

# Oral Health

for New York State

# Plan





# A Message

Dear Colleague:

Last year, the New York State Department of Health released a five-year plan to improve the health and quality of life for everyone who lives in New York State – the Prevention Agenda 2013-2017. The plan is a blueprint for local community action to improve health and address health disparities, and is the result of a collaboration with 140 organizations, including hospitals, local health departments, health care providers, health plans, employers and schools that identified key priorities. Oral health, an important component of overall health, features prominently in this plan. I am pleased to present a plan specific to improving the oral health of all New Yorkers: Oral Health Plan for New York State. The 2014 Plan builds upon the progress made and lessons learned in implementing previous oral health efforts, and fits within the broader goal of improving overall health.

The updated Oral Health Plan was developed by the New York State Department of Health in collaboration with stakeholders from across the state. Goals, objectives and strategies have been identified, covering a broad spectrum of issues. Emphasis has been placed on achieving optimal oral health for all, targeting at-risk populations and maximizing the use of evidence-based interventions.

As we move forward with efforts to reduce preventable disease and improve the health care system, this plan emphasizes the importance of oral health. Oral disease has a huge economic and social cost, and can lead to complications and serious systemic conditions. Preventing dental caries and other oral diseases can reduce pain, suffering and health care expenses. Building on the efforts of the Prevention Agenda 2013-2017 and Healthy People 2020, this plan represents an opportunity to bring stakeholders together to improve the lives of all New Yorkers.

We thank everyone who has contributed to this important endeavor. As the Oral Health Plan 2014 moves forward, we invite all stakeholders and interested partners to actively participate in promoting the oral health of all New Yorkers.

Sincerely,

A handwritten signature in black ink that reads "Howard Zucker M.D." in a cursive style.

Howard Zucker, MD, J.D.

Acting Commissioner of Health



# Oral Health Plan

for New York State

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# I. Executive Summary



The improvement in oral health observed in New York State (NYS) during the latter half of the past century has continued in this decade through the actions of individuals, professionals, policy makers, state and local governments, educational institutions and health care organizations. The New York State Department of Health's (NYSDOH) efforts to promote oral health through community-based prevention interventions and programs are a testament to its commitment to the achievement of optimum oral health for all New Yorkers. However, much more can be done to improve oral health. Solutions will require collaboration among multiple stakeholders. New York State can play a leadership role and provide direction for future action.

These efforts are needed because oral diseases such as tooth decay and gum infections and orthodontic problems still affect a large proportion of the population. Among children, tooth decay is the most common chronic disease; it is five times more common than asthma, and 20 times more common than diabetes. In NYS, approximately 44 percent of children experience tooth decay by the third grade. Tooth decay and advanced gum diseases ultimately lead to loss of some or all teeth. About 41 percent of 35- to 44-year-old adults have lost one or more teeth due to tooth decay or gum diseases. About 17 percent of people 65 years of age and older have lost all of their teeth. Life-threatening cancers of the mouth and throat are detected in five New Yorkers every day.

Disparities in oral health observed in national surveys are also apparent in New York State. For example, among

people 65 years of age and older, the percentage of people who have lost all their teeth varied from 5.8 percent among those with college education to 36 percent among those with less than 12 years of education. Although most oral diseases are preventable, not all individuals and communities benefit fully from preventive measures. For example, the percentage of mouth and throat cancers detected in the early stages in 2011 varied from 22 percent among black males to 42.1 percent among white females.

While community water fluoridation has been found to be highly effective in controlling tooth decay, only about 72 percent of the population on public water supplies receives fluoridated water. Dental sealants, a protective coating applied on the chewing surfaces of teeth to prevent tooth decay, are present in approximately 40 percent of third-grade children in New York State, still short of the Maternal and Child Health Block Grant performance measure of 50 percent.

In recent years, new scientific reports have linked poor oral health to adverse general health outcomes. The role of treating chronic low-grade periodontal (gum) infections in reducing the risk for heart and lung diseases, stroke, low birth weight and premature births is being studied. A strong association between diabetes and periodontal infection has been observed. The effect of early childhood caries (tooth decay) on weight gain and failure to thrive has been reported. The impact of tooth loss on food choices is well documented. Behaviors that affect general health, such as tobacco use, excessive alcohol use and poor dietary choices, are also associated with poor oral health outcomes. The emergence of this connection between oral health and general health and common risk factors supports oral health care as an essential component of health programs and policies.

The federal Patient Protection and Affordable Care Act (ACA) extends health coverage, including dental benefits, to millions of children who now lack such coverage. The ACA specifically included pediatric oral health care among the 10 "essential health benefits" that all qualified health plans are required to cover for children beginning in 2014.

NYS has impressive resources and assets. With five academic institutions training dentists, 10 dental hygiene schools and more than 50 training programs in advanced education in dentistry, New York has much to offer in education, training and research. New York State has one of the best population-to-dentist ratios in the country. A provider network of health centers, hospitals and public health programs supports the dental health needs of vulnerable populations. New York's infrastructure is further strengthened by Medicaid and public insurance programs that ensure access to care for needy populations.

NYS must capitalize on the strengths of its infrastructure while enabling change and engaging new allies to better address the following challenges:

- Improving the public perception that oral health is important to overall health;
- Improving the utilization of effective preventive measures at the individual and community levels;
- Improving the diversity and flexibility of the dental workforce, with particular attention to the uneven distribution of dental professionals;
- Addressing the high cost of dental education and the debt burden for new graduates that limits their ability to practice in underserved areas;
- Improving the measurement and tracking of oral diseases, risk factors, the dental workforce and utilization of dental services.

For New Yorkers to enjoy overall health and well-being, there must be new vehicles to promote oral health and prevent disease. Public-private partnerships at the state and local levels that involve a variety of stakeholders have the potential to become these vehicles. It is, therefore, imperative to create an environment that develops, nurtures and sustains these partnerships.

With this in mind, the NYSDOH worked collaboratively with many partner organizations and individuals to update

the 2005 State Oral Health Plan for oral health promotion, disease prevention, and control. A steering committee of representatives of partner organizations guided the plan development. The plan includes specific objectives for future reductions in oral disease and related risk factors and objectives for the promotion of oral health. It recognizes earlier efforts to address children's oral health and workforce shortages in rural areas. Participants at the 2011 Oral Health Policy Workshop developed an inventory of strategies which informed the steering committee in its work to update the 2005 Oral Health Plan for New York State.

This plan's goals and objectives will serve as a blueprint for all involved in improving and achieving optimal oral health. All stakeholders can use this plan as a tool to enlist partners, attract funding sources and promote action. The scope of this plan is broad, covering a spectrum of issues and concerns regarding policy, prevention, access, workforce, surveillance and research. The following strategies have been identified as priorities:

1. Bring together stakeholders periodically and develop a statewide agenda for action related to:
  - a. Laws and regulations that affect the provision of dental services, and practice of dentistry and dental hygiene





- b. Financing of dental education, including scholarship and loan repayment programs
  - c. Effective approaches to address disparities in oral health, including changes to curricula in schools of dentistry and dental hygiene
  - d. Improving the flexibility of the dental workforce to address need, considering items identified by the Medicaid Redesign Team.
2. Explore opportunities to form regional partnerships by encouraging local health departments, preventive dentistry programs, rural health networks, providers, educational institutions, agencies focused on helping families, and other community coalitions to work together to identify prevention opportunities and address access to dental care in their communities as outlined in the New York State Prevention Agenda Toward the Healthiest State 2013-2017.

- 3. Strengthen the oral health surveillance system so that oral diseases and their risk factors can be periodically measured by key socio-demographic and geographic variables and tracked over time to monitor progress.
- 4. Encourage educational and training programs to update competencies and standards to enhance the treatment of children and people with special health care needs. Explore opportunities to educate the dental workforce in the care of patients with special health care needs.



## II. Overview of Oral Health

Tooth decay is the most common chronic childhood disease, with almost 80 percent of all children experiencing tooth decay by the time of high school graduation. In the United States, 18 percent of all children's health expenditures are devoted to dental care. Although most dental diseases are preventable, many children unnecessarily suffer the consequences of dental diseases because of inadequate home care, and inability to access preventive and treatment services in a timely manner.<sup>1-5</sup>

According to a recent report on children's dental health issued by the Pew Charitable Trust, three systemic factors contribute significantly to poor dental health and the lack of access to care among disadvantaged children: (1) too few children having access to proven prevention measures, including dental sealants and fluoridation; (2) too few dentists willing to treat Medicaid-enrolled children; and (3) a limited number of dentists in many communities available to provide care.<sup>6</sup>

Oral diseases in adults negatively impact their ability to eat healthy food, overall health and, ultimately, employability.<sup>1</sup> Several reports link low-grade chronic infection in the mouth (periodontal diseases) to systemic illnesses such as cardiovascular diseases, respiratory ailments and adverse pregnancy outcomes. People with diabetes are also at increased risk for periodontal infections.<sup>1</sup>

Many risk factors for oral diseases are known.<sup>1</sup> Early childhood caries are associated with frequent feeding in young children and the transmission of caries-causing bacteria from mothers to children through common practices such as tasting infant's food before feeding.<sup>7-9</sup> Lack of fluoride, frequent snacking and inadequate home care, such as lack of tooth brushing, increase the risk of dental caries in older children. Tobacco use is associated with periodontal disease and oral cancer in adults.<sup>10</sup>



There are clear socioeconomic disparities in the distribution of oral health problems. Children from low-income families have a higher prevalence of dental caries, higher frequency of untreated disease and lower utilization of preventive services.<sup>1, 3-5, 11-14</sup> These differences are observed in children as young as two to four years of age as well as in the elderly. The reasons for these disparities include lack of awareness of the importance of oral health, unfamiliarity with the dental health care delivery system, lack of providers willing to participate in publicly-financed programs and lack of resources to pay for care.<sup>1, 15-17</sup>

Although oral diseases can be controlled, lack of continuous insurance coverage is a problem for many children and adults.<sup>1, 3, 5</sup> Nationally, as many as one in four children lack dental insurance coverage. For every person without health insurance coverage, there are as many as three people without dental health insurance coverage.<sup>18</sup> Further, access to dental care providers is extremely limited for many children in rural and inner city areas.<sup>1, 4-5, 11, 13, 19-20</sup>

According to the 2010 Medical Expenditure Panel Survey, 35.8 percent of the civilian non-institutionalized population in NYS had dental care expenditures. The mean expenditure for dental care was \$528 in 2010, with about 48.1 percent of dental expenses paid by private insurance and 33.1 percent paid out of pocket.<sup>5</sup>

In 2011, there was an estimated total of \$1.33 trillion paid for health care received by the U.S. civilian non-institutionalized population. Dental expenses comprised a larger proportion of expenses for children under age 18 (18.1 percent) than adults aged 18-64 (6.1 percent) or age 65 and older (3.6 percent).<sup>21</sup>

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## Key Facts

- At least 75 million Americans (25 percent) have either limited or no access to oral health care.
- Almost 60 percent of children ages 5-17 have cavities.
- 26 percent of adults (ages 19-64) have untreated decay, and 5 percent of adults have no teeth.
- Those who are low-income or minorities are at higher risk for experiencing dental caries (cavities) and dental decay.
- Children and adults who receive regular dental care are more likely to have their decayed teeth diagnosed and treated.
- Water fluoridation is one of the most cost-effective measures of prevention; on average every \$1 invested in water fluoridation in large communities saves about \$38 per year in dental costs.

Source: Kaiser EDU, accessed 12/2012 at <http://www.kaiseredu.org/Issue-Modules/Dental-Care/Background-Brief.aspx>

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### III. Priority Areas of Opportunity for Improving Oral Health: Goals, Objectives and Strategies

**Goal 1: Integrate oral health into systems, policies and programs which improve overall health.**

#### Background

More than a decade ago, the U.S. Surgeon General identified the need to enhance the public's understanding of oral health and the relationship of the mouth to the rest of the body. While the surgeon general's report raised the awareness of the importance of oral health, it is still treated as separate and distinct from broader health care. A sizeable proportion of the population suffers from a disproportionate burden of preventable oral diseases such as dental caries, periodontal disease and oral cancer.

