also hidden by poverty. Most children won't experience severe dental disease. Instead, the effects are felt mostly by low-income children because it is caused by many of the same social and economic factors that drive other health disparities.

The good news is that dental disease is largely preventable. We know what causes it and we know how to prevent it. Preventing dental disease also aligns with New York's move toward the Triple Aim in health care: there are feasible, evidence-based interventions available that can improve outcomes, reduce the cost of care and improve the health of the population. Prevention is also relatively inexpensive when compared to interventions in other areas of health.

The Schuyler Center became involved in children's oral health years ago because it intersects with so many other issues we care about—poverty, school readiness and child health. The recommendations in this report were developed by a team of advisors we assembled with expertise in oral health prevention and children's health.

We deliberately focused on a limited number of state-level policies that can set the stage for community-based interventions to prevent dental disease in children. We believe that by providing communities the tools they need to implement evidence-based prevention, New York can change the conversation from acceptance of disease to an expectation that all children have healthy teeth and beautiful smiles. The science is there. The knowledge is available. It is possible for New York to become the first state to raise a generation of cavity-free kids.

Executive Summary

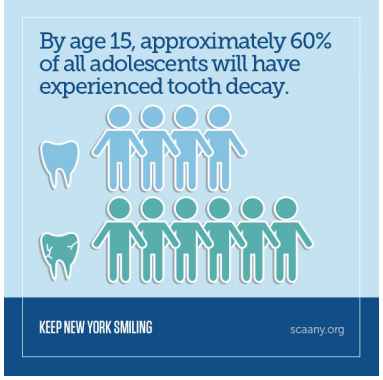
Keeping New York kids cavity-free through effective prevention is a smart public investment in their health and development today and for the future.

The financial and human costs associated with children's dental disease are severe and can last a lifetime. Tooth decay, with its resultant pain and suffering, is the most common chronic childhood disease, yet it is largely preventable.[1]

Oral health influences social interactions and employment opportunities. For example, adults who have decayed or missing teeth are less likely to get or keep a job.[2] Good teeth are viewed as important for social well-being and the economic potential of adults.[3] Since children with dental problems are prone to enter adulthood with dental problems, prevention of this disease is crucial; if it is not detected in the early stages, it can become irreversible.[4]

There are different types of dental disease, but cavities—the holes in the teeth caused by bacteria—are of special concern for infants, toddlers and children. Cavities are just as painful in children as they are in adults and without treatment, infection can spread from teeth to gums and result in tooth loss. Dental disease inhibits a child's ability to learn, grow and thrive, while also increasing Medicaid and other health care costs. Left untreated, tooth decay can result in significant health and social problems, including impaired physical growth, eating difficulties, altered speech, difficulties in concentration and learning, missed school days, lowered self-esteem, and reduced capacity to socialize.[5, 6]

The most effective ways to prevent cavities during childhood include community water fluoridation, tooth brushing with fluoride toothpaste, 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.[7] Having dental insurance makes preventive care and treatment more affordable for families and increases the likelihood that a child will be connected to a regular dental provider.

Dental disease in children is expensive. In 2009, total dental expenses for U.S. children aged 5-17 years were almost $20 billion, representing nearly 18% of all health care spending for this age group.[8] Treatment costs in an operating room for New York State children under 6 years of age who had extensive decay totaled $31 million in one year alone.[9] A 2010 study found that Medicaid-enrolled children in less fluoridated counties of New York needed 33% more fillings, root canals, and extractions than those in counties where fluoridated water was more prevalent.[10]

The good news is that prevention works and evidence-based strategies exist that are cost-effective, efficient, and easily provided to children and families. We know what works, so it is time to align New York's policies to promote prevention.

RECOMMENDATIONS:

Protect and Expand Community Water Fluoridation

The single most important step New York can take to prevent dental disease in children is to protect and expand community water fluoridation (CWF). The advantages are so significant that the Centers for Disease Control and Prevention (CDC) has named it one of ten great public health achievements of the 20th century. While it benefits all residents, research strongly suggests that water fluoridation is also the most effective and practical method of reducing economic disparity in dental disease.

The effectiveness and safety of CWF is supported by 60 years of research starting with two landmark studies in the 1950s. One study, conducted in New York, found that children aged 6–9 living in fluoridated Newburgh experienced almost 60% less dental disease than the children in non-fluoridated Kingston. A contemporaneous study in Grand Rapids, Michigan found a decrease of 60-65% in childhood dental disease. National and international research right up to 2014 continues to demonstrate safety and effectiveness of the practice. An extensive review of the scientific evidence by the New Zealand Prime Minister's Chief Science Advisor and the Royal Society of New Zealand in 2014 found "compelling evidence" that fluoridation at established and recommended levels produces broad and continuing benefits for dental health.

CWF is the most cost-effective method of reducing tooth decay. Overall, CWF saves $38 in treatment costs for every $1 spent. New York's Medicaid Redesign Team estimates that annual savings of $14 million could be obtained by expanding CWF. Such savings when applied to lifetime exposure of the whole population have large societal benefits.

Because New York has such a strong stake in the preservation of fluoridation, communities should be required to notify residents if they plan to stop fluoridating and present alternatives for how oral health will be protected. This provision would continue local control of water decisions, but improve transparency and accountability of decisions made by the owner of the water district that impact public health. The State should also establish a grant fund to make it easier for local water districts to start fluoridating or to upgrade fluoridation equipment.

Recommendation: *Amend Public Health Law 1100-a to require community notification and a public comment period before fluoridation can be stopped. The amendment should require a discussion of alternatives to prevent dental disease that articulates how the oral health of residents will be preserved in the absence of fluoridated water.*

Recommendation: *New York should develop a public-private partnership of $10 million to provide grants to water systems that need to upgrade or replace their fluoridation systems or to fund start-up costs for new fluoridation systems. The fund should receive at least $5 million in the 2015-2016 State Budget in start-up capital to leverage contributions from private sources.*

Provide Universal Access to Dental Insurance for Children

Having dental insurance, public or private, is a good predictor that a child will receive dental services. Coverage for treatment is important, but preventive dental services are critical to ensure that teeth stay healthy and small cavities are identified before they become big problems. Although all children covered by Medicaid and Child Health Plus (CHP) have dental coverage, many employer-sponsored health insurance plans either do not offer dental insurance or the offered coverage is cost-prohibitive. For these families, paying out-of-pocket for preventive dental care and treatment may be unaffordable. To close this coverage gap, New York should take advantage of the Child Health Insurance Program Reauthorization Act (CHIPRA) provision that allows states to offer CHP dental coverage to families with private medical insurance. Ensuring that all children have affordable dental insurance will bring New York closer to achieving true universal health coverage for children.

