

Making Headway

*Easing the Burden of Dental Disease in
Barnstable, Dukes and Nantucket Counties*



*A Report of the
Tri-County Collaborative for Oral Health Excellence
Prepared by BL Hathaway, Coordinator
February 2009*

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About Tri-CCOHE

Tri-County Collaborative for Oral Health Excellence (Tri-CCOHE)

For the past decade, oral health professionals, program providers, educators and advocates have been meeting as a task force to address the most common chronic disease of childhood—dental disease. Beginning in the fall of 2007, a planning effort got underway to formalize the relationships and intentions of the task force and develop the Tri-County Collaborative for Oral Health Excellence (Tri-CCOHE). Representatives from the counties of Barnstable, Dukes and Nantucket identified resources, needs and opportunities to improve oral health for the most vulnerable residents of our region. Our wealth of community resources, history of collaboration and commitment to our mission led to the vision of a tri-county region where everyone has access to oral health care regardless of their ability to pay.

We recognize that it is time to move beyond a patchwork of programs and services to a regional system that expands on and integrates our diverse initiatives. Many of the relationships and resources critical to the construction of a service system already exist. Our intent, in partnership with supportive funding partners, is to create the system described within our *Oral Health 2010* plan to prevent dental disease in children, to increase access for the uninsured and underinsured, to enhance services to serve special populations and to expand, integrate and sustain oral health programs and services.

Membership to Tri-CCOHE is open to any individual or organization that supports the Collaborative's mission. The Cape Cod Foundation is the fiscal sponsor for Tri-CCOHE and provides fiscal and management oversight and accountability to funding sources.

Tri-CCOHE Collaborators

<u>Organization</u>	<u>Representative</u>
Cape Cod Community College, Dental Hygiene Program	Elaine Madden
Cape Cod Child Development	Ricki Lacy
Cape Cod District Dental Society	Anthony Borgia, DDS
Cape Cod Healthcare, Infectious Disease Clinical Services	Liz DiCarlo
Cape Cod Regional Technical High School, Dental Assisting Program	Peggy Reilly-O'Brien
Commonwealth Mobile Oral Health Services	Mark Doherty, DDS
Community Coalition of Cape Cod, Cape Cod Dentists Care	Miriam Erickson
Community Health Center of Cape Cod	John Mancini, DDS
Ellen Jones Community Dental Center and Mid-Upper Cape Community Health Center	David Reidy
Martha's Vineyard Hospital Dental Center	James Ferriter
Forsyth Institute	Ellen Gould
Island Health, Inc.	Cynthia Mitchell
Nantucket Council for Human Services	Maryanne Worth
Outer Cape Health Services	John Graves, DDS
Vineyard Health Care Access Program	Sarah Kuh
Watch Your Mouth Campaign, Health Care for All	Czarina Biton

Executive Committee

Chair: John Mancini, DDS
Linda Fortenberry, DMD
Liz DiCarlo
Ellen Gould
Sarah Kuh
David Reidy

Steering Committee

In addition to the representatives of the Collaborating Organizations, the Steering Committee includes:

Rosemary Akin, Barnstable Schools
Stephen Bellorini, DMD
Kerry Bickford, Cape Cod Cooperative Extension
Karen Bissonnette, Community Health Center of Cape Cod
Kristin Braun, Community Coalition of Cape Cod
Courtney Chelo, Health Care for All
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Sheila Gagnon, Community Advocate
Karen Gardner, Community Health Center of Cape Cod
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Rachel Rosen, Nantucket Human Services Council
Jackie Zibrat-Long, Forsyth Institute

Acknowledgements

Making Headway—Easing the Burden of Dental Disease in Barnstable, Dukes and Nantucket Counties was developed by BL Hathaway, Coordinator of the Tri-County Collaborative for Oral Health Excellence (Tri-CCOHE). The Barnstable County data extrapolated from NHANES was prepared by Harris Contos, DDS, MBA, a member of the Tri-CCOHE Steering Committee.

Tri-CCOHE would like to thank the five local funders who provided the resources to launch the project. These five organizations, themselves members of a collaborative, demonstrated through their support that they understand that broad-based collaboration can most effectively provide the multiple strategies necessary for systems change.

The Bilezikian Family Foundation

The Edward Bangs Kelley and Elza Kelley Foundation, Inc.

The Cape Cod Foundation

Community Benefits of Cape Cod Healthcare

Cape and Islands United Way

Thanks also to:

The John Lipsky Charitable Trust

And our major supporter:

The Oral Health Foundation, a DSM Initiative

And thanks to the individual members and donors who have contributed their time, expertise and resources to Tri-CCOHE.