The U.S. Department of Health & Human Services Strategic Plan, Fiscal Years 2010-2015, proposes to promote policies to integrate oral health into primary care, including prevention and improved literacy. New York can take advantage of national policies to integrate oral health into general health and address risk factors such as poor oral hygiene, tobacco and alcohol use and dietary practices. Interdisciplinary efforts to improve health often identify improving oral health as a key barrier to achieving good overall health, and best-practice models for collaboration are emerging in areas such as prenatal care. NYS has begun to include oral health in statewide strategic health planning. In the Prevention Agenda, reducing tooth decay was identified as a priority area for improving the overall health of mothers, infants and children.

#### Issues

- A significant portion of the NYS population is not served adequately by the oral health care system. Many vulnerable and underserved populations utilize health care frequently, but do not seek routine oral health care.
- Oral health is not well integrated into all health programs. Opportunities for prevention are lost if risk factors such as tobacco and alcohol use, poor diet and other health habits, which are common to many illnesses including oral diseases are not addressed.
- Not all educational and training programs integrate oral health and general health programs optimally and provide specialized dental services.
- Barriers to care and treatment arise from fears and common misconceptions about oral health.
- Comprehensive, culturally-competent education campaigns and materials are not available to fulfill appropriate literacy level requirements for all populations in multiple languages.

#### Objectives

Objective 1.a: By 2017, ensure that oral health is included in all statewide comprehensive health planning activities as appropriate.

Objective 1.b: By 2017, establish an ongoing process of engaging statewide partners and stakeholders to assess opportunities for policy change, including changes in laws and regulations to promote the integration of oral health improvement into overall health improvement efforts.

Objective 1.c: By 2017, assess the ability of electronic medical and dental record systems to share key health information between providers, and implement policies to include oral health systems in New York's regional health information organizations.



Objective 1.d: By 2017, evaluate the implementation of dental coverage in New York State's health insurance exchange.

Objective 1.e: By 2017, increase referrals between oral health care providers and other health specialists as warranted by examinations and health history.

Objective 1.f: By 2017, expand the oral health component of existing surveillance systems to provide more comprehensive and timely data (See Goal 7).

Objective 1.g: By 2017, engage multidisciplinary stakeholders, such as health care providers, social workers, teachers, health educators and home health aides, in community outreach and oral health education efforts.

## Strategies

- Inform and educate policymakers and officials at local, state and federal levels about oral health needs, evidence-based interventions and successful programs.
- Engage partners and stakeholders to implement the Prevention Agenda.
- Leverage opportunities to integrate oral health into ongoing public health programs.
- Ensure oral health is included in all care coordination activities.
- Provide assistance to school-based health centers with the integration of oral health into comprehensive health services.
- Encourage professional organizations, educational institutions, key state agencies and other stakeholders to examine and make recommendations on:
  - Laws and regulations that affect the provision of dental services, and practice of dentistry and dental hygiene.
  - Financing of dental education, scholarship and loan repayment programs.
  - Effective approaches to address disparities in oral health, including changes to curricula in schools of dentistry and dental hygiene.
  - Strengthening the dental health workforce, including integrating dental hygiene education and training programs into undergraduate and graduate programs to advance the careers of dental hygienists, and changes in dental hygiene practice as recommended by the Medicaid Redesign Team.
- Identify and disseminate information regarding electronic health records models that have successfully integrated oral health.
- Monitor New York's health insurance exchange to ensure proper access to the pediatric dental benefit of the ACA, assuring comprehensive affordable health insurance coverage for all NYS children.
- Analyze the cost and benefits of essential dental health benefit package in New York's health exchange that includes oral health preventive and treatment services for adults.
- Facilitate initial and continuous enrollment of low-income children in Medicaid and Child Health Plus, including presumptive eligibility.

- Promote the integration of oral health care into the health homes initiative and other care coordination efforts. <http://www.hrsa.gov/publichealth/clinical/oralhealth/primarycare/oralhealthprimarycare.pdf>
- Work with professional groups to increase referrals among oral health care providers and other health professionals. Work with organizations of health care professionals to target physicians' offices for integrating oral health screening as part of routine physical examinations, and providing anticipatory guidance to families on proper oral health care.
- Assess the impact of efforts to improve interdisciplinary collaboration and include oral health as a part of overall health in the knowledge, skills, attitudes and behaviors of health care professionals.



## Goal 2: Prevent oral diseases and address risk factors through evidence-based interventions.

### Background

Many risk factors for oral diseases are well known: poor oral hygiene, lack of self-care, inappropriate infant and toddler feeding practices (such as frequent snacking and putting children to bed with bottles), lack of regular dental visits, and tobacco and alcohol use. Furthermore, interventions are available. Programs such as water fluoridation, fluoride supplementation, school-based or linked dental sealant programs, screening and referral, counseling with fluoride varnish application, and tobacco control have the potential to reduce the burden of oral diseases. However, both community and individual interventions are underutilized. While interventions such as risk assessment, fluoride varnish application, oral health counseling by non-dental providers, and tobacco cessation counseling are being promoted, their adoption is uneven.

### Issues

- Dental diseases are preventable for the most part. Evidence-based interventions, available both at community and individual levels, are not being utilized to the fullest extent.
- While the NYS Medicaid program covers risk assessment, fluoride varnish and anticipatory guidance for young children by physicians and nurse practitioners, many clients and providers are not aware of the benefit.
- Water fluoridation reaches only 48% of residents outside of New York City. The public and policymakers lack access to reliable information about the the benefits of water fluoridation.
- Barriers remain to promoting other fluoride and sealant programs.

## Objectives

Objective 2.a: By 2017, increase the percentage of NYS population receiving fluoridated water by 10 percent. (NYS Prevention Agenda Objective 5-4. Baseline 71.4 percent in 2012)

Objective 2.b: By 2017, increase the proportion of NYS children who have protective dental sealants by at least 10 percent (NYS Prevention Agenda Objective 5-2), and increase the proportion of third-grade children who have dental sealants to 50 percent by 2020. (Baseline: 2012 New York City 26.3 percent, 2011 Rest of State 42 percent.)

Objective 2.c: By 2017, reduce the proportion of third grade children with dental caries experience and untreated caries to no more than 41.5 percent and 21.6 percent respectively (NYS Prevention Agenda Objective 5-1), and further reduce by 2020 the proportion of third grade children with dental caries experience and untreated caries to no more than 40 percent and 20 percent respectively.

Objective 2.d: By 2017, increase the proportion of adults who receive information from a dentist or dental hygienist on reducing tobacco use or smoking cessation.

## Strategies

- Actively promote fluoridation in large communities (more than 10,000 people) and in counties with low fluoridation penetration rates. Educate the public about the benefits of fluoride by incorporating effective messages in health campaigns.
- Ensure the quality of the fluoridation program by monitoring fluoride levels in water, conducting periodic inspections and providing feedback to water plant operators. Continue the education program for water plant personnel.

- Seek guidance from the Centers for Medicare and Medicaid Services (CMS) on the allowability of Medicaid financing for community water fluoridation as a strategy to reduce oral disease burden while lowering aggregate Medicaid dental expenditures.
- Work with foundations to establish a funding stream for initiating and maintaining fluoridation.
- Work with stakeholders, including insurance providers, professional groups and policymakers, to implement guidelines for preventive oral health services and ensure that fluoride varnish, risk assessment and anticipatory guidance are available and reimbursable in all appropriate care settings.
- Strengthen public awareness campaigns by coordinating activities and funding, partnering with stakeholders, and securing foundation support.
- Seek federal or foundation funding to establish an evidence-based public education campaign to promote oral health, including a focus on early childhood caries, prevention, the oral health of pregnant women, and the oral health of at-risk populations.
- Collaborate with stakeholders to improve the dental health screening initiative in schools, Head Start Centers and other such settings.

- Promote dental sealants by providing sealant equipment and funding to selected providers in targeted areas where dental sealant utilization is low.
- Encourage Article 28 facilities to establish school-based dental programs in schools and Head Start Centers to promote preventive dental services in high-need areas.
- Provide technical assistance to every dental office and clinic in New York State to implement the U.S. Public Health Services' Guidelines for Treating Tobacco Use and Dependence.



## Goal 3: Eliminate oral health disparities and improve access to high quality, comprehensive, continuous oral health services for all New Yorkers.

### Background

Dental diseases and unmet need for dental care are more prevalent where people cannot pay for services or lack adequate insurance, have language and transportation barriers to care, and cannot find providers and services for complex oral and medical health conditions. While Medicaid, Child Health Plus and Family Health Plus insurance programs and public health clinics have expanded efforts to enroll eligible people, the unavailability of providers trained to handle complex oral health problems remains a problem in certain geographic areas. Compounding the problem is the inability of many patients to maintain dental appointments on a regular and frequent basis. In addition, dental offices and clinics often do not have extended hours of service to accommodate patients during evening hours and weekends, presenting a barrier for the working poor to see dentists.

### Issues

- Dental caries in low-income and minority children has a significant impact due to the difficulty in obtaining access, including a lack of providers to treat young children and the cost of care.
- Many women of childbearing age do not seek dental care in a timely manner, so opportunities for preventing dental problems in women and children are missed.
- Oral health programs in health centers and hospitals do not have the resources for outreach, education and services which enable access to care.

- The capacity of safety net clinics is not sufficient to meet the needs of the population.
- Dental insurance programs are not available for the elderly, and Medicare does not cover routine dental care.
- Access to dental care for vulnerable populations is limited, while their numbers continue to grow. Vulnerable populations include:
  - People with developmental disabling conditions, or physically challenged children and adults;
  - Those with low incomes, including children, the homeless and migrant workers;
  - Pregnant and parenting women who also need inter-conceptional care;
  - Children with special health care needs;
  - People living with HIV and AIDS;
  - Adults with severe mental illness, substance abuse or tobacco dependence;
  - The elderly, including those who are homebound and institutionalized; and
  - Children in need of medically necessary orthodontic care.

### Objectives

Objective 3.a: By 2017, increase the number of Article 28 facilities providing dental services across the state, and increase the number of high-risk elementary schools with school-based or school-linked sealant programs.

Objective 3.b: By 2020, increase the number of children and adolescents ages two to 20 years in Medicaid and Child Health Plus who have had at least one preventive dental visit within the past year to 65 percent from the 2010 baseline of 37.3 percent for Medicaid and 63 percent for Child Health Plus.

Objective 3.c: By 2020, increase the number of children who visit a dentist annually, meeting the Healthy People 2020 (HP 2020) goal of 49 percent for all population groups of children. [NYS Prevention Agenda objective 5-3: By 2017, increase the proportion of NYS children who receive regular dental care by at least 10 percent. (2010 Baseline: 42 percent of two to 20-year-olds with Medicaid, 72.4 percent of third-graders in New York City, 83.4 percent of third-graders in the rest of the state.)]

Objective 3.d: By 2020, increase the number of Medicaid-enrolled adults aged 22-64 who had at least one preventive dental visit within the past year to 32 percent from the 2010 level of 29.2 percent.

Objective 3.e: By 2020, increase the percentage of adult New Yorkers who have seen a dentist in the past year to 80 percent from the 2010 level of 72.5 percent.

Objective 3.f: By 2020, increase the number of women in the Medicaid program who visited dentists during their most recent pregnancies to 54.6 percent from the 2008 level of 49.6 percent.

Objective 3.g: By 2020, reduce the number of dental-related visits to ambulatory surgery facilities and emergency rooms by children younger than six years from the 2008 level of 4,800 to 2,400 per year by addressing tooth decay earlier and more effectively.