Recommendation: *To close the coverage gap, New York should enact the statutory and regulatory changes necessary to implement the CHIPRA supplemental-dental provision so no child forgoes preventive services or treatment because the family does not have dental insurance.*

Expand School Dental Services

School-based and school-linked dental programs provide children with additional protection against tooth decay. These programs primarily provide dental screenings and preventive services including fluoride rinses, fluoride supplements, fluoride varnish and dental sealants. School-based programs incorporate case management, education, and referral services to increase their overall reach and effectiveness. All these preventive services are covered by Medicaid, CHP and most private health insurance, but families often have a difficult time finding dental providers in their communities or getting to appointments during the school- or work-day. Putting the services where the children are accessible every day—in school—increases the likelihood that they will receive care.

Recommendation: *New York should invest $5 million in school-based and school-linked preventive dental programs to increase access to services and to reduce dental health disparities.*

Expand the Use of Community Health Workers

Community Health Workers (CHWs) can be an important part of a preventive dental care team for high-risk children by providing patient education, connecting services, case-management, referrals and follow-up. They also educate families about oral health, disease prevention and healthy behaviors through a range of community-based programs. Additionally, because CHWs are often drawn from the communities they serve, they may help to reduce the significant economic and racial disparities that exist in children's dental disease by working in concert with advocates, families and service providers at the community level.

Recommendation: *New York State should pursue the necessary federal requirements to reimburse community health workers under Medicaid. This opportunity could expand preventive and connecting services for children at high risk of dental disease and reduce dental health disparities.*

Poor oral health can last a lifetime; a child with dental disease is at higher risk of having cavities as an adult.

Dental Disease in Children Has Far-Reaching Consequences

Dental decay is a communicable disease. Once a child is born, cavity-causing bacteria can be spread from mother to child through many natural mother-child interactions. 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. Because infection from decayed primary teeth can damage the permanent teeth developing under them, prevention of dental disease during the early years is crucial.[11] Oral health is important beyond the gums and teeth; in severe cases, infection caused by tooth decay can spread to other parts of the body.[12]

Poor oral health can last a lifetime; a child with dental disease is at higher risk of having cavities as an adult.[13] But the consequences of dental disease begin to manifest far earlier, because the impact is felt on a child's educational readiness and quality of life. Each year in the United States, children miss 51 million hours of school as a

result of dental health issues.[14] Recent studies show that a child with poor dental health is three times more likely to miss class and more likely to have a lower grade-point average than healthy peers.[15] Untreated decay can also affect a child's body weight and overall development.[16]

Dental Disease is Prevalent and Disparities are Significant

Very young children from low-income families are more likely than their peers to develop early childhood caries (ECC), a particularly aggressive and often devastating form of tooth decay.[17] (Dental decay is scientifically known as caries). This disease can destroy emerging teeth and leads to problems in speech development and transitioning to solid foods. Treatment often requires children to be put under general anesthesia so that all decayed teeth can be treated or removed. These procedures are costly, painful and present risk to the child.[18]

Dental disease in children is common and the rate of untreated dental disease is disturbingly high.

- By age 15, approximately 60% of all adolescents will have experienced some form of tooth decay.[19]
- Nationally, almost one in four children aged 2-11 years have at least one primary tooth with untreated decay and about 20% of adolescents (12-19 years) have at least one permanent tooth with untreated decay.[20]
- A recent study found that an estimated 41% of children in Head Start programs had ECC and more than seven in ten children had untreated decay.[21]
- Data from the 2012 New York Oral Health Surveillance Project shows that one in four third-graders has untreated decay.[22]

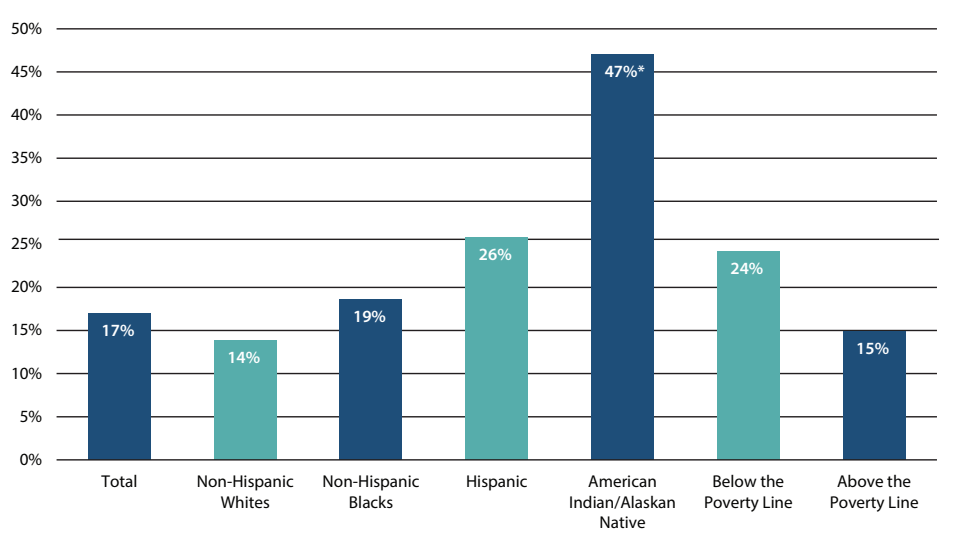
Disparities in dental health are persistent nationally and in New York State. People disproportionally impacted by dental disease include low-income adults and children, Native Americans, Latinos, and African Americans.[23] It is estimated that 80% of all dental disease occurs in 25% of children and affected children are primarily from minority and low-income families.[24] A 2007 study of the National Survey of Children's Health found that the highest level of self-reported fair or poor dental health among U.S. children was among Hispanic children (21.6%), followed by non-Hispanic black children (11.1%), and finally by non-Hispanic white children (5.8%).[25] Adults with fewer years of education and lower income, as well as minorities and younger adults, were also less likely to visit a dentist.[26]

Children from low-income families in New York are more likely to have untreated decay than their wealthier peers:

- 32% of low-income children had untreated decay compared to 15% of children in higher-income families.[27]
- In the last 10 years, the rate of tooth decay among higher-income third-grade children has decreased significantly compared to their lower-income peers.[28]
- As a result of dental problems, low-income children have almost 12 times the number of restricted activity days than children from higher-income households.[29]

Although preventive measures are effective, many children do not receive any dental care during a year. A national analysis of dental data showed that in 2009, fewer than half of children age 21 and younger received any dental care and only 14% received a preventive dental visit. Children who were non-Hispanic black or Hispanic