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February 2009

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Making Headway:

Easing the Burden of Dental Disease in Barnstable, Dukes and Nantucket Counties

EXECUTIVE SUMMARY

The most common chronic disease affecting the people of Barnstable, Dukes and Nantucket Counties is dental disease, also referred to as dental caries, cavities and tooth decay. Dental disease places physical, social and economic burdens on individuals and communities and negatively impacts the quality of life. Estimates extrapolated from population-based data indicate that 24.8%, or 62,000, Cape and Islands residents have untreated dental decay. As with other chronic diseases, the burden of disease, particularly untreated disease, falls heaviest on individuals from lower socioeconomic groups.

Dental disease continues to be a major public health problem, affecting 60-90% of school children and the vast majority of adults.⁵ Screenings conducted with Cape children in kindergarten, grade three and grade six demonstrated that an average of 33% had a history of dental caries, and 5.5% of third and sixth graders reported pain in teeth or mouth.¹² More than twenty-eight percent (28.7%) screened through prevention programs in tri-county schools had untreated decay. An estimated 23% of all adults in Barnstable County have untreated tooth decay.⁶ Of the 145 low to moderate income adults screened in Dukes County, 98% had a history of dental caries and 37% had untreated decay.³

Dental disease remains rampant due to lack of universal community water fluoridation, financial and socioeconomic barriers to preventive care and early intervention, restrictions on venues of care, and lack of organization and coordination of oral health and community resources to address a thoroughly preventable disease.

Lack of access to appropriate and timely dental services is a major barrier to care in this region, as elsewhere. An estimated 75,850 people on the Cape and Islands need access to affordable care. Over the past decade, measurable progress has

been made in the tri-county region to increase access to care and reduce dental disease. In 1998, there was virtually no access to care for low-income uninsured residents and those insured by MassHealth. There were no community dental centers; no publically-subsidized operatories (dental chairs and chair-side equipment); no public health dentists; and no school-based prevention programs. Four dentists in private practice served MassHealth patients and some provided pro-bono services for the low-income uninsured. As of December 2008, there were five community health/dental centers, 18 operatories, 8.85 (FTE) dentists in public health practices, 23 dentists in private practices accepting MassHealth, 76 dentists in private practice providing care to vulnerable populations in community-based programs and 30 elementary schools offering prevention programs. These affordable prevention and treatment options bring the current patient capacity to approximately 18,000.

While the progress has been meaningful, the availability, affordability and acceptability barriers to oral health care in this region continue to present a challenge. All of the safety net providers on the Cape have a total of 8.85 FTE dentists providing care. There are 200 members of the Cape Cod District Dental Society and 23 participate in MassHealth, accepting varying numbers of patients. Studies of the human environment conducted in Barnstable and Nantucket Counties found that 25% of respondents reported "not having enough money to pay the doctor, dentist or to buy prescription medication." Adult screenings in Dukes County identified 37% of low to moderate income residents with untreated caries. Advocates report difficulty identifying acceptable services for people whose first language is not English and for people with disabilities and chronic medical conditions.

While these variables may seem daunting, the history of collaboration and progress made to this point in developing community programs and services offers hope that the barriers that remain are amenable to change. *Oral Health 2010*, a plan developed by members of the Tri-County Collaborative for Oral Health Excellence in 2006, offers a strategic approach to increasing access to care and reducing dental disease organized around 1) education and prevention, 2) access for the uninsured

and underinsured, 3) capacity to serve special populations, and, 4) systems development.

As more sectors and members of the community become alerted to the importance of oral health and their potential role in increasing access and reducing disease, they may join with oral health providers, educators and advocates in the planning, implementation and evaluation of broad-based strategies. Such community-wide attention and intent will help to achieve improvements in oral health and the quality of life for Cape and Islands individuals and communities.

Making Headway:

Easing the Burden of Dental Disease in Barnstable, Dukes and Nantucket Counties

I. INTRODUCTION

What is the most common chronic disease of childhood? Are there many people other than oral health professionals who would answer **dental disease**? Indeed, dental caries (also referred to as cavities and tooth decay) is the most common chronic disease in both children and adults here on Cape Cod and the Islands as well as across the country. Oral health is an essential and integral component of overall health throughout life. No one can be truly healthy unless he or she is free from the burden of dental disease.¹ Despite the fact that safe and effective disease prevention measures exist and dentistry is organized to manage disease, limited application of prevention practices and lack of access to appropriate and timely care, as well as other risk factors, result in a spate of untreated dental caries. Dental disease, a significant public health problem, continues to have a negative impact on the quality of life of millions of Americans and thousands of people in Barnstable, Dukes and Nantucket Counties.