Objective 3.h: By 2020, increase the percentage of adults receiving an annual examination for oral and pharyngeal cancers to 50 percent from the 2003 level of approximately 30 percent.

## Strategies

- Promote structured, evidence-based learning collaborations to identify and address areas for improvement in clinical practice, including the management of early childhood caries, dental sealants, and improving the oral health of pregnant women.
- Evaluate network adequacy and utilization of dental services in public insurance programs such as Medicaid Managed Care and health insurance programs.
- Explore loan repayment incentives for dentists and hygienists linked to services reimbursed by public insurance programs (also related to Goal 6).
- Increase the number of safety net dental clinics in community health centers and migrant health centers, and improve their capacity to provide care, by:
  - Assessing potential funding sources for dental health programs.
  - Removing administrative and legal barriers for innovative models.
  - Encouraging health centers and hospitals that do not provide dental care to offer dental services.
  - Provide technical assistance to overcome barriers to providing these services (e.g. resources, staffing, financing), and develop an action plan to address barriers.
  - Work with Area Health Education Centers and professional organizations to strengthen recruitment opportunities.
  - Disseminate information about services which have demonstrated effectiveness at providing greater access to oral health care.
  - Work with the New York State Dental Association to strengthen the Donated Dental Services program.
  - Maintain and expand the availability of school-based preventive dental programs in targeted high-need, underserved communities.
  - Conduct annual community health assessments to determine availability of dental practices, including capacity for new clients, what kinds of insurances are accepted and distribute information in up-to-date local resource guides.

## Goal 4: Strengthen systems which improve the oral health of people with special health needs.

### Background

Children and adults with special health care needs have oral health needs which require particular consideration and approaches. Special health care needs refer to any physical, developmental, mental, sensory, behavioral, cognitive or emotional impairment or limiting condition that requires medical management, health care intervention or use of specialized services or programs. The condition may be developmental and cause limitations in performing daily self-maintenance activities or substantial limitations in a major life activity. In the United States, the limited data available indicate that, compared to the general public, people with special needs have poorer oral hygiene, more missing teeth and untreated caries, and increased levels of gingivitis and periodontal disease.

Challenges to achieving optimal oral health include the need to improve home care as well as access to preventive and treatment services. Barriers to optimal oral health for people with special health needs must be identified and documented, including those which also affect the provision of other health care services. Innovative solutions to finance prevention and treatment that recognize the challenges of providing care to patients with special needs could have a substantial positive impact, along with improved provider training.

### Issues

- The number of dentists available to treat children and adults with special health care needs is limited.
- The training time available in dental and dental hygiene education programs is not sufficient to ensure that providers and caregivers are comfortable

and competent in providing oral health services for patients with special needs.

- Inadequate financing and a lack of access to adequate facilities contribute to poor access to dental care for people with special needs.
- Data are lacking on utilization of dental services by patients with special needs and the barriers to accessing dental care.

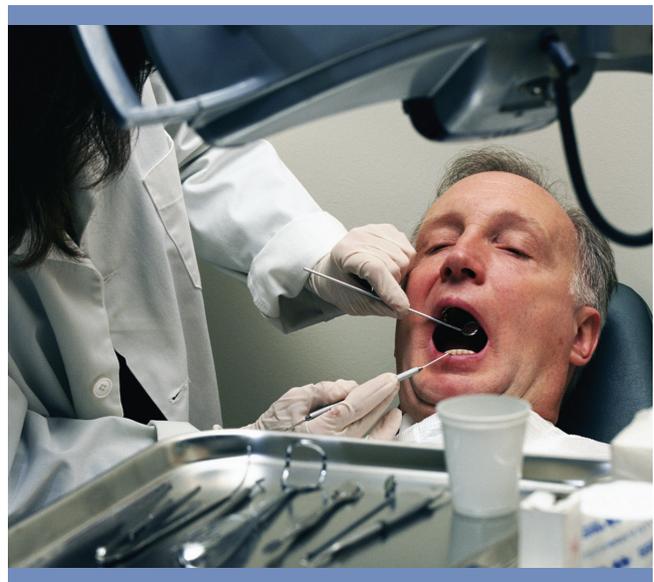
### Objectives

Objective 4.a: By 2017, identify successful reimbursement strategies for providers and hospitals that address the additional time and resources needed to treat people with special health needs.

Objective 4.b: By 2017, ensure that systems developed to increase interprofessional collaboration and inform consumers about dental care address the challenges faced by people with special health needs.

Objective 4.c: By 2017, implement changes in the surveillance system to enable data collection on oral health and access to dental care for people with special health needs.

Objective 4.d: By 2017, identify Centers of Excellence for providing oral health care to people with special health needs.





Objective 4.e: By 2017, assess the number of dental providers serving people with special health care needs and determine how many are needed to serve people with special health needs.

Objective 4.f: By 2017, develop and implement strategies to ensure that waiting times for routine appointments are no longer than one month, and dental emergencies are addressed within 24 hours for patients with special health needs.

Objective 4.g: By 2020, ensure that all health care workers employed to assist people with special health care needs are trained in their daily oral health care.

Objective 4.h: By 2017, develop research activities that address the oral health issues of people with special health care needs.

Also see NYS Prevention Agenda Objective 5-5: By December 31, 2017, strengthen systems to improve the oral health of people with special health needs.

[www.health.ny.gov/prevention/prevention\\_agenda/2013-2017/](http://www.health.ny.gov/prevention/prevention_agenda/2013-2017/)

## Strategies

- Develop a campaign to educate stakeholders about the unique oral health challenges facing people with special health needs.

- Convene a summit of stakeholders to discuss the financing options available in other states regarding the oral health care for people with special health needs and develop recommendations.
- Partner with hospitals to identify and implement best practices that reduce operating room wait times for people with special health needs.
- Identify reimbursement incentives and strategies for providers and hospitals, which reflect the additional time and resources needed to treat low-income children and those with special health needs.
- Work with community stakeholders to conduct outreach to hospitals to increase awareness of the importance of oral health for people with special health needs.
- Identify strategies which have increased the number of dental providers serving people with special health needs, and replicate their success in New York State.
- Identify workforce models that improve access to care for people with special health needs.
- Encourage educational and training programs to update competencies and standards to enhance the treatment of people with special health care needs.
- Convene a workgroup of researchers and public health practitioners to develop and set priorities for a research agenda which addresses oral health care for people with special health care needs.
- Identify existing data collection systems for people with special health needs and explore opportunities to include oral health indicators.
- Work with community stakeholders and caregivers to collect, share and use data regarding oral health status and unmet treatment needs for people with special health needs.
- Expand and support Centers of Excellence for special needs populations.

**Goal 5: Increase knowledge-sharing statewide to enhance the adoption of best practices, replicate proven efforts, and improve community oral health literacy.**

**Background**

Dental disease prevention and health promotion programs are underutilized, including water fluoridation, school-based interventions, tobacco control, case management and efforts to integrate oral health into programs such as the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) program. Achieving and maintaining oral health requires actions by individuals, professionals, communities, health care and social service agencies and educational institutions. The American Association of State and Territorial Dental Directors has compiled a directory of many best and promising approaches for community oral health programs. Linking private and public sectors, and involving many stakeholders, provides opportunities to capitalize on unique strengths and resources. NYSDOH has partnered with the Oral Health Technical Assistance Center and The Pew Center on the States to develop a consumer-oriented website with information regarding fluoridation.

<http://newyork.ilikemyteeth.org/>

**Issues**

- Lack of oral health infrastructure at the local level has hindered the ability to communicate best practices and programs.
- Public-private partnerships that address oral health issues at the state and local level are limited in number.
- There is no effective mechanism to educate stakeholders about collaboration, networking and sharing of experiences.

**Objectives**

Objective 5.a.: By 2017, support expansion of oral health coalitions, partnerships and networks in every region of the state to provide an opportunity for organizations, consumers, and providers to collaborate, gain access to the media, and promote communication.

Objective 5.b.: By 2017, develop and promote a system which educates oral health providers about evidence-based practices for improving oral health at the individual and community levels, and informs providers about best practices for improving access and utilization of oral health services.

Objective 5.c: By 2017, assess and address gaps in oral health educational materials. Update and distribute culturally and linguistically appropriate materials that enhance oral health literacy to the public and providers.

Objective 5.d: By 2017, build upon existing efforts and explore new areas for involvement with campaigns that communicate the importance of oral health, signs and symptoms of oral disease and ways of reducing risk such as Children’s Dental Health Month, National Dental Hygiene Month, Oral Cancer Awareness Week, Give Kids a Smile, Special Olympics Special Smiles, tobacco cessation campaigns and diabetes education campaigns.





Objective 5.e: By 2017, develop and promote a system which provides consumers with information about community water fluoridation and other best practices for improving oral health.

Objective 5.f: By 2017, develop and promote a system which provides information about programs and resources for consumers seeking oral health care.

## Strategies

- Disseminate guidelines, recommendations and best practices regarding childhood caries, maternal oral health, and tobacco and alcohol use to the dental health workforce, physicians, nurse practitioners, counselors and other related health care workers.
- Widely disseminate best practices for infection control and provide technical assistance to dental professionals.
- Promote the fluoridation-related “I like my teeth” website. [[www.ilikemyteeth.org](http://www.ilikemyteeth.org)]
- Enhance communication between stakeholders in different regions in the state.
- Develop an inventory of effective programs and best practices that can be widely disseminated.
- Provide technical assistance to local groups and help procure funding for evidence-based oral health programs.
- Develop and implement structured, evidence-based quality improvement collaborations to identify and address areas for improvement in clinical practice such as management of early childhood caries and reduced no-show rates.
- Communicate changes to statewide programs in an organized, systematic and culturally competent manner, with the understanding that New Yorkers have diverse backgrounds.
- Integrate oral health into health literacy programs. Develop and disseminate educational materials focusing attention on topics such as caries in young children, maternal oral health, oral cancer, fluoride, dental sealants and the importance of good dietary habits.

## Goal 6: Increase capacity, diversity, and flexibility of the workforce to meet the needs of all New Yorkers.

### Background

Access to dental services and an understanding of the importance of oral health, especially prevention efforts, are key elements to achieving optimal oral health. To address these needs, New Yorkers need an adequate oral health workforce, including any provider or caregiver with the ability to provide oral health services or education. While the state has one of the best population-to-dentist ratios in the country, the distribution of practitioners is uneven, with shortages of dentists and dental hygienists in many rural and inner-city areas. This is compounded by the inadequate number of dentists treating underserved population groups and under-representation of minorities in the workforce.

Since 2007, dentists intending to practice in NYS have been required to undergo one year of internship training in accredited advanced education programs. This prepares future dentists to treat more complex dental and medical problems and creates opportunities for rural and inner-city hospitals and health centers to establish training programs, attract dentists, and expose them to the unique needs of underserved populations. Students trained in the community are more likely to return to practice in these settings.

Collaboration between medical and dental providers has the potential to address some workforce shortages where dental personnel are not available. Increasingly, primary care providers have an opportunity to provide preventive oral health services, becoming involved members of the oral health workforce. Making use of the abilities of the entire oral health workforce, as well as the consideration of new and expanded workforce models, are potential components of a multifactorial approach to improving access to dental care for all.

### Issues

- The geographic distribution of oral health care providers, especially in rural areas and inner city neighborhoods, is inadequate to meet the needs of all New Yorkers. This is further compounded by the aging of the workforce.
- Incentives for the dental workforce are insufficient to ensure the care for many low-income residents.
- Alternative solutions are needed to improve the oral health literacy of those not reached by traditional interventions, including exploring new models and increased involvement from primary care providers.
- Schools of dentistry and dental hygiene face difficulty in recruiting and retaining faculty.
- Educational and training opportunities are needed in underserved areas to improve the oral health of communities.
- Students and practicing dental professionals are not adequately exposed to public health issues and training. Practitioners are isolated, for the most part.