Chart 1. Percentage of Children Ages 6 to 9 With Untreated Disease

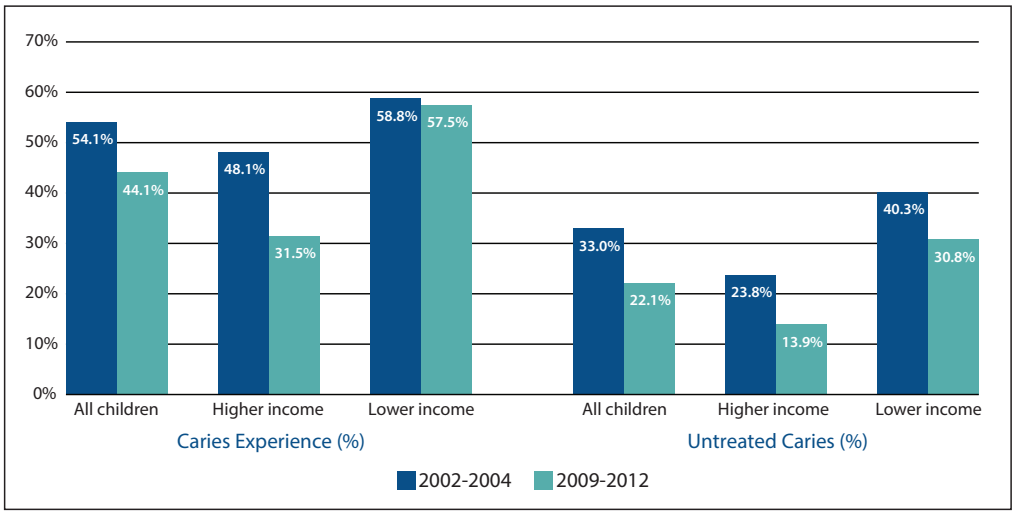


*Based on preliminary results of a federal government survey, this statistic is consistent with the findings of prior government research.

*American Dental Association. (2013). Action for Dental Health: Bringing Disease Prevention into Communities. P. 7

and lived in lower-income households without health insurance were less likely to use dental care or have a preventive dental visit.[30] Despite the fact that Medicaid provides coverage for all essential dental services, many children do not receive routine dental care. In 2012, 61% of New York children covered by Medicaid did not visit a dentist.[31]

Chart 2. Changes in the Prevalence of Dental Caries and Untreated Caries (percentage in third-grade children). New York State Oral Health Survelliance System, 2002-04 and 2009-12



Note: Lower-income children were those who reported participating in the free or reduced-cost school lunch program.
*New York State Department of Health. (2014). Oral Health Plan for New York State. P.22

Dental Disease is Costly and Painful

Dental disease in younger children (under age 6), particularly acute disease like ECC, can be difficult to treat and expensive. According to Medicaid data, it is approximately ten times more costly to provide dental care in an operating room for decay-related conditions than to provide preventive care.[32]

When decay goes unchecked, adults and children often end up in the emergency room with problems that could have been addressed earlier or prevented altogether. This results in higher costs and often, considerably more discomfort or pain.[33] Approximately 4,800 children under age six in New York State are treated annually in an ambulatory surgery facility for tooth decay. The average cost for such a visit is $6,293.[34] In one year alone, 75% of these children were treated using expensive general anesthesia procedures. The total spending on these visits was $31 million.[35]

Proven Prevention Strategies

Prevention of dental disease is the best medicine for the health of citizens as well as for taxpayers and public budgets. Unlike some other diseases, tooth decay is largely preventable. In fact, the New York State Department of Health (NYSDOH) has included a goal to reduce the prevalence of dental decay among children in its 2013-2017 Prevention Agenda.[36]

There are a number of evidence-based strategies that can prevent dental disease:

- Community water fluoridation is the most cost-effective method of reducing decay in children or adults.
- Regular tooth-brushing with fluoride toothpaste reduces cavities.
- Primary care providers, such as pediatricians and family physicians, can support prevention by providing fluoride treatments to low-income children, educating parents about oral health and referring children to a regular dental provider.
- The application of fluoride varnish by dental and primary care providers is effective in reducing cavities, particularly in low-income children.
- School-based and school-linked programs provide preventive services, education on oral health and encourage behavior change.

The good news is that prevention works and evidence-based strategies exist that are cost-effective, efficient, and easily provided to children and families. However, changes are needed to ensure that State policies are maximizing the benefits of prevention for children and the Medicaid budget. Keeping New York kids cavity-free through effective prevention is a smart public investment in their health and development today and for the future.

The good news is that prevention works and evidence-based strategies exist that are cost-effective, efficient, and easily provided to children and families.

Recommendations for Policy Change

PROTECT AND EXPAND COMMUNITY WATER FLUORIDATION

Protecting and expanding access to fluoridated water is an effective strategy to prevent dental disease. By simply drinking fluoridated tap water, New Yorkers of all ages benefit from fluoride's protection. The advantages of community water fluoridation (CWF) are so significant, that the CDC has named it one of ten great public health achievements of the 20th century.[37]

CWF is a significant public health strategy because the benefits are not tied to the actions of individuals; all social groups are likely to benefit in comparable ways. One of the advantages of water fluoridation over other interventions to reduce dental disease is that people do not need to participate in a program or engage in an activity to receive the benefit. Efforts aimed at populations, rather than individuals, decrease the likelihood of health disparities resulting from a difference in socio-economic status or resources. Drinking tap water is an inexpensive and easy way to improve dental and overall health.

While fluoridated water benefits all residents regardless of socio-economic status, research strongly suggests that water fluoridation is also the most effective and practical method of reducing economic disparity in dental disease.[38]

Fluoride is Natural

Fluoride is a mineral naturally present in soils and plants, the air and groundwater. CWF involves adjusting the level of naturally occurring fluoride to a level proven to prevent and reduce tooth decay. This adjustment in the fluoride level is similar to fortifying foods with vitamins and minerals, such as iodine in salt, Vitamin D in milk, calcium in orange juice, and folic acid in breads or cereals.

Fluoride helps make teeth stronger and more resistant to future decay: studies have shown that fluoridated water reduces tooth decay by about 25% over a person's lifetime.[39] For people of all ages, it works by being absorbed onto the surface of a tooth where the formation of tooth decay (demineralization) has occurred. Fluoride remineralizes tooth surfaces, reversing the effects of decay. While other topical applications of fluoride are beneficial, for example brushing with fluoridated toothpaste, drinking fluoridated water provides significant added protection because it comes in contact with the teeth more frequently.