In 1998, the first concerted efforts to address oral health issues on Cape Cod, Martha's Vineyard and Nantucket began when the single remaining dentist on the Lower Cape to accept MassHealth, the Massachusetts version of Medicaid, closed his practice to MassHealth patients. This prompted the creation of a community task force that came together to investigate, plan and implement strategies to increase access to affordable dental care and reduce the incidence of dental disease. During the past decade, there has been meaningful progress in the delivery of preventive measures, the development of community-based oral health programs and the availability of affordable dental care in the tri-county region.

Making Headway: Easing the Burden of Dental Disease
1998-2008

Year	Total # safety net chairs	Approx. # served by safety net providers	# of schools offering prevention programs	Approx. # of children served	Approx. # of MassHealth providers (other than CHCs)	# of dentists participating in CCDC and MVDAP	Approx. # served by private providers
1999	0	0	U*	50	6	-	U
2000	3	1,200	8	120	8	-	U
2002	Governor eliminates MassHealth funding for adult dental care						
2004	9	3,200	23	1,337	10	55	4,000
2006	9	5,400	26	1,809	13	63	6,016
2008	17	9,558	30	2,294	23	76	6,118

* Unknown

Although we have been making headway in easing the burden of dental disease, there are many steps yet to be taken to lift the physical, social and economic impact of dental disease that continues to be a public health issue in our community. Knowing that oral health is essential to the health and well-being of our citizens, the combined forces and collective wisdom of all interested parties and stakeholders can make optimal oral health a reality for everyone on Cape Cod and the Islands.

II. BACKGROUND

Barnstable, Dukes and Nantucket are the three counties that make up the area known as Cape Cod and the Islands. This area is often considered a carefree vacation destination, a second home location and a retirement community for the financially secure. While geography affords some unique advantages, many residents struggle to make ends meet. Of the approximately 225,000 year-round residents in Barnstable County, 15,000 in Dukes County, and 10,000 in Nantucket County, the high cost of living stresses and stretches many families working to meet their basic needs.

Monitoring the Human Condition, a study of the human environment undertaken by the Barnstable County Department of Human Services and updated annually, reports on the most serious household issues experienced by respondents. In 2007, the most prevalent issues among Cape Cod households embodied two common themes—1) having a lot of anxiety, stress or depression in the household and 2) not having enough money to pay for recreation, essential medical and dental services, housing and food.²

During 2006, a community assessment of oral health needs and assets was conducted in Dukes County (Martha's Vineyard). This study was undertaken for the purpose of planning a comprehensive program of oral health services for a targeted population. Accessibility and affordability were identified as two major oral health issues on Martha's Vineyard.³

Also in 2006, The Nantucket Council for Human Services conducted a *Study of the Human Environment of Nantucket* to document the serious needs experienced by a substantial number of residents in the areas of healthcare and human services. "Paying for or getting dental insurance" was the top household issue on Nantucket, reported by 27% of respondents.⁴

While all 250,000 residents of the area need access to regular dental care, for the up to 33% of households encountering serious health and human service needs, access to affordable dental care presents a challenge. Children and adults in these families often go without routine checkups, cleanings, sealants and restorative care, putting them at risk for progressive disease and its negative consequences. Except for two towns on Martha's Vineyard and the Air National Guard base on the Cape, the entire region is without the benefit of community water fluoridation, a fundamental public health measure that has been demonstrated to reduce dental caries.

Certainly, the Cape and Islands region is not the only community suffering under the burden of dental disease. The World Health Organization acknowledges that problems in oral health remain in communities all over the world—in both developed and developing countries. Despite dental disease being entirely preventable, it is still a major health problem in industrialized countries, "affecting 60-90% of schoolchildren and the vast majority of adults." "Given the extent of the problem, oral diseases are major public health problems. Their impact on individuals and communities, as a result of pain and suffering, impairment of function and reduced quality of life, loss of work productivity and days in school is considerable."⁵

According to the National Institute of Dental and Craniofacial Research, there have been substantial gains in the oral health of the nation over the past generation, but these gains have not benefitted all Americans equally. The burden of oral and dental disease, particularly untreated disease, falls heaviest on individuals from lower socioeconomic groups. Children in low-income families are particularly vulnerable to oral health problems. Their nutrition may be poor; their oral hygiene may be inadequate; their communities may lack water fluoridation; their school systems may lack oral health care programs and curricula; their access to oral health care may be non-existent or limited to an emergency basis to deal with the sequelae of untreated disease.⁶

From a need perspective, this report provides an estimate of the burden of dental disease on Cape Cod and the islands of Martha’s Vineyard and Nantucket. It assesses this burden by gathering and analyzing existing national, state and local data on the demand for access, the caries experience of residents, the extent of untreated disease and barriers to treatment. In addition, statistics from the National Institute of Dental and Craniofacial Research on the history of disease, untreated decay and involved teeth were applied to local census data to further describe the burden of disease in our region.