## Objectives

Objective 6.a: By 2017, include core competencies for oral health in training programs that improve the skills of primary care providers, nurses, social workers and case managers.

Objective 6.b: By 2015, ensure that health care workers employed to assist the elderly and people with disabilities are trained to provide their daily oral health care.

Objective 6.c: By 2017, encourage all hospitals and health centers in federally designated Dental Health Professional Shortage Areas to develop training programs to meet the continuing educational needs of dental workforce members.

Objective 6.d: By 2017, create opportunities for all dental, dental hygiene students and residents to work in dental professional shortage areas for a significant period through externships, internships and partnerships.

Objective 6.e: By 2017, designate eligible areas as Dental Health Professional Shortage Areas so they can access federal resources.

Objective 6.f: By 2017, increase the under-represented minority enrollment in schools of dentistry and dental hygiene to more closely reflect the population of New York.

Objective 6.g: By 2017, evaluate the ability of new models of oral health care to improve access to oral health services and improve oral health literacy.

Objective 6.h: By 2017, identify the opportunities for dentists, dental hygienists and other providers who address oral health to improve their knowledge, skills and competency in public health practice, health literacy and effective communication strategies.



## Strategies

- Using proven education and training models (e.g., Learning Collaborative, Smiles for Life, AAP Children's Oral Health Education and Training) to improve the skills of primary care providers, nurses, social workers and case managers in applying evidence-based practices.  
[www2.aap.org/oralhealth/EducationAndTraining.html](http://www2.aap.org/oralhealth/EducationAndTraining.html)
- Improve the productivity of dental providers through the development of policies and practices for utilizing all team members to the full extent of their education and training.
- Provide information about resources and incentive programs like State Primary Care Service Corps to dental residents and dental hygienists willing to practice in underserved areas.
- Explore models from other states that allow dental hygienists to bill for services provided in schools, nursing homes and other public health settings (also related to Goal 1). Evaluate the laws and statutes related to the practice of dentistry in other states and the impact of recent changes in New York State in order to address workforce issues.

- Collaborate with dental and dental hygiene schools to employ best practices in the recruitment and retention of under-represented minority students. Examine how other professions recruit and retain minority students.
- Develop and enhance programs that encourage children in elementary and middle schools to consider careers in oral health.
- Explore ways to attract and retain qualified dental and dental hygiene faculty and to engage community providers in the education of new practitioners.
- Survey all hospitals and health centers providing dental services to determine their interest in participating in educational programs.
- Explore best practices used in dental and dental hygiene schools that provide internship and externship experience outside traditional training environments.
- Identify factors that affect the participation of the dental workforce in public health programs, locating their practices in dental health professional shortage areas and serving underserved populations.
- Provide incentives to encourage dentists, dental hygienists and dental assistants to work in public health settings. Identify interventions to attract well-trained and motivated providers.
- Provide opportunities for training in cultural competency for all oral health care providers.
- Evaluate the application of teledentistry to the provision of dental care in remote locations.

**Goal 7: Maintain and enhance the existing surveillance system to measure key indicators of oral health adequately and identify key performance measures for tracking progress.**

### Background

Several data sources are used to monitor oral diseases, risk factors, access to programs, utilization of services and workforce. The New York State Oral Health Surveillance System includes data from oral health surveys of third-grade children. The Behavioral Risk Factor Surveillance System, the Cancer Registry, the Congenital Malformations Registry, the Water Fluoridation Reporting System, the Pregnancy Risk Assessment Monitoring System, Medicaid, Managed Care Performance Reports and the State Education Department's licensing data are used for planning and evaluation as well as to contribute to the national database for monitoring trends in dental health. Enhancement and expansion of the current system will provide data needed to identify problems, set priorities, establish quality improvement measures and assess progress toward goals and objectives. Preventing and controlling oral diseases, and ensuring high quality and effective programs, requires rigorous studies to support evidence-based practice. This can be accomplished through collaboration and coordination among academic and research institutions, and public health practitioners. Evaluation should be built into existing programs and campaigns to guide future efforts.

## Issues

- Oral health problems are not measured and reported adequately, including dental caries, periodontal disease, trauma, oral cancer, risk factors, and distribution of the workforce and utilization of dental services.
- Evaluation measures and systems for continuous quality improvement are needed in programs aimed at improving oral health.
- Current strategies for improving oral health are not addressing disparities adequately.

## Objectives

Objective 7.a: By 2015, develop measures to assess the implementation of pediatric dental benefits in the Affordable Care Act.

Objective 7.b: By 2015, establish a collaborative process to develop and implement a quality improvement framework for dental care plans throughout NYS.

Objective 7.c: By 2017, enhance systems which provide evaluation and improvement of health care plans and consumer-based information systems by developing and including oral health measures.

Objective 7.d: By 2017, bring together academic and research institutions and public health practitioners to develop and implement a research agenda.

Objective 7.e: By 2017, expand the New York State Oral Health Surveillance System to collect data from additional sources, including community dental clinics, schools, private dental practices and care coordination entities.

Objective 7.f: By 2017, develop a system to continuously update information about workforce, facilities and demographics that will identify areas for the development of new dental practices.

## Strategies

- Encourage stakeholders to participate in surveillance activities and use the data that are obtained.
- Develop measures, both quantitative and qualitative, for quality improvement among dental plans.
- Develop metrics to determine network adequacy among dental plans, and identify measurable indicators to assess quality of care as well as the plans' ability to meet community needs.
- Conduct a survey of providers, clients and health plans to identify key issues affecting the delivery of services and client utilization.
- Convene a workgroup of researchers and public health practitioners to develop and set priorities for a research agenda.
- Identify potential collaborators and funding opportunities to support research priorities. Disseminate research findings so they can be used by community organizations and are accessible to the public.
- Evaluate the effectiveness of existing campaigns in improving public knowledge, behavior and attitudes toward oral health.
- Offer technical assistance to providers for evaluation of their public health programs.
- Work with CDC and the State Education Department to explore inclusion of oral health questions in the Youth Risk Behavior Surveillance System (YRBSS).
- Assess smokeless tobacco use in the oral health module in the BRFSS and YRBSS.
- Identify existing data collection systems regarding diabetes, the elderly and pregnant women and explore opportunities to include oral health indicators.

- Expand the Pregnancy Risk Assessment and Monitoring System (PRAMS) to ascertain the need for dental care.
  - Replicate the survey of physicians and nurses (administered as part of their re-registration process every three years) to collect information about dentists and dental hygienists. Use the Statewide Planning and Regional Cooperative System (SPARCS) to assess oro-facial injuries.
  - Collect data from school-based programs to assess the occurrence of oro-facial injuries and factors involved in the injury.
  - Develop and maintain a page on the NYSDOH web site to display oral health data.
  - Communicate surveillance data results to local health units, health centers, hospitals, schools of dentistry and dental hygiene and professional organizations.
- Create partnerships to promote, share and use data.
  - Increase the capacity to evaluate programs by collaborating with partners.
  - Explore the feasibility of adding a measure on dental sealants to the Medicaid Managed Care quality measures.
  - Evaluate and implement quality standards for early care and education programs that promote healthy meals and snacks and promote personal oral health care practices.



## IV. Prevalence, Risk Factors and Workforce

In New York State, data are available on oral health status, risk factors, workforce and the use of dental services to assess problems, monitor progress and identify solutions. The following indicators provide useful information to assess progress toward selected Healthy People 2020 oral health objectives.

### Oral Health Status in Young Children

In the United States, dental caries in children is the most common chronic disease, and the need for treatment is also most frequent. Nationally, the most recent data indicate that approximately 24 percent of three to five year-old children have untreated dental decay (HP 2020 target 21.4 percent). Only 26.7 percent of low-income children had received any preventive dental service. A survey of a disadvantaged group of children in northern Manhattan found a high level of unmet need.<sup>22</sup> Because management of young children in a dental office is difficult, many children require treatment in an operating room. In New York, approximately 5,683 children younger than six years of age visited a hospital emergency department or ambulatory care center in 2008 for the treatment of dental caries.

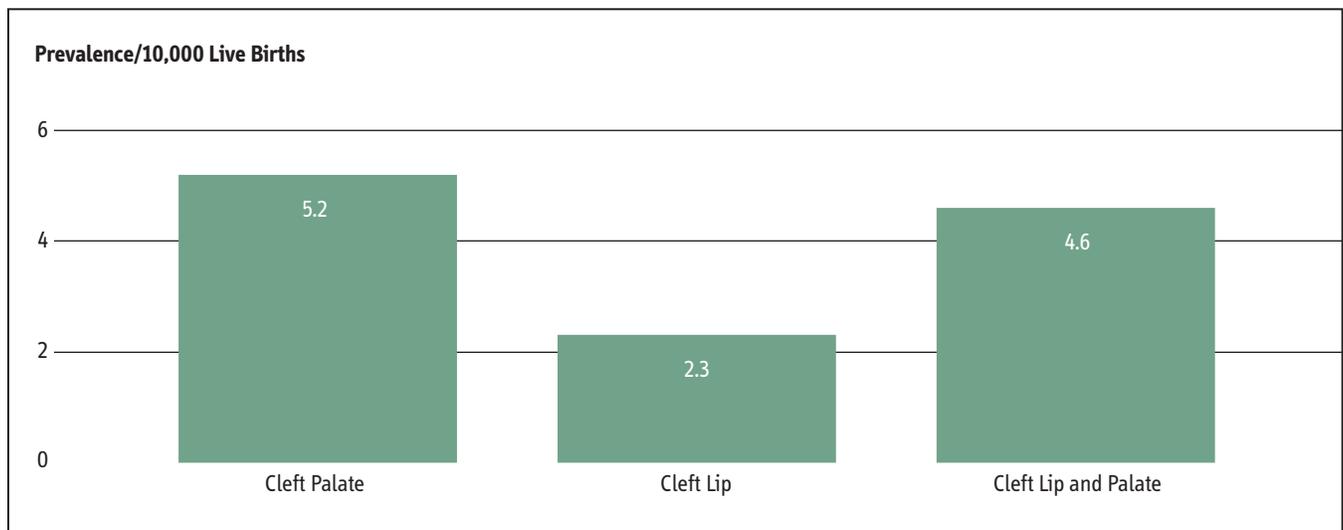
### Cleft Lip and Cleft Palate

Cleft lip and cleft palate are among the most common congenital anomalies. These conditions may occur as isolated defects or as part of other syndromes. Among children born in 2008, NYS had 128 cases of cleft palate (5.2 per 10,000 live births), 57 cases of cleft lip (2.3 per 10,000 births) and 113 cases of cleft palate and lip (4.6 per 10,000 births).<sup>23</sup>

### Oral Health Status in Third-Grade Children

The following data are derived from a survey of third-grade children conducted during 2009-12 by NYSDOH in collaboration with many partners. In this survey, oral health screenings were conducted on 6,758 third-grade students from selected elementary schools in the 57 counties and New York City. Schools were selected using a stratified random sampling method. Dental screenings were conducted in schools to obtain data related to dental caries and sealant use. A questionnaire was used to gather data on last dental visit, fluoride tablet use and dental insurance.

**Figure 1. Clift palate and cleft lip cases per 10,000 live births. New York State Congenital Malformation Registry, 2008.**



Source: [www.health.ny.gov/diseases/congenital\\_malformations/cmrapubli.htm](http://www.health.ny.gov/diseases/congenital_malformations/cmrapubli.htm)

According to this survey, the prevalence of dental caries was 44.1 percent in third grade New York State children. The estimated percentage of children with untreated caries was 22.1 percent. The Healthy People 2020 (HP 2020) target for caries experience and untreated caries for six to nine year-old children is 49 percent and 25.9 percent, respectively. Consistently, both caries experience and untreated caries were more prevalent in the lower-income group (Figure 2).