Fluoride is Proven

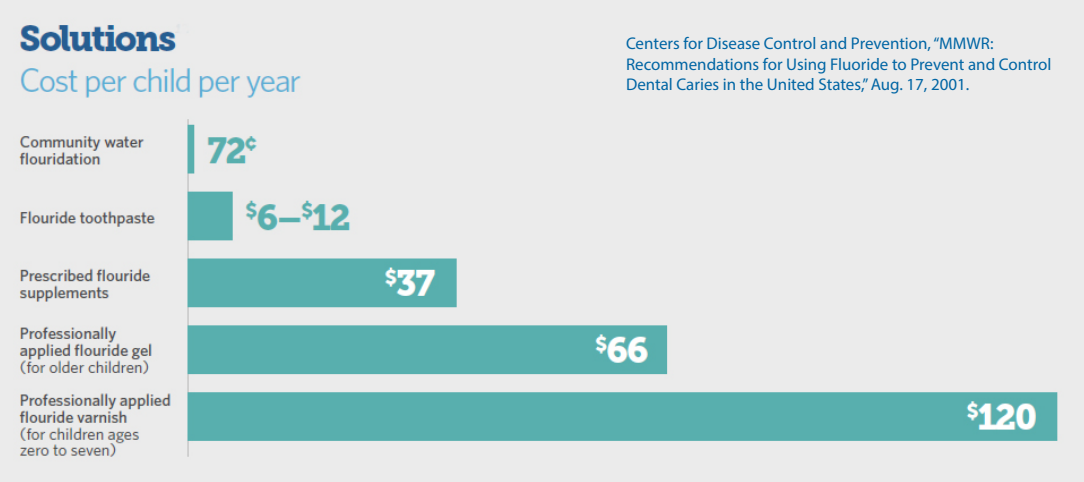
For over sixty years, CWF has been widely accepted as a safe and effective practice. Grand Rapids, Michigan was the first community in the United States to begin the practice of fluoridating in 1945.[40] In 1957, an 11-year study on the effects of water fluoridation in Grand Rapids found a decrease of 60-65% of dental caries in children born after the implementation of fluoridated water.[41]

New York State features prominently in the history of fluoridation. In 1956, the Newburgh-Kingston study compared dental health between two similar communities, the city of Newburgh (which began fluoridation in 1945), and the city of Kingston (which did not fluoridate its water). The ten year study analyzed the effect CWF had on children in these two communities. While the benefits of fluoridated water were seen through all age ranges, the greatest impact was found in children aged 6 to 9 living in Newburgh who experienced almost 60% less dental disease than the children in Kingston.[42]

In the intervening decades, numerous other studies have shown fluoridation to be effective at preventing tooth decay and research conducted in the United States and internationally has found the practice to be safe. In 1991, a special subcommittee of the U.S. Public Health Service examined research on fluoride. Its report identified fluoridated water's benefits and found no valid evidence linking fluoride to serious health conditions.[43] Researchers at the New York State Department of Health have published more than 40 scientific reports addressing the issues related to the benefits and risks of fluoridation. These reports have reinforced the safety and efficacy of the practice.

CWF is also supported by the *Task Force on Community Preventive Services* (Task Force), an independent group of public health experts. Their research found that dental caries in communities

which use CWF was substantially lower than those that did not fluoridate.[44] Citing the substantial evidence supporting CWF as a safe, proven, and effective measure against dental disease, the Task Force supports and recommends that communities fluoridate water.[45]



Recently, a review of the scientific evidence regarding the health effectiveness of water fluoridation was completed by the New Zealand Prime Minister's Chief Science Advisor and the Royal Society of New Zealand. The review, published in 2014 found, "compelling evidence that fluoridation of the water at the established and recommended levels produces broad and continuing benefits for dental health."[46]

Water fluoridation is endorsed by The American Academy of Pediatrics, the American Academy of Family Physicians, and many more medical and dental professional groups. Support for CWF is worldwide; more than 125 national and international health organizations have recognized the public health benefits of water fluoridation.[47]

Fluoridation Saves Money

CWF is the most cost effective method of reducing tooth decay. Overall, CWF saves $38 in treatment costs for every $1 spent.[48] The cost of fluoridation per capita over a person's lifetime is less than the cost of one dental filling.[49] While other preventive methods can help reduce decay, they are more costly than fluoridation and frequently do not reach the children most in need of protection.

A 2010 study revealed that low-income children residing in less fluoridated counties of New York needed 33% more fillings, root canals, and tooth extractions than those living in counties where optimally fluoridated water was available.[50] Another study on oral health promotion practices in New York found that raising the share of young 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.[51] Fluoridation saves money for families and taxpayers by reducing the need for fillings and tooth extractions.

The absence of fluoridated water results in more dental-related hospital visits and higher costs associated with dental disease. A 2014 British study of hospital admission rates from both fluoridated and non-fluoridated regions found that 19 of the 20 districts with the highest admission rates for dental disease-related tooth extractions were areas that did not fluoridate.[52] The study also emphasized the effect water fluoridation has on oral health disparities: hospital admission rates for tooth extractions were 27 times higher in the lowest-income district from the non-fluoridated region than its low-income counterpart located in a fluoridated region. When communities do not fluoridate their water, residents pay the price, physically and financially.

Fluoridated Water in New York

As beneficial as CWF is, there are large areas of New York State where the water systems are not adjusted to deliver the optimum fluoride level. Currently, only 13 New York State counties offer fluoridated water to 80% or more of their residents. In 27 counties, fewer than 20% of residents have access to fluoridated water.[53]

Currently 74.6% of the U.S. population on community water systems receives fluoridated water.[54] Healthy People 2020 aims to increase the rate to 79.6%.[55] As of 2012, New York ranked 29th for the percentage of people served by CWF with a rate of 71.8%.[56] However, if New York City is

Sixty Years of Fluoridation in New York State

Public Water System Name	Population Served	Fluoridation Start Date
NEW YORK CITY SYSTEM (including Mount Vernon, New Rochelle, Yonkers)	8,271,000	1965
MCWA (Rochester)	495,000	1964
ONONDAGA COUNTY WATER AUTHORITY (Syracuse)	278,000	1969
BUFFALO WATER AUTHORITY	276,000	1955
ERIE COUNTY WATER AUTHORITY (including Buffalo, Tonawanda)	228,869	1967
ROCHESTER CITY	214,000	1952
SYRACUSE CITY	192,000	1965
MOHAWK VALLEY WATER AUTHORITY (Utica)	130,000	1967
SCHENECTADY CITY WATER WORKS	61,821	1971
CITY OF BINGHAMTON	47,600	1964
NEWBURGH CITY	28,000	1945
OLEAN CITY	14,500	1951

Sample of cities and water systems and their fluoridation start date.
**Data provided by the New York State Department of Health*

excluded, less than half the State's population on community water systems (47.5%) has access to CWF.[57] Kentucky (99.9%), Minnesota (98.8%), and Illinois (98.5%) have the highest fluoridation rates, with Georgia (96.3%) and South Carolina (93.8%) not far behind.[58]

Ten public water systems in New York have fluoridated for over 60 years and 68 have fluoridated for over 40 years. These include Rochester (63 years), Syracuse (49 years), New York City (49 years), and Buffalo (47 years). However, in 2014 there are still 69 water systems in New York serving more than 10,000 residents each that do not fluoridate.[59]

There is no federal law governing whether communities fluoridate and state laws vary widely. Currently, 13 states have fluoridation mandates that apply to populations of a certain size, four states require a public vote to fluoridate, and five delegate the decision to a specific local government or water authority.[60] In New York, Section 1100-a of the Public Health Law provides the owner of the water supply with the legal authority to decide whether to fluoridate. This local decision impacts residents and has implications for state and federal Medicaid expenditures.

RECOMMENDATIONS:

Accountability and Transparency: Notification Before Halting Fluoridation

Because CWF has demonstrated significant health benefits for residents and savings in personal and public health care costs, residents should be informed if their water supply is at risk of losing fluoridation. A decision to halt water fluoridation eliminates residents' access to a cost-effective, proven preventive health benefit.