From a resource perspective, this report describes the current capacity, i.e., the availability, affordability and acceptability of oral health care providers, both public and private, to provide effective and appropriate health promotion, preventive, diagnostic and routine and specialty treatment services for vulnerable populations, as well as the adequacy of public health measures and programs to address the burden of dental disease on the Cape and Islands on a population-based basis.

To reiterate, this report constitutes secondary research that collects in one place and reports on national, state and regional research that shed light on the burden of dental disease, its impact in Barnstable, Dukes and Nantucket counties and existing resources to ease the burden of disease. Primary resources included and analyzed for this report include the following:

National

Oral Health in America: A Report of the Surgeon General

Healthy People 2010—Oral Health

National Health and Nutrition Examination Survey—NHANES

Center for Disease Control and Prevention (CDC) National Surveillance System

State

CDC National Surveillance System—Massachusetts

The Oral Health of Massachusetts’ Children, 2008

Massachusetts Oral Health Report—Mapping Access to Oral Health Care

Toward a Stronger Oral Health Safety Net—Oral Health Care in

Massachusetts Community Health Centers, 2007

Regional

The Oral Health of Massachusetts' Children—County Data, 2008

*Monitoring the Human Condition Study—Improving the Human
Environment on Cape Cod, 2008*

The Nantucket Health & Human Services Needs Assessment Survey, 2006

Vineyard Smiles Oral Health Community Assessment, 2006

III. THE DEMAND FOR ACCESS

Of the approximately 11,500 children attending 37 public elementary schools, grades pre-kindergarten through grade 5, across the Cape districts, an average of 17.6%, over 2000 children, have been determined to be from low-income households. On Martha's Vineyard, there are approximately 600 children from early childhood to grade eight who fall into the low-to-moderate income category. In Nantucket, approximately 607 children attend grades Pre-K through Grade 5 and, across the district, 5.9% have been determined to be low-income.⁷ These children and their families are likely to need access to affordable dental care.

When MassHealth coverage for adult dental care was eliminated in March 2002, most Cape and Islands dentists had already dropped out of as a result of dissatisfaction with pre-approval, reimbursement rates, slow payment and the many patients who did not keep their appointments. Recent healthcare reform legislation reinstated MassHealth adult dental coverage effective July 1, 2006. According to the MassHealth Office in January 2008, there were 32,500 Barnstable, Dukes and Nantucket County residents (adults and children) who were eligible for dental coverage through MassHealth. The new Commonwealth Care insurance products, Boston Medical Center HealthNet Plan and Neighborhood Health Plan, include dental coverage for another 9,000 people. In addition, approximately 15,000 are eligible for dental care through the Health Safety Net.

Healthcare reform increased the number of people eligible for public insurance coverage for dental care and increased awareness of this eligibility, thus increasing demand for services. However, healthcare reform did not necessarily increase access. In the private sector in Barnstable County, as of December 2008, there were three group practices and twenty-three dentists in general practice honoring public insurance vehicles for all ages. Five dentists on the Cape serve children covered by MassHealth. On Martha's Vineyard there are no dentists accepting new MassHealth patients and on Nantucket there are three dentists who accept MassHealth. Only the community health/dental centers and one private practice

accept Commonwealth Care products. The Health Safety Net only covers patients of the community health/ dental centers and the Martha's Vineyard Hospital Dental Center.

Fees for dental care have increased significantly over the past ten years. The usual and customary rate for a root canal may be as much as \$1500. As fees for dental services have increased, fewer and fewer dentists have payment policies that accommodate people of low to moderate income. It is not necessary; most practices have full panels with paying customers, who either have dental insurance coverage or can afford to pay out-of-pocket.

With the high cost of dental care and the very high cost of living on the Cape and Islands, there is also a large segment of our population who fall into the eligibility-affordability gap; that is, they earn too much to be eligible for public health insurance but too little to afford dental care. If 10% of the population who are not insured by subsidized plans need access to affordable care, that would be an additional 19,350 individuals.