Several state surveys have shown that dental caries prevalence in children declined substantially during the latter half of the 20th century. Two dental surveys of NYS third-grade school students conducted during the last decade provide additional data to assess current trends.

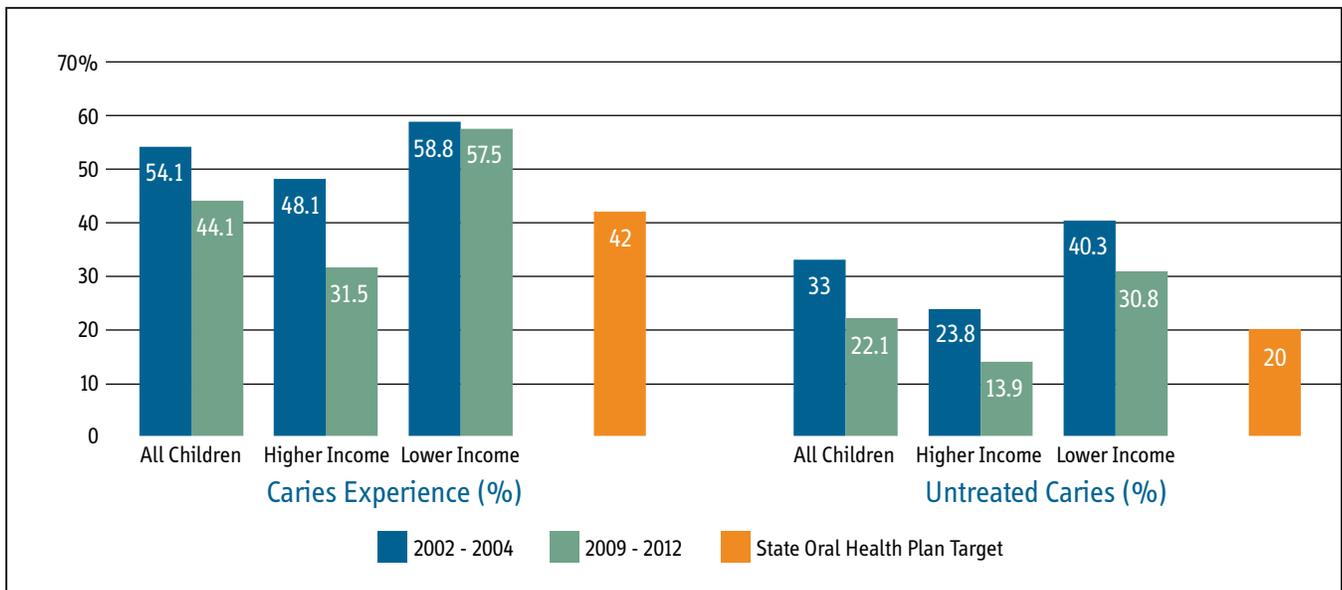
The prevalence of tooth decay was measured by caries experience and reflects past disease, as evidenced by the presence of a cavity or filling, or a missing tooth due to caries. The prevalence of tooth decay among third-grade children (Figure 2) appears to be slightly higher than the NYS 2013 Prevention Agenda target of 42 percent, but already meets the HP 2020 target of below 49.0 percent.

The notable reduction over the last decade in the prevalence of tooth decay among third-grade children (54.1 percent in 2002-04 to 44.1 percent in 2009-12) is observed primarily in higher-income children (income exceeds the eligibility limit for the free and reduced-cost school lunch program). As a result, disparities in oral health status have increased. Lower-income children (income-eligible for the free or reduced-cost school lunch program) continue to have a higher prevalence of caries experience and untreated decay, and a lower use of dental services than higher-income children do.

### Untreated Tooth Decay

The proportion of third-grade children with untreated decay declined from 33 percent in 2002-04 to 22.1 percent in 2009-12 and meets the HP 2020 target of no more than 25.9 percent (Figure 2). Caries experience and untreated caries were more prevalent among lower-income children with virtually little to no improvements in oral health status noted between the 2002-04 and 2009-12 surveys.

**Figure 2. Changes in the prevalence of dental caries and untreated caries (percentage) in third-grade children. New York State Oral Health Surveillance System, 2002-04 and 2009-12.**



*Note: Lower-income children were those who reported participating in the free or reduced-cost school lunch program.*

## PROTECTIVE FACTORS AND RISK FACTORS

### Water Fluoridation

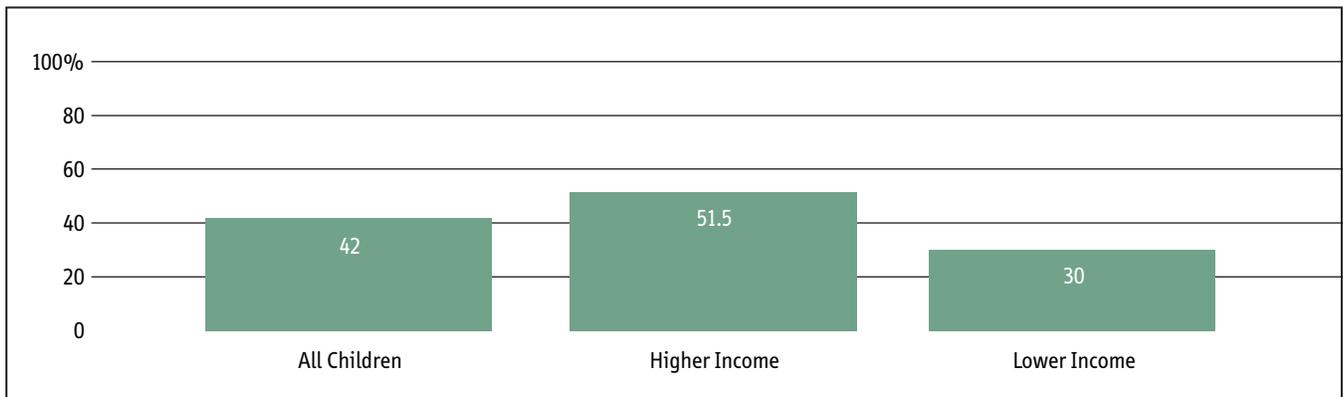
More than 12 million New Yorkers receive fluoridated water. Approximately 72 percent of the population on community water supplies receives fluoridated water, compared to the HP 2020 objective of 79.6 percent. The percentage of the population on fluoridation was 100 percent in NYC and 48 percent in counties outside NYC. Counties with large proportions of the population not covered by fluoridation are Nassau, Suffolk, Rockland, Ulster, Albany, Oneida and Tompkins.

### Fluoride Use

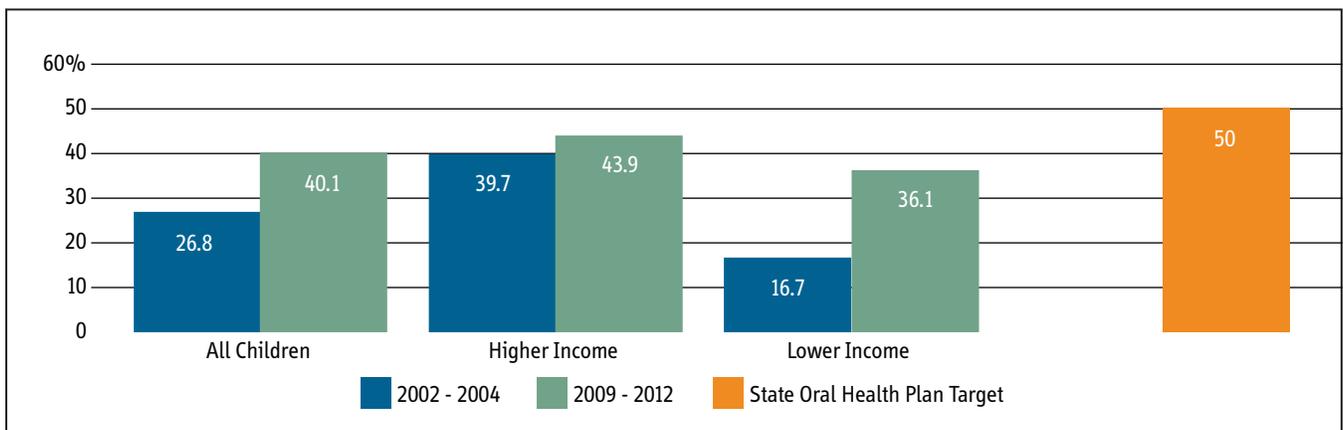
Fluoride tablets are prescribed to children living in areas outside NYC where water is not fluoridated. NYC children receive fluoride from water. About 51 percent of higher-income children and 31 percent of lower-income children outside NYC reported regular use of fluoride tablets (Figure 3).

Dental sealants are protective coatings applied on the chewing surfaces of teeth to prevent caries. The presence of sealants is an indicator of children’s access to preventive services. The HP 2020 goal is at least 28.1 percent of children should have dental sealants. In NYS, the estimated percentage of children with a dental sealant on a permanent molar was 36.1 percent in the lower-income group and 43.9 percent in the higher-income group. (Figure 4).

**Figure 3. Regular use of fluoride tablets in third-grade children in upstate New York. New York State Oral Health Surveillance System, 2009-12.**



**Figure 4. Changes in the prevalence of dental sealants (percentage) in third-grade children. New York State Oral Health Surveillance System, 2009-12.**



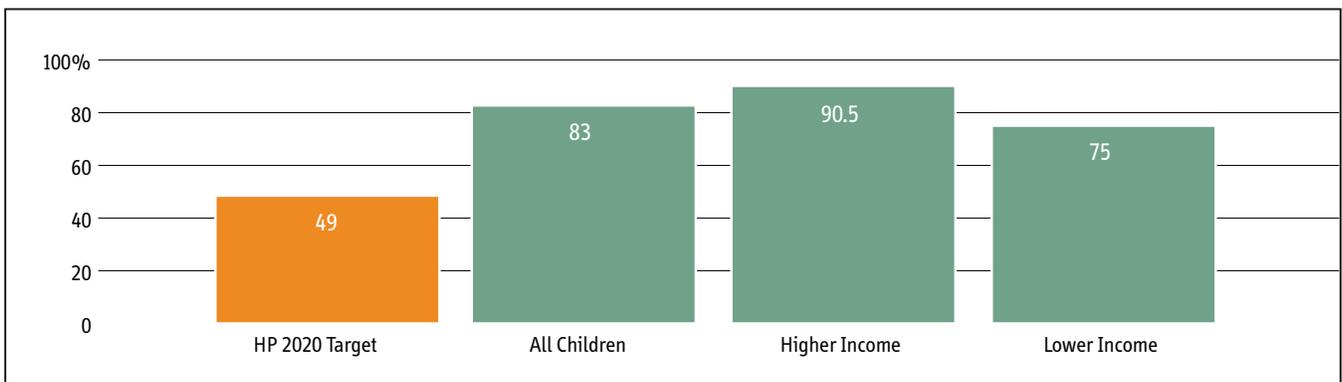
## INSURANCE COVERAGE

Approximately 79.8 percent of New York children reportedly had some type of dental insurance coverage. There was no noticeable difference in the insurance coverage between higher- and lower-income groups. In spite of the fact that self-reported insurance data tends to overestimate insurance coverage, almost 20% of children reportedly didn't have dental insurance coverage.

## Dental Visit in the Past Year

The percentage of children with a dental visit in the past year was 83 percent. While there was no noticeable difference in the insurance coverage between higher- and lower-income groups, a smaller proportion of lower-income children had visited a dentist in the last year (75 percent vs. 90.5 percent) (Figure 5).