New York State should amend Public Health Law 1100-a to require that the owner of a water district notify residents and institute a reasonable public comment period when the operator is considering halting fluoridation. The operator should also be required to consult with health professionals and submit an acceptable plan to the NYSDOH outlining alternative methods for protecting the dental health of residents. Tennessee passed a similar law in 2012.[61] This change would improve transparency and accountability in local decision making. Communities would retain the authority to make decisions regarding their water supply, while the public would gain the opportunity to provide input on a local policy decision.

New York has a public health and fiscal stake in CWF since halting fluoridation without implementing proven alternatives could drive up Medicaid procedures and expenditures. The State has a responsibility to make sure that communities considering the discontinuation of water fluoridation notify residents and have a plan to maintain dental health and prevent unnecessary increases in Medicaid spending.

Recommendation: *Amend Public Health Law 1100-a to require community notification and a public comment period before fluoridation can be stopped. The amendment should also require a discussion of alternatives to prevent dental disease that articulates how the oral health of residents will be preserved in the absence of fluoridated water.*

Develop a Fund to Support Communities' Fluoridation Equipment Needs

The costs associated with CWF include capital for equipment as well as the cost of supplies and personnel. Once a fluoridation program is in place, ongoing costs are absorbed into the local budget. The most significant expense—and the biggest hurdle for local governments—is the capital cost of equipment.

The fluoridation infrastructure in New York is aging, with many systems dating back to the 1960s and 1970s when the federal government provided grants for fluoridation equipment. The life expectancy of a fluoridation system is around 30 years, so New York has a significant number of systems that may require replacement or upgrading in the near future. Existing systems also require new equipment from time to time to maintain operating efficiency and replace worn or damaged items.

Age of Fluoridation Systems in New York State

Fluoridation start date	Number of systems
1945-1970	61
1971-1990	49
1991-2013	12

The initial capital cost can stop communities from fluoridating even if they decide it would be a good investment in health. The exact cost of a new system requires an assessment by a professional engineer and it may vary from approximately $10,000 to $100,000 depending on the scale of the system.

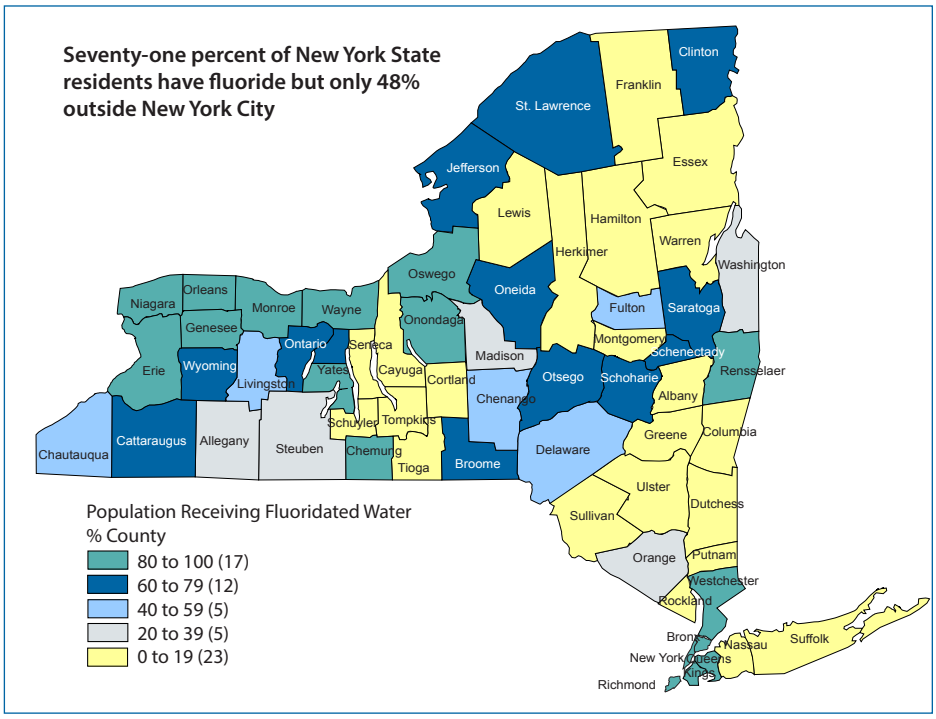
State and local health departments, professional associations, health foundations and oral health advocates have explored many options to finance fluoridation equipment projects. In 2012, New York proposed that Medicaid invest in fluoridation equipment as part of a waiver submitted to the federal government. The proposal was based on data showing that expanding fluoridation would improve health and save Medicaid funds. Specifically, the waiver identified fluoridation as a public health innovation to address rising rates of chronic illness, persistent health disparities and escalating health care costs.[62] Unfortunately, the federal government disapproved all capital costs contained in the waiver including those for fluoridation equipment.

The NYSDOH has also explored the Drinking Water State Revolving Fund and the use of federal block grants. These funds prioritize capital expenditures necessary to meet federal mandates. Since fluoridation is not mandated by federal or state law, capital expenditures associated with it are not considered a high enough priority under these funding mechanisms to receive support.

Several states including Minnesota, Michigan and South Carolina have grant programs supported with general funds to help communities with the cost of fluoridation equipment. California's public-private partnership fluoridation fund has increased the proportion of Californians benefiting from CWF by 135% in 12 years (from 25% in 2000 to 64% in 2012).[63] The Arkansas Department of Health has entered into a partnership with the Delta Dental Foundation to pay for equipment in communities required to fluoridate under a 2011 law. The fund is expected to cover $6 million in reasonable start-up costs.[64]

Creation of a New York Oral Health Fund financed through a combination of State and private money would ensure that existing fluoridation programs could replace aging equipment even during tough fiscal times. It would also provide an additional incentive for communities interested in starting a fluoridation program by removing what might be a significant fiscal barrier.