Summarizing the data enumerated above:

- **There are an estimated 56,500 people who are covered by health insurance plans that are totally or partially subsidized, that include coverage for dental care.**
- **Another 19,350 are estimated to fall in the eligibility-affordability gap.**
- **This brings the estimated total number of people in need of access to affordable dental care to 75,850, or approximately one-third of the Cape and Islands population.**

IV. THE BURDEN OF DISEASE

As a nation, we have overlooked, ignored or discounted the importance of oral health at great expense. The amount of human pain and suffering associated with untreated dental disease is enormous, impairing functioning and reducing quality of life. Dental disease costs dearly in time-in-learning for children and in productivity for working adults. The disease management approach to dental caries that has us wait until an expensive surgical intervention is called for is extremely costly. According to the World Health Organization, oral disease is the fourth most expensive disease to treat in most industrialized countries.⁵

As with all diseases, the greatest burden of oral disease falls on the disadvantaged and socially marginalized. Data reported in the Journal of Dental Research, Volume 75, indicate that 80% of the dental caries in the permanent teeth found in children is concentrated in 25% of the child and adolescent population.⁸

A. National Data

Oral Health in America: A Report of the Surgeon General

The intent of the Surgeon General's 2000 report on oral health was to alert Americans to the full meaning of oral health and its importance in relation to general health and well-being. According to the report, there has been marked progress in reducing the extent and severity of common oral diseases. However, not everyone is experiencing the same degree of improvement. What amounts to a "a silent epidemic" of dental and oral diseases affects some population groups—a burden of disease that restricts activities in school, work, and home, and often significantly diminishes the quality of life.¹

According to *Oral Health in America: A Report of the Surgeon General*:

Tooth decay is the most common chronic disease of childhood, with poor children experiencing twice as much decay as non-poor children.

In children, dental disease may lead to serious general health problems and significant pain, interference with eating, overuse of emergency rooms and lost school time. A commonly quoted figure in the literature is that over 51 million school hours are lost annually because of dental-related illness.⁹

As evidenced in many older children and adults, oral disease is cumulative and becomes more complex over time. The disease progressively affects a person's ability to eat, communicate and function in society.¹

Healthy People 2010—Oral Health

Healthy People 2010 is a prevention framework for the nation. It is a statement of national health objectives designed to identify the most significant preventable threats to health and to establish national guidelines to reduce those threats. Healthy People 2010 challenges individuals, communities and professions to take specific steps to ensure that good health and a long life are enjoyed by all.¹⁰

The oral health goal for *Healthy People 2010* is to “prevent and control oral and craniofacial diseases, conditions and injuries and improve access to related services.” To attain this goal, oral health services, both preventive and restorative, must be available, accessible and acceptable to everyone. Seventeen objectives have been selected to guide strategic planning and monitor progress in either reducing the proportion of people with disease or increasing the number and use of preventive and restorative services. A baseline, target, and data source is given for each objective.

For the purposes of this report, the following nationwide baseline data (1988-1994) is of interest. Arrows indicate the direction of trends that are being sought in these measures of oral health:

Children and Adolescents

Caries Experience and Untreated Tooth Decay

- ↓ 18% of children aged 2-4 years had dental caries experience
- ↓ 16% had untreated dental decay

- ↓ 52% of children aged 6-8 years had dental caries experience
- ↓ 29% had untreated decay

- ↓ 61% of adolescents aged 15 years had dental caries experience
- ↓ 20% had untreated decay

Dental Sealants

- ↑ 23% of children aged 8 years had dental sealants on their molar teeth
- ↑ 15% of adolescents aged 14 years had dental sealants on their molar teeth

Dental Visits

- ↑ 48% of children aged 2-17 years visited a dentist during the previous year (1996)
- ↑ 20% of children and adolescents aged 2-19 years who were below 200% of the federal poverty level visited a dentist during the previous year¹⁰

Adults

Untreated Tooth Decay

- ↓ 27% of adults aged 35-44 years had untreated dental decay

Dental Visits

- ↑ 43% of adults aged 18 and older visited a dentist during the previous year
- ↑ 41% of adults aged 65 years and older visited a dentist during the previous year
- ↑ 19% of all nursing home residents received dental care (1997)

Periodontal Disease

- ↓ 48% of adults aged 35-44 years had gingivitis and 22% had destructive periodontal disease (1999)

Complete Tooth Loss

- ↓ 26% of adults aged 65-74 years had lost all their natural teeth (1997)

Public Oral Health Measures

- ↑ 62% of the US population was served by community water systems with optimally fluoridated water (1992)
- ↑ 34% of local health departments and community health centers had oral health components (1997)¹⁰

National Health and Nutrition Examination Survey—NHANES

NHANES has been a source of information on oral health since the early 1970s. It points out that even though dental disease is largely preventable, it remains the most prevalent chronic disease in both children and adults.¹¹ The following data highlights about dental caries are from the most recent survey (1999-2004).