**Figure 5. Dental visit in the past year in third-grade children in New York State. New York State Oral Health Surveillance System, 2009-12.**



## Use of Dental Services in Medicaid and Child Health Plus

The American Dental Association, the American Academy of Pediatric Dentistry and the American Academy of Pediatrics recommend at least an annual dental examination beginning as early as the eruption of first tooth or no later than 12 months of age. Early and periodic screening, diagnostic and treatment (EPSDT) services are required under Medicaid for most individuals under age 21. According to CMS, approximately 39 percent of NYS children under age 21 enrolled in the EPSDT program during 2013 received an annual dental visit. The HP 2020 goal is to increase the proportion of children and adults who use the oral health care system to 49 percent. NYS fell below the HP 2020 goal as well as the national average of the percentage of children under 21 enrolled in Medicaid during 2013 with a dental visit (43.8%).

Children enrolled in Child Health Plus fared better than their counterparts receiving services through EPSDT. In 2013, 64 percent of two to 18 year olds in Child Health Plus had a dental visit, compared to 47 percent of two to 18 year olds under EPSDT.

**Table 1. Enrolled children under age 21 receiving an annual Medicaid dental visit, CMS 416 report - 2013**

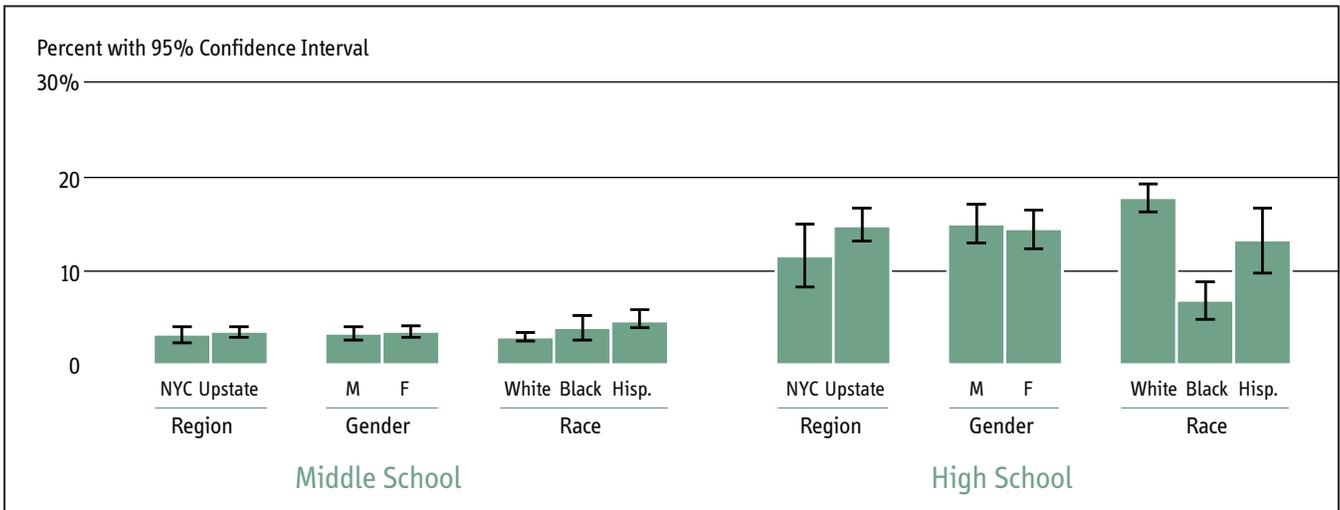
<b>CMS 416 lines 12a/ and 1</b>	2003	2007	2011	2013
Number with any dental visit	492,819	616,375	816,174	911,224
Number enrolled	2,015,608	2,021,928	2,091,477	2,359,718
Percent with a visit	24.5	30.5	39.0	38.6

*Note: This data represents all children from birth to age 21 who are enrolled in the Medicaid program*

### Tobacco Use in Children

According to the 2008 Youth Tobacco Survey,<sup>24</sup> the use of cigarettes among middle school and high school students is approximately 3.2 percent and 12.6 percent, respectively. Among high school students, the current use of cigarettes for white, black and Hispanic students was 13.9 percent, 8.3 percent, and 14.6 percent, respectively.

**Figure 7. Current use of cigarettes by grade, region, gender, race (New York State Youth Tobacco Survey, 2008).**



## PREVALENCE OF DENTAL DISEASES AND CONDITIONS IN ADULTS

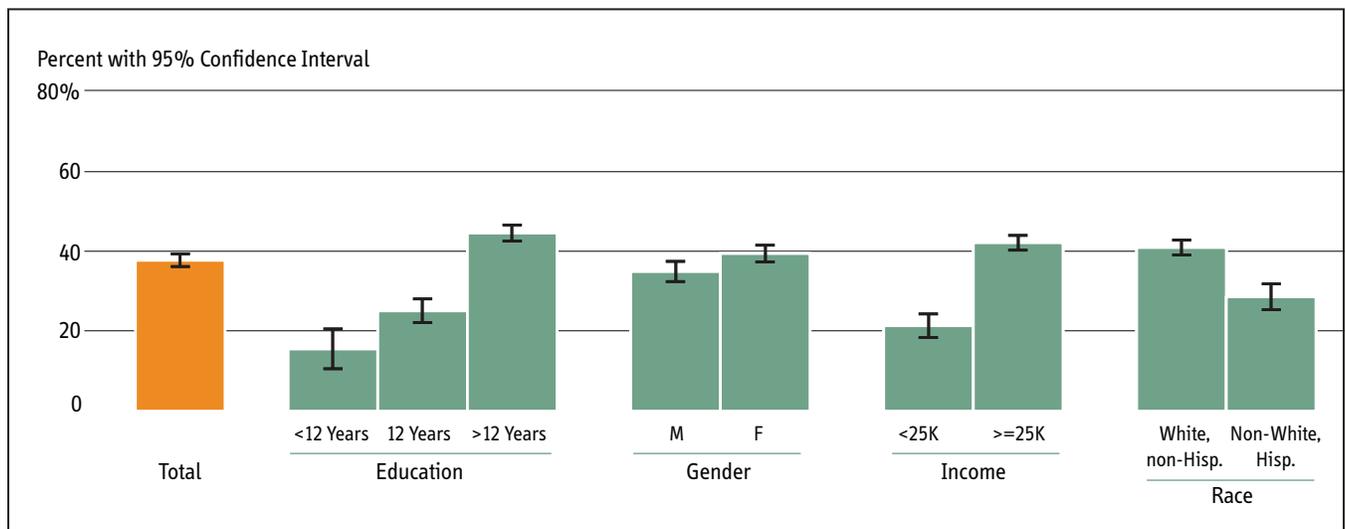
The CDC BRFSS, an ongoing statewide telephone-based surveillance system, is the main source of data on the prevalence of dental diseases and risk factors in adults. BRFSS monitors modifiable risk behaviors and other factors contributing to the leading causes of morbidity and mortality in the population. The NYS BRFSS sample represents the non-institutionalized adult household population aged 18 years and older. The oral health module includes questions about tooth loss and use of dental services. Data on oral cancer are available through the NYS Cancer Registry. In addition, the NYSDOH Pregnancy Risk Assessment and Monitoring System provides data on risk factors in pregnant women.

## Tooth Loss in Adults

Dental caries (tooth decay) and advanced periodontal (gum) diseases ultimately lead to loss of some or all teeth, if not treated in a timely manner.<sup>20,21</sup> Tooth loss indicates the lack of importance given to oral health, the availability and accessibility of dental care and the prevailing standard of care. Loss of all natural permanent teeth not only considerably reduces daily functioning in terms of chewing and speaking, but also reduces self-esteem and quality of life.

One of the HP 2020 objectives is to reduce the proportion of adults aged 45-64 who have ever had a permanent tooth extracted because of dental caries or periodontal disease to 68.8 percent.<sup>20</sup> Figure 8 shows the corresponding percentage of New York adults to be 62.4 percent, or 37.6 percent who have never had a permanent tooth extracted due to dental caries or periodontal disease

**Figure 8. Percentage of persons (aged 45-64) who have never had a permanent tooth extracted due to dental caries or periodontal disease. New York State BRFSS, 2010.**

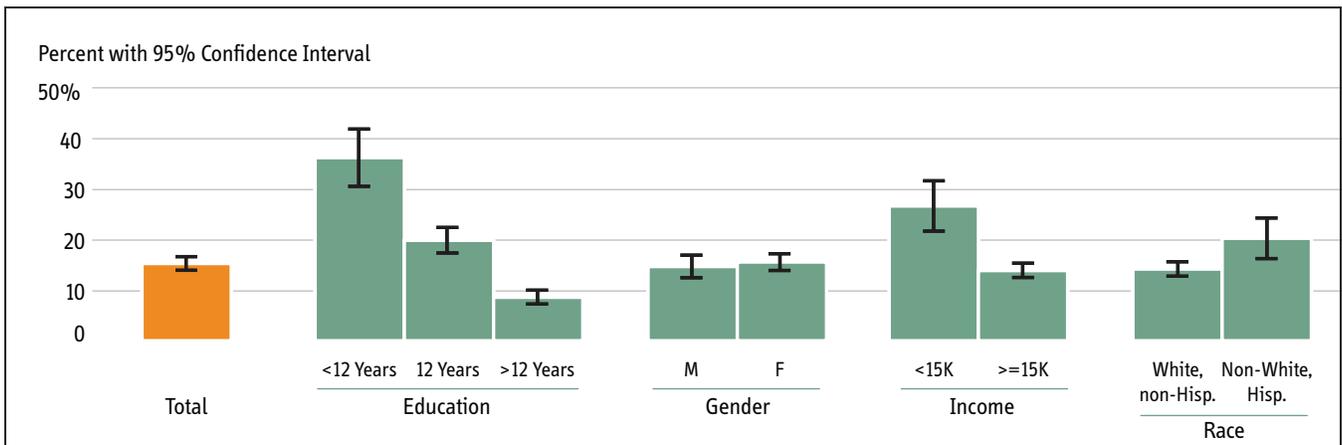


Loss of all teeth is called edentulism. Another HP 2020 objective is to reduce the proportion of adults aged 65-74 who have lost all their natural teeth to 21.6 percent. According to BRFSS, the percentage of adults 65 years and older that had lost all their natural teeth decreased at each successive educational and income level (Figure 9).

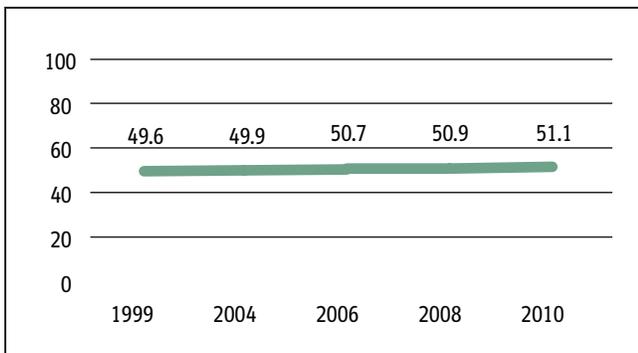
### Trends in Tooth Loss

Among persons 65 years and older, there was a notable decline in the percentage of persons who have lost all natural teeth. With respect to loss of any tooth among people 45-64 years old, however, no such decline was observable (Figures 9a and 9b).