Recommendation: *New York should develop a public-private partnership fund of $10 million to provide grants to water systems that need to upgrade or replace their fluoridation systems or to fund start-up costs for new fluoridation systems. The fund should receive at least $5 million from the 2015-2016 State Budget in start-up capital to leverage donations from private sources.*



Dental Insurance Coverage: A Necessity for Good Health

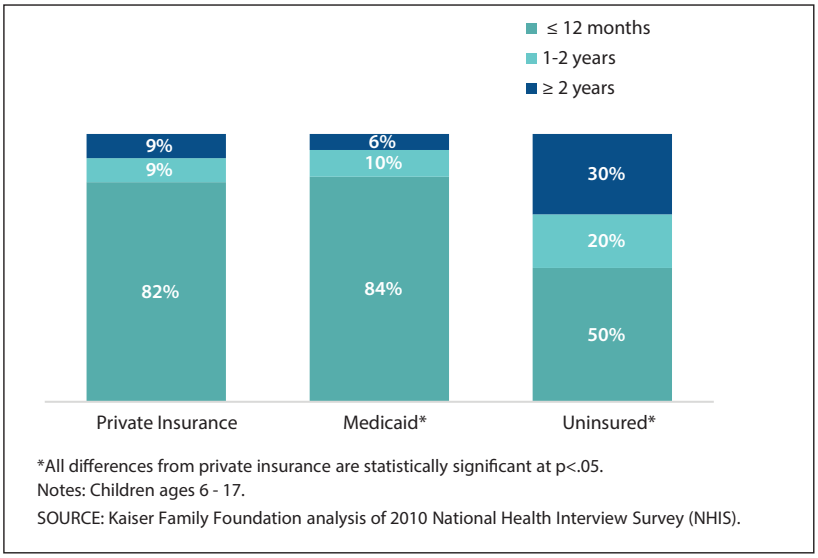
In the United States, medical insurance and dental insurance are often unrelated. Although oral health is extremely important to overall health, medical and dental benefits have historically been separated under employer sponsored insurance. There are different insurance carriers and different payment arrangements for dental coverage than for medical coverage. Dental insurance is offered less frequently to employees than medical insurance with smaller employers far less likely to offer or contribute to a separate dental plan.[65]

Coverage Improves Access to Care

Having dental insurance, either public or private, is a good predictor that a child will receive dental services.[66] Coverage for treatment is important, but preventive dental services are critical to ensure that teeth stay healthy and small cavities are identified before they become big problems. Preventive care can include screenings, cleanings, topical fluoride treatments such as varnish or rinses, dental sealants and dental hygiene education.

Uninsured children are less likely than children covered by either public or private insurance to receive routine dental checkups.[67] Only about 25% of uninsured children ages 2–17 receive routine dental care compared to over half (56.5%) of children with private insurance and 40.5% with public insurance.[68] A lack of dental insurance has been found to be a strong predictor of whether a child has unmet dental needs.[69]

Chart 3. Time since Last Dental Visit for Children ≤ 200% FPL, by Insurance 2010



Kaiser Commission on Medicaid and the Uninsured. (2012). *Children and Oral Health: Assessing Needs, Coverage and Access* (#7681-04). Washington, DC: Kaiser Family Foundation.

Children Are Less Likely to Have Dental Coverage Than Medical Coverage

As important as dental coverage is to receiving care, multiple studies estimate that between 20% and 30% of children do not have this benefit. In 2009 it was estimated that about one in four children nationally were uninsured for dental—twice the number who lacked health insurance.[70] A 2014 report by the CDC estimated that approximately one-fourth of U.S. children do not have dental insurance (private or public).[71] A Kaiser Foundation report puts the estimate of children under age 19 with medical insurance but not dental insurance at nearly 30%.[72] Parentally reported data indicates that about 22% of children lacked dental coverage.[73]

In New York, the 2009-2012 survey, *New York Oral Health Status in Third-Grade Children*, conducted by the NYSDOH, found that almost one in five families (20%) reported that their children did not have dental insurance.[74] This is in contrast to estimates that only 3.9% of children in New York do not have medical insurance.[75] Precise estimates of the number of children who have medical insurance but not dental coverage is difficult in New York because no agency collects that data. While data are collected regarding employer-sponsored health insurance enrollment, that number does not include information about separate dental benefits.

Disparities in Coverage

Inequities in dental insurance coverage and dental care are evident by race and family socioeconomic status. According to a report by the Kaiser Commission on Medicaid and the Uninsured, low-income children are more likely than higher-income children to have dental coverage because of Medicaid and the Children's Health Insurance Program (CHIP). This pattern is different than other disparity patterns in health care where higher income shows better benefits.[76] The same study found that among poor and near-poor children, white children were more likely to lack

dental coverage than both African American and Hispanic children.[77] In addition, rural children are less likely to have dental insurance than urban children.[78]

An analysis of national data by the Kaiser Foundation found that the share of children without dental insurance was 30% at incomes above 200% of the federal poverty level (FPL) and 12% among poor children.[79] A parent's place of employment can also make a difference in coverage. Small firms are far less likely to offer or contribute to separate dental benefits. Eighty-nine percent of large firms (over 200 employees) offer dental benefits compared to 53% of small firms (under 200 employees).[80]

Cost of Care

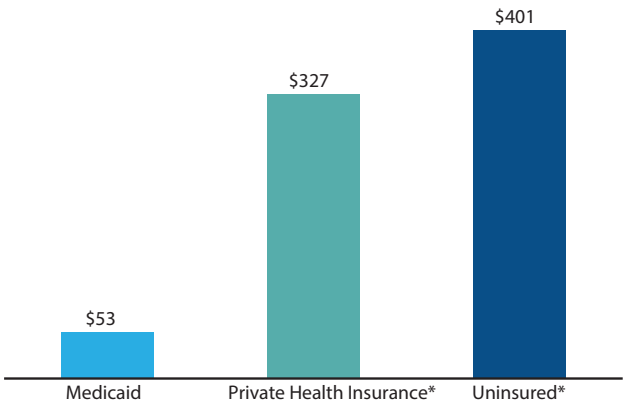
Out-of-pocket expenses for dental care can be steep. Families of children with private health insurance but no dental policy must pay directly for care, but even children with private dental coverage may encounter prohibitive deductibles, co-pays, and expenses not covered by the policy. Dental costs are approximately 20% of a child's total health expenditures and that number is growing.[81]

- In 2009, dental expenditures for children ages 5-17 accounted for $20 billion or 17.7% of all health care spending for this age group.[82]
- Families paid about 40% of those dental costs out-of-pocket while 17% of medical costs were out-of-pocket.[83]
- Children uninsured for dental had the highest out-of-pocket costs at over $400 per year.[84]

Children's Dental Coverage in New York

New York can be proud of its long history of recognizing the importance of dental care for children. The State's Medicaid program covers essential dental benefits for children as required under the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program and Child Health Plus (CHP) has covered dental care for children since 1999. Both programs use the preventive dental schedule of services contained in the American Academy of Pediatrics (AAP) *Bright Futures* recommendations. Benefits include preventive cleanings, fluoride varnish, sealants, examinations, x-rays, and a range of treatment services. Dental coverage for both programs is included as part of the package so parents do not have to select separate dental insurance. There are no co-pays or deductibles for dental services in either CHP or Medicaid.

Chart 4. Dental Out-of-Pocket Spending for Children, by Health Insurance Status, 2009



* Statistically different from Medicaid at p<.05

Note: Children under age 19.

SOURCE: Kaiser Family Foundation analysis of 2009 Medical Expenditure Panel Survey (MEPS)

Kaiser Commission on Medicaid and the Uninsured. (2012). *Children and Oral Health: Assessing Needs, Coverage and Access* (#7681-04). Washington, DC: Kaiser Family Foundation.