Children (age 2-11) and Adolescents (age 12-19)

Caries Experience

42% of children age 2-11 have had caries in primary teeth

21% of children age 6-11 have had caries in their permanent teeth

59% of adolescents age 12-19 have had dental caries in permanent teeth

Untreated Tooth Decay

23% of children age 2-11 have untreated dental caries

23% of adolescents age 12-19 have untreated dental caries

Sealants

30% of children 6-11 have dental sealants

38% of adolescents have dental sealants

Dental Visits

Almost 50% of very young children age 2-5 have never been to a dentist

23% of children 2-11 have never been to a dentist

More children in families with lower incomes have never been to a dentist

3% of adolescents have never been to the dentist

27% of adolescents have not been to the dentist in the past year¹¹

Adults (age 20-64) and Seniors (age 65+)

Caries Experience

92% of adults have had dental caries in permanent teeth

92% of seniors have had dental caries in permanent teeth

Untreated Tooth Decay

23% of adults have untreated decay

23% of seniors have untreated decay

Dental Visits

40% of adults have not been to the dentist within the past year

12% of adults have not been to the dentist in the past 5 years

About 50% of seniors have not been to the dentist within the past year

About 23% of seniors have not been to the dentist in the past 5 years

Complete Tooth Loss

About 4% of adults have no remaining teeth

27% of seniors have no remaining teeth¹¹

The *Healthy People 2010* and the *NHANES* data were gathered and organized around different age categories. Generally, they tell us that **for children in the United States:**

- **Caries experience is cumulative; it increases with age.**
- **About 25% of all children have untreated decay.**
- **Less than 40% of children and adolescents have dental sealants that help prevent cavities.**
- **More than 50% of children did not visit a dentist during the previous year.**

The *Healthy People 2010* and the *NHANES* data indicate that **for adults in the United States:**

- **Almost all adults (92%) have had dental caries.**
- **About 25% of all adults have untreated disease.**
- **More than 25% of seniors have lost all their natural teeth.**
- **40% or more of adults did not visit a dentist in the previous year.**

B. Massachusetts Data

The Oral Health of Massachusetts' Children

This 2008 study to assess the oral health of school children in Massachusetts, found that more than one in four children start kindergarten with evidence of dental decay. More than 40% of third grade children had evidence of dental decay, and about one-third of sixth grade students had been affected by dental caries. The study also showed that a significantly higher proportion of children from low-income families, compared to those from families with higher incomes, had a history of caries, had untreated decay and had a need for urgent dental care because of pain of infection.¹²

Children

Caries Experience

In kindergarten, 41.5% of children from low income families were affected by dental caries, 1.9 times higher than kindergarten children from higher income families. By third grade, 60.8% of children from low income families were affected by dental caries, 1.9 times higher than third grade children from higher income families.

Untreated Decay

Children from low-income families not only have a much higher prevalence of oral disease but also are less likely to have had their dental caries treated. Among kindergarten children, the proportion of children from low-income families with untreated decay (25.7%) were at least double that of comparable groups. Among sixth graders, the proportion from low-income families with untreated disease (17.4%) was double that of those with higher incomes.

Pain

Among kindergarten children, a higher proportion of those from low-income families (8.1%) were at school with pain in their teeth or mouth, more than double that for comparable groups. Among third graders, a higher proportion of children from low-income families (9.7%) reported pain, more than three times higher than comparable groups

The Centers for Disease Control and Prevention (CDC) National Surveillance System—Massachusetts

The CDC in collaboration with the Association of State and Territorial Dental Directors developed the National Oral Health Surveillance System in 2000 to monitor the burden of oral disease, the use of the oral health care delivery system and the status of water fluoridation.

Data from the 2004 Behavioral Risk Factor Surveillance System, recorded on the National Oral Health Surveillance System, was reported for Massachusetts (and the US, where provided) on the following oral health indicators¹³:

Children (2003-2004 School Year, 26% eligible for Free/Reduced Lunch Program)

- [Caries Experience](#). Percentage of 3rd grade students with caries experience, including treated and untreated tooth decay
MA 48.8%
- [Untreated Tooth Decay](#). Percentage of 3rd grade students with untreated tooth decay
MA 26.6%
- [Dental Sealants](#). Percentage of 3rd grade students with dental sealants on at least one permanent molar
MA 53.3%

Adults

- [Dental Visit](#). Adults aged 18+ who have visited a dentist in the past year
US 69% MA 78.2%
- Adults age 18+ earning less than \$25,000 per year who visited a dentist in the past year
MA 57.7%
- [Teeth Cleaning](#). Adults aged 18+ who have had their teeth cleaned in the past year (among adults with natural teeth who have ever visited a dentist or dental clinic).
US 69% MA 79%
- [Complete Tooth Loss](#). Adults aged 65+ who have lost all of their natural teeth due to tooth decay or gum disease.
US 20.5% MA 16.5%
- [Lost 6 or More Teeth](#). Adults aged 65+ who have lost six or more teeth due to tooth decay or gum disease.
US 45.9% MA 41.6