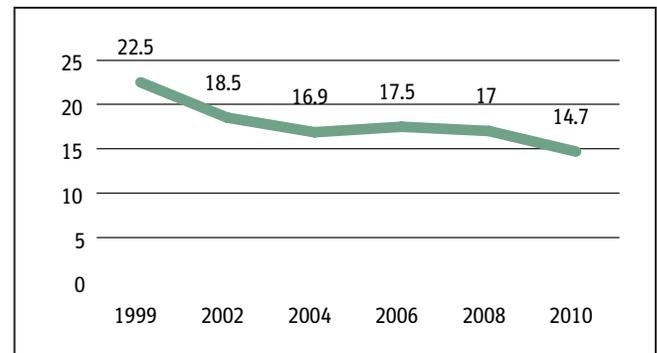
**Figure 9. Percentage of persons (ages 65 and older) who have lost all natural permanent teeth. New York State BRFSS 2010.**



**Figure 9a. Percentage of persons (aged 45-64) who have had a permanent tooth extracted due to dental caries or periodontal disease. New York State BRFSS, 1999-2010.**



**Figure 9b. Trends in tooth loss. Percentage of persons (aged 65 and older) who have lost all natural permanent teeth. New York State BRFSS, 1999-2010.**



## Oral and Pharyngeal Cancers

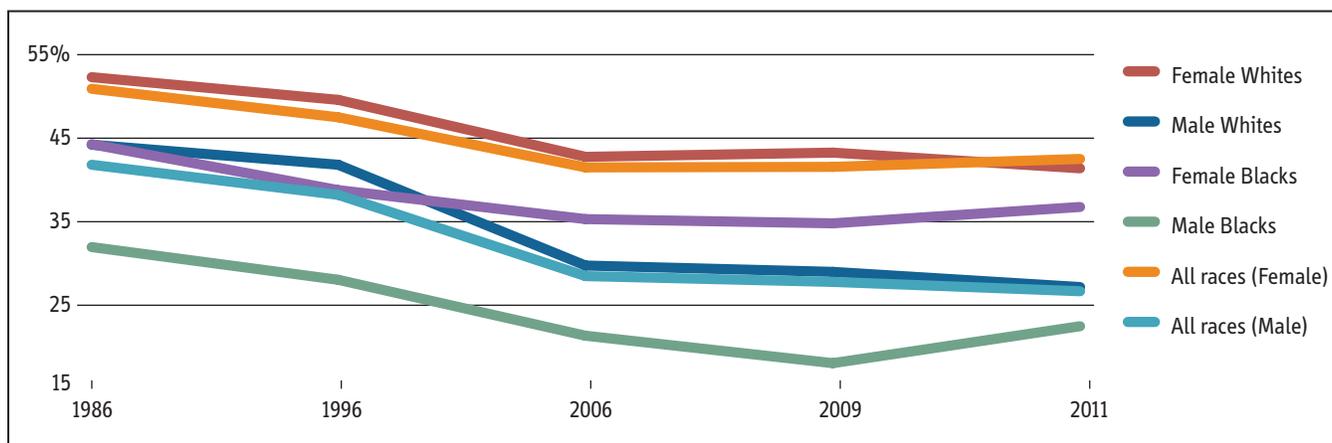
Data from the NYS Cancer Registry show an annual average of 2,281 new cases and 469 deaths from oral and pharyngeal cancer for 2007-2011. New cases among males outnumbered those among females by over 2:1. These oral and pharyngeal cancers account for approximately 2.8 percent of all malignancies in men and 1.4 percent in women. The age-adjusted incidence rates per 100,000 for males and females are 15.7 and 6.3 per 100,000, respectively, with corresponding age-adjusted mortality rates of 3.3 and 1.2 in the same period.<sup>25</sup>

NYS trends in the incidence and mortality for oral and pharyngeal cancers show that both have declined over the past three decades for men and women. Significant gains have been made during this time in reducing disparities in oral and pharyngeal cancer incidence and mortality between whites and blacks. In 1981, incidence and mortality (expressed as rates per 100,000) were 27.2 and

11.3, respectively, for black males and 17.5 and 6.5 for white males. By 2011, incidence rates for black males dropped to below those of white males (13.6 and 16.1, respectively). Similar trends were observed in females.

Despite these gains, racial disparities persist. Nationally, the overall five-year survival for oral and pharyngeal cancer in 2010 was 64.8 percent for white men, 65.4 percent for white women, 42.1 percent for black men and 52.3 percent for black women.<sup>25</sup> Between 1976 and 2011, the percentage of oral and pharyngeal cancers diagnosed at the earliest stage in NYS decreased from 43.3 percent to 26.7 percent for men and from 46.2 percent to 42.5 percent for women. In 2011, 22.5 percent of black males and 36.8 percent of black females were diagnosed at the earliest stage of their cancer, compared to 27.2 percent of white males and 42.1 percent of white females. The lower survival rate among black New Yorkers could be partly attributed to their cancers more often being discovered at an advanced stage (Figure 10).

**Figure 10. Oral cancer cases diagnosed at early stage by gender, race and year. New York State Cancer Registry, 1986-2011.**



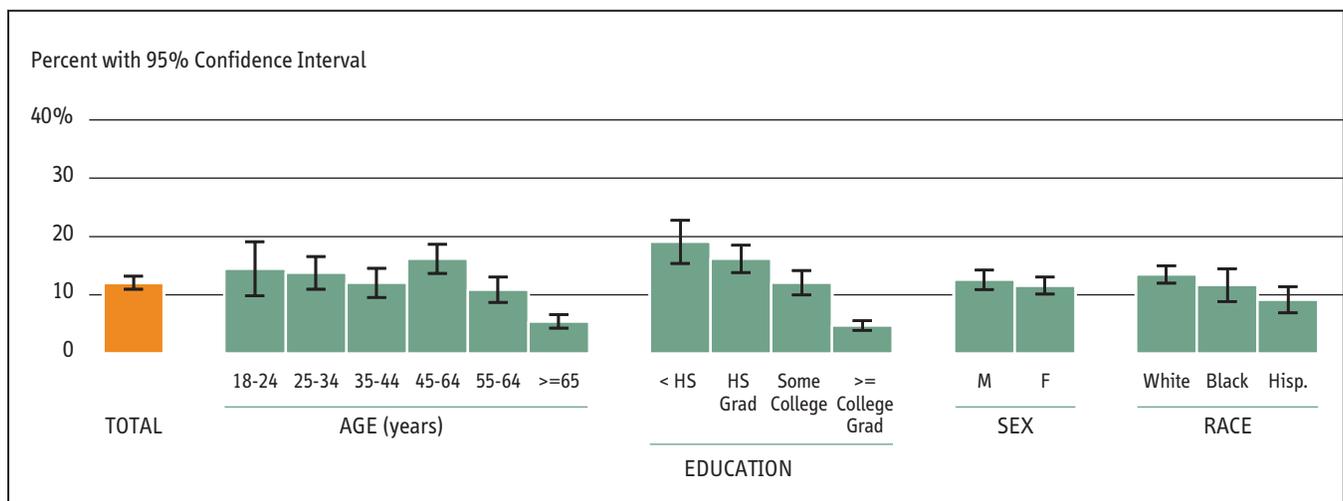
## RISK FACTORS AND PROTECTIVE FACTORS

### Tobacco and Alcohol Use

Tobacco use is one of the most common risk factors for oral cancer and other mouth conditions such as oral mucosal lesions, periodontal disease, gingival recession and caries. The magnitude of the effect of tobacco on the occurrence of oral diseases is high, with users having many times the risk of non-users.<sup>10</sup> Alcohol and tobacco use are the major

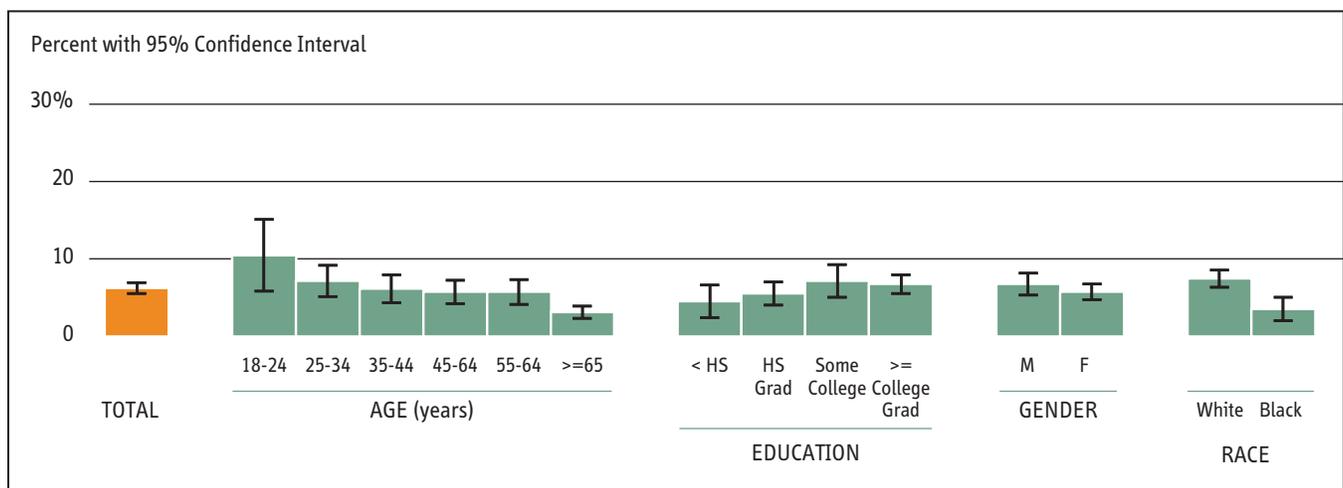
risk factors for oral cancer, accounting for 75 percent of all oral cancers.<sup>10</sup> According to the 2011 BRFSS, statewide current tobacco use is about 18.1 percent, lower than the nationwide usage of 21.2 percent. Daily tobacco use was highest among the 18-24 age group at 14.5 percent and least in the 65 years and older age group at 5.5 percent. In NYS, 6.2 percent of adults are heavy drinkers, with more 18- to 24-year-olds reporting heavy drinking (10.4 percent) than any other age group.

**Figure 11. Daily tobacco use in adults in New York State. New York State BRFSS, 2011.**



*Note: The BRFSS 2011 prevalence data should be considered a baseline year for data analysis and are not directly comparable to previous years of BRFSS data because of the changes in weighting methodology and the addition of the cell phone sampling frame; therefore no trend data are available.*

**Figure 12. Heavy Drinking in New York State New York State BRFSS, 2011.**



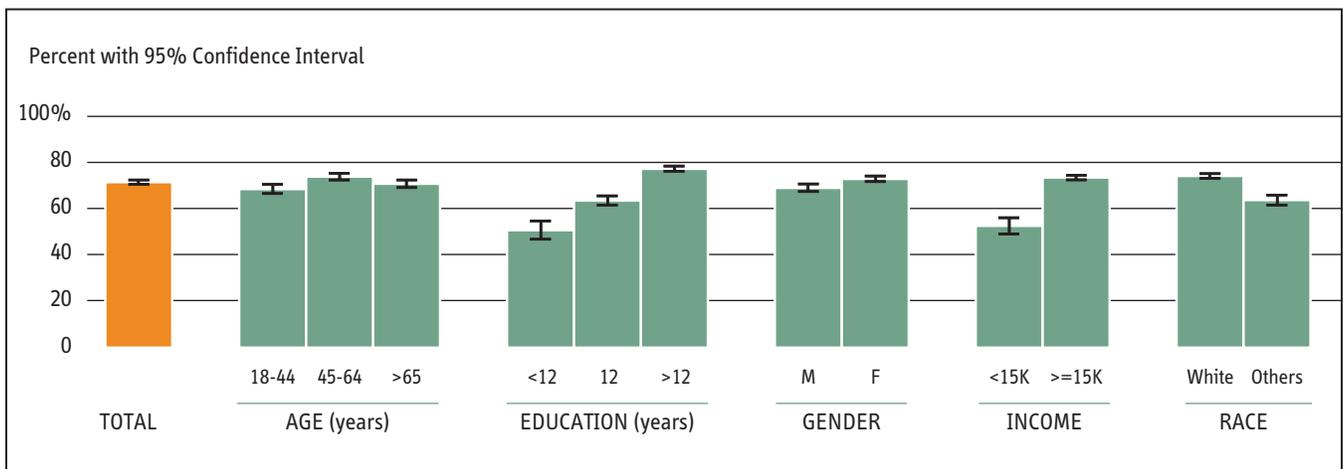
*Note: Heavy Drinking is defined as having more than two drinks daily for men and one drink daily for women.*