Children in families below 400% of the federal poverty level (FPL) are eligible for CHP if they do not have private health insurance and are not eligible for coverage under the public employees' state health benefits plan. Children in families with income over 400% FPL may enroll by paying the full premium.[85]

The Affordable Care Act (ACA) mandated that pediatric dental benefits be covered as part of the essential health benefits (EHB) for Qualified Health Plans (QHPs) and small business plans through New York's health insurance marketplace, *The New York State of Health*. New York selected the CHP dental package as the standard dental benefit for the EHB.

Health plans can choose to include (embed) dental in their package with deductibles and out-of-pocket maximums aggregated with all other benefits. However, health plans do not need to offer a dental benefit if a separate (standalone) dental plan is available in the county. If a family chooses a health plan without dental already included, it may—but is not required to—choose a standalone dental plan. Standalone dental plans have separate premiums, co-pays and deductibles.

Through April, 2014, the end of the first enrollment period for the *New York State of Health Marketplace*, just 16% of all enrollees were under age 18 and that age group made up only 3% of those enrolled in a QHP. New York's generous eligibility level for CHP means that a greater proportion of children are enrolled in that program compared to enrollment in other states.[86] The total enrollment in standalone dental plans during this period was 51,511. No breakdown is available to show how many were adults and how many were children.[87]

Although standalone dental benefits that meet the CHP standards are available on the *New York State of Health Marketplace*, families that already have health insurance through an employer are not able to apply for dental-only coverage. Interviews with Navigators enrolling families in the *New York State of Health Marketplace* report that they regularly receive calls from privately insured parents asking if they can buy dental coverage for their children. They regret having to turn them away (Schuyler Center for Analysis and Advocacy, personal communications, May-July 2014).

Closing the Coverage Gap: Achieving Universal Dental Coverage for All Children

Because of a provision in the 2009 federal Children's Health Insurance Program Reauthorization Act (CHIPRA), New York could allow any family under 400% of the federal poverty level to purchase a CHP dental product if their employer-sponsored health insurance does not cover dental or if the coverage is less than what is provided under CHP.

Under this CHIPRA provision, states can provide the benefit for any child meeting two conditions:

- The child is enrolled in employer-sponsored health insurance but does not have or has inadequate dental coverage.
- The child would otherwise qualify for CHP if they did not have employer-sponsored health insurance.

Essentially, this coverage would make an otherwise CHP-eligible child "whole" in terms of benefits that would be available to them under CHP but are not available through their private coverage.[88] A family with no dental insurance could purchase the benefit and a family with private dental insurance that was too expensive or did not offer many services could purchase the benefit to enhance their coverage.

The only state to act on this provision to date is Iowa. Started in 2010, the product employs the same sliding fee scale used for enrollees in Iowa's Child Health Insurance Program. The State Legislature approved the dental-only coverage program and the plan was approved by the Centers for Medicare and Medicaid Services (CMS).

Although the supplemental dental provision was included in the 2009 CHIPRA, there are no federal regulations in place and only several administrative letters to state child health programs to guide implementation. An interested state must be in compliance with other CMS regulations on dental benefits and not have a waiting list for enrollment. States are required to ensure that cost sharing for medical and dental care is less than 5% of the family income. To be approved, a state must complete a State Plan Amendment to their child health program.[89] The federal match for a dental-only plan is the same as the state receives for the general CHP program.

RECOMMENDATION

Currently, the only children in New York without access to affordable dental coverage are those with employer-sponsored health insurance that does not include dental coverage or if offered, dental coverage is unaffordable to the family. Tooth decay is preventable and treatable and affordable dental insurance can save a child the pain of disease when the family cannot afford to pay for services out of pocket. Ensuring all children have affordable dental coverage will bring New York closer to achieving true universal health coverage for children.

Recommendation: *New York should enact the statutory and regulatory changes necessary to implement the CHIPRA supplemental-dental provision to ensure that no child forgoes preventive services or treatment because they do not have dental insurance.*

Coverage for Fluoride Varnish Expands in 2015

A positive and unexpected national policy change occurred in May 2014, when the United States Preventive Services Task Force (USPSTF) issued a recommendation statement on Prevention of Dental Caries in Children From Birth Through Age Five Years. This statement recommends that primary care clinicians should apply fluoride varnish to the teeth of ALL infants and children, starting with the appearance of the first primary tooth, at least every 6 months through age 5. This recommendation was assigned a "B" grade, meaning that pediatric practices must offer or recommend this service. Preventive services given A or B recommendations by the USPSTF must be covered by new and individual insurance plans of all types and by Medicaid with no cost-sharing.

Starting in January 2015, private insurers will be required to reimburse for these services in the primary care setting and all pediatric primary care providers will be expected to provide these services. New York State Medicaid began reimbursing for oral health preventive services in the primary care setting in 2009 but only about 5% of pediatric practices provided the service.

This USPSTF recommendation represents a unique opportunity to impact the dental health of young children. Public and private health organizations can help train providers to conduct an assessment, provide fluoride varnish and educate parents about oral health. There should also be new efforts to create networks of dentists willing to accept referrals. A fluoride varnish program is more effective at preventing disease when coupled with parental education and ensuring that children have a regular source of dental care.

School-Based Preventive Services

School-based and school-linked programs are designed to provide dental services to children unlikely to receive them otherwise. They are especially important for reaching children from low-income families and provide an opportunity to gain entry into the health care delivery system. Community Preventive Services Task Force recommends including these programs as part of a comprehensive population-based strategy to prevent or control dental caries in communities.[90] The Centers for Disease Control and Prevention (CDC) also recommends school-based programs and community water fluoridation as two population-based approaches to control dental caries.[91]

These programs primarily provide dental screenings and preventive services including fluoride rinses, fluoride supplements, fluoride varnish and dental sealants. School-based programs can also incorporate case management, education, and referral services to increase their overall reach and effectiveness. All these preventive services are covered by Medicaid, CHP and most private health insurance, but families often have a difficult time finding dental providers or getting to appointments. Putting the services where the children are accessible every day—in school—increases the likelihood that they will receive care.

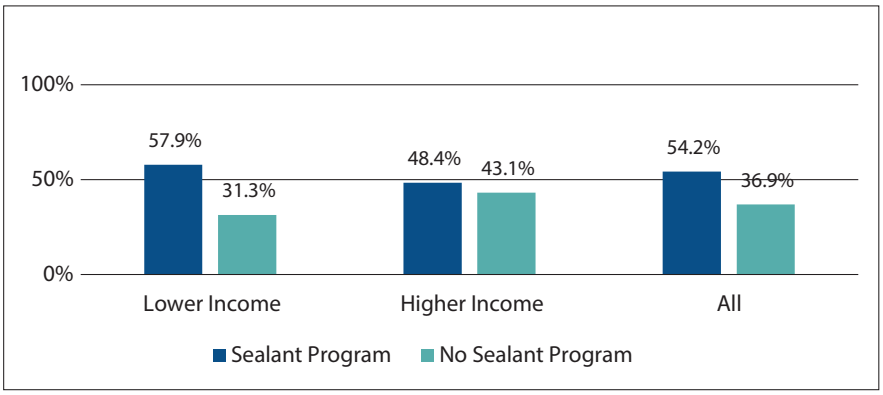
Services in New York

The New York State Department of Health defines school-based programs as those that provide services directly on school grounds and school-linked programs as those connected to the school but the services are provided at a backup facility. A few programs use mobile dental vans or portable equipment to provide treatment services. There are also school-based dental clinics operated on-site by Article 28 facilities (diagnostic and treatment centers or hospitals) that provide a full range of dental services from prevention to treatment.