Fluoridation

- [Fluoridation Status](#). Percentage of people served by public water systems who receive fluoridated water. **MA 60.7% (2002)**

Data from the *Oral Health of Massachusetts Children* and the *CDC National Surveillance System* shed added light on the disparity of the oral health burden between those from lower income families as compared to higher income families. Examination of their data shows that for **children in Massachusetts**:

- **About 25% of all children and 41.5% of children from low-income families start kindergarten with dental decay.**
- **More than 40% of all 3rd graders and 60.8% from low-income families were affected by dental caries.**
- **Almost 10% of children in grades K-3 that are from low-income families attended school in pain.**

Based on the data from the CDC National Surveillance System, **adults in Massachusetts**:

- **Over 42% of adults earning less than \$25,000 did not visit a dentist in the previous year.**
- **Over 40% of adults over age 65 have lost 6 or more teeth due to tooth decay**

C. Tri-County Data

Children in this country suffer from dental disease more than any other chronic disease. The children on Cape Cod, Dukes and Nantucket Counties are no exception and are at particular risk for decay as a result of economic and political factors. First, many lack access to affordable care because they have no dental insurance or have MassHealth (Massachusetts Medicaid) which is not accepted by most dentists. Second, schools in the area have experienced budget cuts that have

eliminated the positions of health teacher, so there are no classes offered in oral hygiene skills other than the instruction offered by ForsythKids hygienists and the Community College externs in the course of preventive treatment. Third, of the 22 towns on the Cape and Islands, only two have fluoridated water.

The addition of fluoride to our drinking water is a hotly debated issue and public sentiment has not supported it in Cape and Islands towns where it has been tested. Many homeowners are reliant on private well water. Since Cape and Islands drinking water is not fluoridated, children do not have the benefit of the well-documented cavity protection fluoridation provides. When the Ellen Jones Community Dental Center in Harwich opened its doors in 1999, the clinical director at the time, Dr. Tim Martinez, described the oral health status of the children he was seeing as, "worse than third world countries." Some children and teens reported that they had never been to a dentist. Dr. Martinez treated teens and young adults with "bombed out mouths" who required multiple extractions and partial or full dentures.

Volunteer dentists, who conducted screenings in the 9 elementary schools in the eight towns of the Lower/Outer Cape during the '04-'05 school year (latest data available), found that 26% of the children screened had observable decay. In the Hyannis area, a research initiative of the Forsyth Institute begun the same year, found an alarming 73% of the grades 1, 2 and 3 students screened had dental decay.

The Oral Health of Massachusetts' Children—County Data

The Oral Health of Massachusetts' Children study also assessed oral health status by county.¹² Pertinent data from Barnstable and Dukes Counties follow.

(Nantucket County was not included in this study.)

[Caries Experience](#)

The overall proportion of kindergarten children with caries experience across counties in Massachusetts was 28% and ranged from a low of 22% in Middlesex

and Norfolk Counties to a high of 45% in Hampden County. (There was no report of caries experience for Dukes County.)

- *24% of kindergarten children in Barnstable County had caries experience*
- *35% of third grade children in Barnstable County had caries experience (compared to 41% across the state)*
- *40% of sixth grade students in Barnstable County had a history of caries (compared to 34% statewide)*

[Pain](#)

The proportion of kindergarten, third grade and sixth grade students across the state with reported pain in their teeth or mouth was 4%, 5% and 5%, respectively. (There was no report on pain in teeth or mouth for kindergarteners in Barnstable or Dukes County.)

- *5% of third grade students in Barnstable County reported pain in teeth or mouth*
- *7% of third grade students in Dukes County reported pain*
- *6% of sixth grade students in Barnstable County reported pain*
- *8% of sixth grade students in Dukes County reported pain*

ForsythKids

In 2003, the Forsyth Institute began working with oral health advocates and providers on Cape Cod to offer a comprehensive dental disease prevention program in the public elementary schools targeting high-risk populations including minorities and people of low income. Through the ForsythKids program, a dentist provides children with an in-school dental examination and a hygienist provides cleaning, fluoride varnish and sealants. Participating students, those with informed consent provided by a parent or guardian, also receive a toothbrush, fluoride toothpaste and hygiene education.

To address the Surgeon General's oral health goals, staff of ForsythKids, through the Massachusetts Department of Public Health, solicited program participation from elementary schools in which greater than 50% of the children participated in the federal free and reduced lunch program. Initially, six elementary schools

participated, two of which were in Hyannis, a non-fluoridated community where the school population is largely Brazilian and Caucasian. As reported in an article accepted for publication in the Journal of American Dental Association: ¹⁴

Caries Experience

- *70% of the participating children had a history of disease*

Untreated Tooth Decay

- *42.1% had untreated decay in primary teeth*
- *31.1% has untreated decay in permanent teeth*

After six months, new decay in primary teeth was reduced by 52% and in permanent teeth by 32%. On Cape Cod and the Islands, the finding that ForsythKids quickly overcame multiple barriers to care and significantly improved oral health, lead to the expansion of the program to most of the public elementary schools on Cape Cod and Nantucket.