## Dental Visit

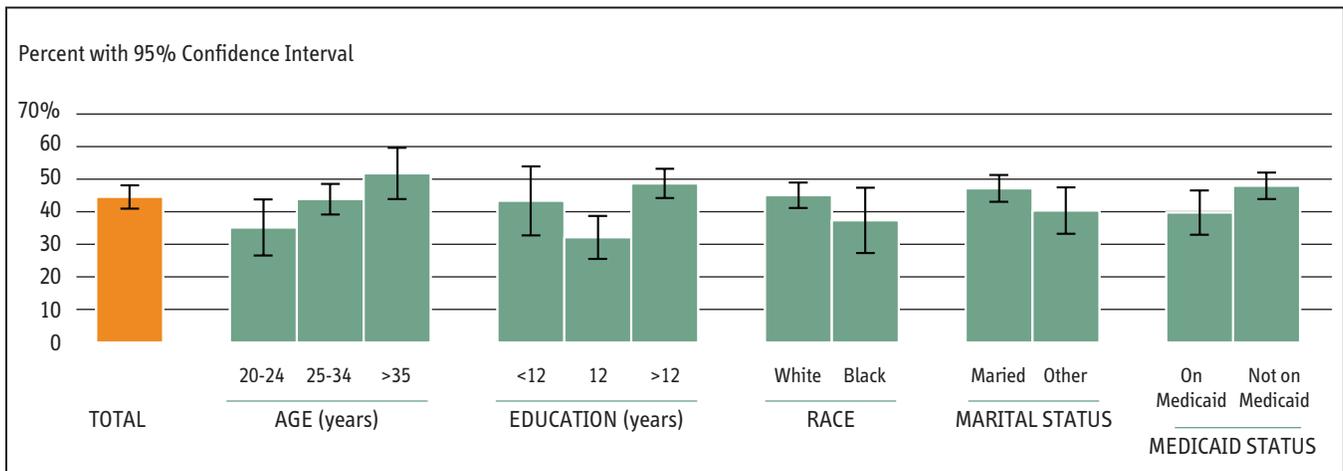
An annual dental visit presents an opportunity for providing preventive services as well as early detection of oral lesions. According to 2010 BRFSS data, an estimated 72.5 percent of New Yorkers reported visiting a dentist or a dental clinic within the past year. This compares favorably with the HP 2020 objective to increase the proportion that uses the oral health care system each year to 49 percent. Annual dental visits were higher among non-minority individuals, and increased with higher educations and incomes, with the greatest difference seen between those earning less than \$15,000 per year and those earning more than \$50,000 (59.7 percent vs. 79.5 percent).

Evidence is emerging to show that poor oral health may be associated with adverse pregnancy outcomes.<sup>1,26</sup> Several studies have shown the associations between periodontal disease and increased risk for preterm labor and low birthweight babies. Visits to a dentist during pregnancy are recommended to avoid the consequences of poor oral health. The use of dental services during pregnancy, as estimated from the 2011 Pregnancy Risk Assessment and Monitoring System (PRAMS), was 44.8 percent. It was higher among white women (45.1%), those 35 years of age and older (51.8%), higher-educated women (48.7%), married women (47.2%) and those not on Medicaid (48.0%).

**Figure 13. Percentage of people who visited a dentist or a dental clinic within the past year. New York State BRFSS, 2010.**



**Figure 14. Dental visit during pregnancy by race, age, years of education, marital status and participation in Medicaid, excluding New York City. PRAMS 2011.**



## DENTAL WORKFORCE

As of July 2012, New York State had 15,132 registered dentists. While the population-to-dentist ratio is favorable compared to national data, the distribution is geographically uneven. The concentration of registered dentists was highest in New York City, followed by the neighboring counties of Nassau, Suffolk, Westchester and Rockland. The number of registered dental hygienists in New York State was 9,331. While there were relatively more dentists in New York City, the concentration of hygienists was much lower, with only one dental hygienist per 4,452 residents (Table 2).

While registration data are useful to understand the relative distribution of dentists, it should be noted that not all registered dentists and dental hygienists practice in New York State. An independent survey of practice by the American Dental Association found that 12,954 dentists were actively practicing in NYS in 2009 – 2,200 fewer than those registered.

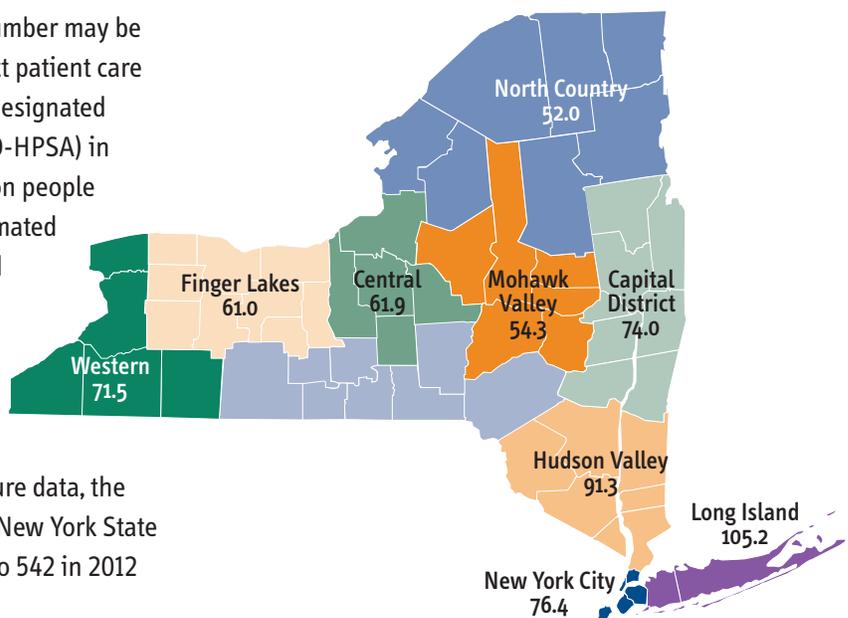
According to a re-registration survey conducted by the Center for Health Workforce Studies, there is a striking variability in the distribution of dentists regionally across the state. On Long Island, there are more than 105 dentists per 100,000 residents, compared to 52 dentists per 100,000

**Table 2. Number and distribution of registered dentists and dental hygienists by selected counties. New York State Education Department Licensure Data, 2012.**

Region	Population (2011 Census Estimate)	Number of Registered Dentists	Number of Registered Dental Hygienists	Population per Dentist	Population per Hygienist
New York City	8,244,910	6,193	1,852	1,331	4,452
Suffolk, Nassau, Westchester and Rockland	4,114,309	4,748	2,262	867	1,819
Rest of State	7,105,978	4,191	5,217	1,696	1,362
New York State	19,465,197	15,132	9,331	1,286	2,086

in the North Country (Figure 2). The actual number may be lower, as some dentists may not provide direct patient care on a full-time basis. Currently, there are 121 designated Dental Health Professional Shortage Areas (D-HPSA) in the state. This equates to more than 1.6 million people living in dentally-underserved areas. An estimated 212 dental full-time equivalents (FTEs) would be needed in New York State to eliminate the dental shortage designations.

The number of dentists registered to practice dentistry in NYS declined from 16,872 in 1997 to 15,280 in 2012. According to NYSED licensure data, the number of new licenses issued to dentists in New York State has declined substantially, from 751 in 2004 to 542 in 2012 (a drop of 28 percent).

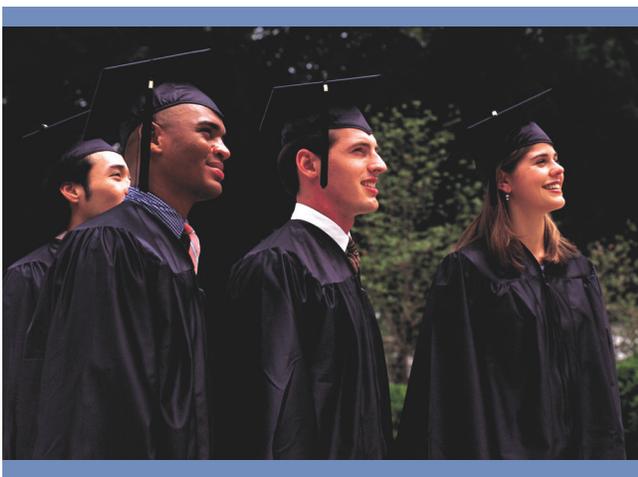


## In-State Enrollees in New York State Dental Schools

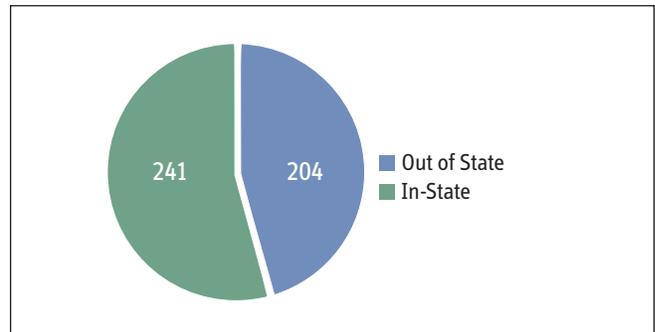
In 2011, the number of first-year enrollees in NYS dental schools was 445, of which 241 students were from NYS<sup>27</sup> (Figure 15). Another 112 NYS residents were enrolled in out-of-state dental schools in their first year. Of the 261 first-year enrollees in NYS dental schools for whom race/ethnicity was known,<sup>15</sup> (5.7 percent) reported being African American or Hispanic (Figure 16).

## Distribution of Dental Practitioners by Age in the U.S. and NY State

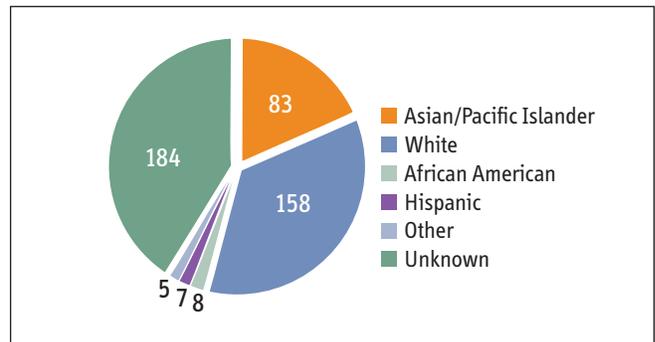
According to the American Dental Association’s 2009 Survey of Dental Practice, the average dentist’s age was 51.8 years in NYS. The distribution of dentists by age is shown in Figure 17. In the United States, the dentist-to-population ratio is expected to decline from 58.3 dentists per 100,000 population in 2000 to 53.7 in 2020. In part, this decline reflects the retirement of older dentists with insufficient numbers of new dentists replacing them. These projections do not account for new dental schools which have recently opened across the country.<sup>1,28</sup> In New York, the number of practicing dentists is expected to increase from 12,410 in 2010 to 14,140 in 2020<sup>29</sup>.



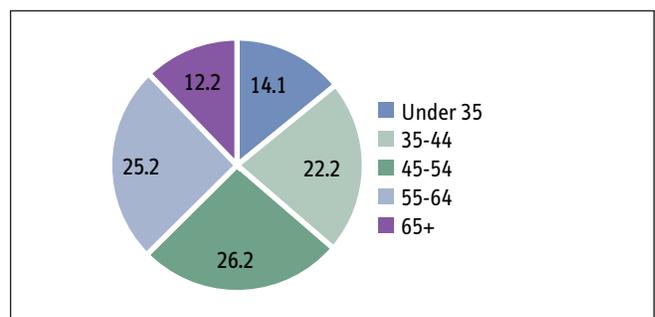
**Figure 15. In-state First Year Enrollees in New York State Dental Schools, 2011.**



**Figure 16. Number of First Year Enrollees in New York State Dental Schools by Race/Ethnicity.**



**Figure 17. Distribution of dentists in the United States by age. American Dental Association, 2009.**



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