School-based fluoride programs, such as weekly rinses, are offered in communities without community water fluoridation so children still receive some protective benefits. Dental sealants are clear plastic coatings which are applied to the surfaces of cavity-prone teeth.[92] Sealants can be administered either at schools or in dental clinics.

Sealants are an effective preventive measure; according to the Surgeon General's report on oral health, sealants can decrease tooth decay in children by over 70%.[93] Research shows that school-based dental programs increase the number of children receiving dental sealants and greatly reduce the number of decayed teeth in children between 5 and 16 years.[94] Sealants work

Chart 5. Students Are More Likely to Receive Sealants When There is a Progam in Their School



Weighted percent of third grade children with dental sealants by school-based sealant program and income status. New York State 2009-2012

in combination with other preventive measures to provide the best protection against dental disease.[95]

As of 2013, only half of high-need schools in New York State had a sealant program.[96] These schools are defined as those in which greater than 50% of the students enrolled are eligible for the free or reduced-price lunch or rural school districts having a median income at or below 235% of poverty level. Data show that access to a school-based program makes a difference in whether high-risk children receive this benefit. A study by the NYSDOH on third-grade students found that almost 58% of children who attended schools with sealant programs received sealants, while this percentage dropped to about 31% for students who did not have access to similar programs.[97]

Recognizing the importance of sealants, both the *New York State Prevention Agenda* and the *Oral Health Plan for New York State* include recommendations to increase dental sealants among NYS children by 10% by 2017.[98, 99] The Prevention Agenda also recommends that the State support continued viability and targeted expansion of a statewide network of school-based dental sealant and fluoride programs in high-need, underserved communities.[100]

Paying for Services

There are 56 approved providers that deliver preventive services to about 60,000 children in more than 1,000 schools in New York State. Those programs represent only one-third of the high-need schools that should have programs, based on percentages of children eligible for free or reduced-price lunch. The federally funded Maternal and Child Health Services Block Grant supports these programs; there is no direct State appropriation. Because Medicaid, CHP, and most private insurance cover preventive services, funding is used to build and support a program for about five years until it is sustainable through insurance reimbursement.

While the ability to bill insurers improves the likelihood of sustainability, programs report that up to 20% of the children they serve remain uninsured, so those costs cannot be recouped through insurance. Building a sustainable model involves maximizing the number of children who have dental insurance.

Many children with insurance through Medicaid, CHP or private sources are in some type of managed care plan and receive dental benefits through that plan. School-based dental programs are monitoring Medicaid's transition to managed care, as reimbursement may be different under those plans. School programs must work with managed care companies to ensure that reimbursement continues in order to preserve access to preventive services for students who otherwise have little access to dental care.

It has been estimated that an investment of $5 million over five years would expand school-based dental programs to reach an additional one-third of eligible schools and enable these cost-effective prevention programs to provide screening for 60,000 more high-need students and sealants to 20,000 students.[101]

RECOMMENDATION

School-based programs in high-need communities reduce disparities by providing preventive protection to children regardless of insurance status. They also can connect children directly with dental providers in their community. Since the services are already covered by most insurance, the investment in start-up funds for these programs yields better access to preventive care and less dental disease in children.

Recommendation: *New York should invest $5 million in school-based and school-linked preventive dental programs to increase access to services to reduce dental health disparities.*

School Dental Health Certificates

A New York State law passed in 2006 requires public schools (excluding New York City) to ask parents to submit a dental certificate when they submit a medical health certificate to school (Kindergarten and grades 2, 4, 7 and 10). The law does not mandate a dental health certificate, and students cannot be turned away from school for failure to submit a certificate.

A dental certificate involves an assessment of a child's teeth to see if dental disease is present. The intent is to alert families and schools if a child is suffering from untreated dental disease that could impact school readiness. The assessment can be done in a private dental office or school and can be completed by a dentist or a dental hygienist.

Even though dental certificates are not mandated, their use can remind families about the importance of regular dental check-ups. The assessments can also be opportunities to connect families to a regular source of dental care.

Use Community Health Workers to Support Prevention

Community Health Workers (CHWs) can be an important part of a team providing preventive dental care for high-risk children through patient education, connections to services, case management, referrals and follow-up.

Many CHWs come from the populations and the neighborhoods they serve. The shared background, culture, language, and experiences with community residents allows them to build trust and become advocates as well as providers. Studies have shown that CHWs improve health outcomes and help mitigate disparities.[102]

New York has a long history of supporting community health workers. The New York State Department of Health (NYSDOH) uses CHWs for maternal and child health services in counties with populations at high risk of poor birth outcomes. In these programs, CHWs provide outreach, education, referrals, follow-up, and consumer advocacy.[103]

As of 2010, there were approximately 11,000 CHWs in New York State.[104] Despite this large workforce, there is no standard scope of practice, set of core competencies, training or financing stream for CHWs.[105] The lack of standardization and inconsistent financial support make it difficult for CHWs to fully utilize their training.

A new way to finance the work of CHWs became available under regulatory changes associated with the Affordable Care Act (ACA). In 2013, the Centers for Medicare and Medicaid Services (CMS) amended regulations defining preventive health care services in Medicaid. Under this provision, states can expand access to primary care services by reimbursing providers who perform preventive services recommended by a physician or other licensed health professional. States interested in this provision must submit a Medicaid State Plan Amendment (SPA). This rule change took effect January 1, 2014.[106]

The Social Determinants of Health Work Group of the New York State Medicaid Redesign Team (MRT) submitted their final report in November 2014 that included recommendations for expanding the role of CHWs as a way to remove barriers to care and improve the underlying social conditions for the Medicaid population. The Work Group recommended that New York allow Medicaid reimbursement for CHWs employed in clinical and non-clinical community-based settings as authorized by the CMS rule.[107]

Recommendation: *New York State should pursue the necessary federal requirements to reimburse community health workers under Medicaid. This opportunity could expand preventive and connecting services for children at high-risk of dental disease and reduce dental health disparities.*

Conclusion

The data presented above clearly show that preventing dental disease in children is possible and it can be done at relatively little expense. Prevention saves children pain and suffering and can mitigate health disparities. Prevention saves money for individuals and communities. A future with less dental disease means less need to pay for expensive treatment services.

Implementing the recommendations in this report will give communities better tools to prevent dental disease and strengthen community health.

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