Vineyard Smiles Oral Health Community Assessment

From the period July 2005 through June 2006, Vineyard Smiles, a program of Island Health, Inc., conducted a community assessment of oral health needs in Dukes County (Martha's Vineyard) focused on low to moderate income children and adults. The assessment consisted of oral health screenings, a questionnaire and key informant interviews. A total of 155 children from pre-school through grade 6 and 145 adults underwent an oral health screening. One hundred and ninety (190) parents of pre-school and school-aged children and 169 adults completed questionnaires regarding past and present access to oral health care and service needs.³

Children

Caries Experience

- *50% of children screened in grades 1, 3 and 6 had caries experience*
- *63% of children screened in grade 3 had caries experience*

Untreated Tooth Decay

- *25% of children in grades 1, 3 and 6 had untreated caries*
- *31% of children in grade 3 had untreated caries*

Sealants

- *40% of children in grades 1, 3 and 6 had one or more sealants*
- *36% of first graders had one or more sealants*
- *43% of third graders had one or more sealants*
- *79% of sixth graders had one or more sealants*

Dental Visits

- *74% of children had a routine cleaning and checkup during the previous year*
- *28% who had a routine cleaning and check up went off-island for care*
- *17% of children had a visit because something was wrong or hurting during the previous year*
- *40% of children who had a visit because something was wrong or hurting went off-island for care*

School-based services also are provided through Cape Cod Community College. As part of their training, student externs of the Dental Hygiene Program provide in-school care to students identified by school nurses as in need of oral health care.

The Tri-County Collaborative for Oral Health Excellence (Tri-CCOHE) collected baseline data on children served by all of these school-based programs serving Barnstable, Dukes and Nantucket County school districts from January 1 through June 30, 2008. The services in the schools were provided by Forsyth Institute, externs from Cape Cod Community College and the Commonwealth Mobile Oral Health Services through the Vineyard Smiles program. Of the 2,294 children served by these providers during this six month period, 659 children or 28.7% had untreated dental disease.

Adults

Little clinical information exists for adults in Barnstable or Nantucket Counties other than the anecdotal reports of the community dental centers that provide care for

the over age 18 population as well as for children. The high rate of untreated disease in adults is inferred by the number of emergency patients seen daily and the number of appointments and procedures needed to complete patients' treatment plans. In the Mid-Upper Cape Community Health Center and the Ellen Jones Community Dental Center from the period January 1 through June 30, 2008, about eight to ten appointments each day were set aside for emergency patients. During this same timeframe, a total of 4,124 patients had a total of 10,310 visits for 15,227 procedures. The procedures completed were as follows:

Total # of procedures: 15,227

Emergency	818		
Restorative	2,995	Oral Surgery	2,086
Preventive	3,310	Periodontal	154
Endodontal	136	Other	5,728

The Martha's Vineyard Hospital Dental Center opened on April 8, 2008 and through the end of June an estimated 240 patients had over 600 appointments.

The *Vineyard Smiles Oral Health Community Assessment*³ reported the following data for the 145 low to moderate income adults, age 22 to 98 years, who were screened as part of the needs assessment:

Caries Experience

- 98% had fillings

Untreated Tooth Decay

- 37% had untreated caries

Complete Tooth Loss

- 14% of adults had complete tooth loss
- 27% of seniors age 65 years and older had complete tooth loss

Dental Visits

- 48% of adults had a routine cleaning and checkup during the previous year
- 43% of adults who had a routine cleaning and checkup went off-island for care

- *33% of adults had a visit because something was wrong or hurting during the previous year*
- *43% of adults who had a visit because something was wrong or hurting went off-island for care³*

Application of National Health and Nutrition Examination Survey (NHANES) Findings to Barnstable County

As stated previously, the *NHANES* findings have provided information on oral health for over 30 years and are considered a reliable data source. In order to make population-based quantifications of the burden of dental disease in Barnstable County, data from *NHANES* were used as a starting point from which to draw inferences about the 15 Cape Cod communities.

Children

Data extrapolated from *NHANES* and applied to 2000 Census data for 15 Cape Cod communities graphically depict the extent of dental disease on children, where over 5,000 children, age two to age nine, from a cohort of over 23,000, have untreated decay in nearly 15,000 teeth. More than 7,500 Cape teens, aged ten to nineteen, have untreated dental decay in close to 20,000 teeth.

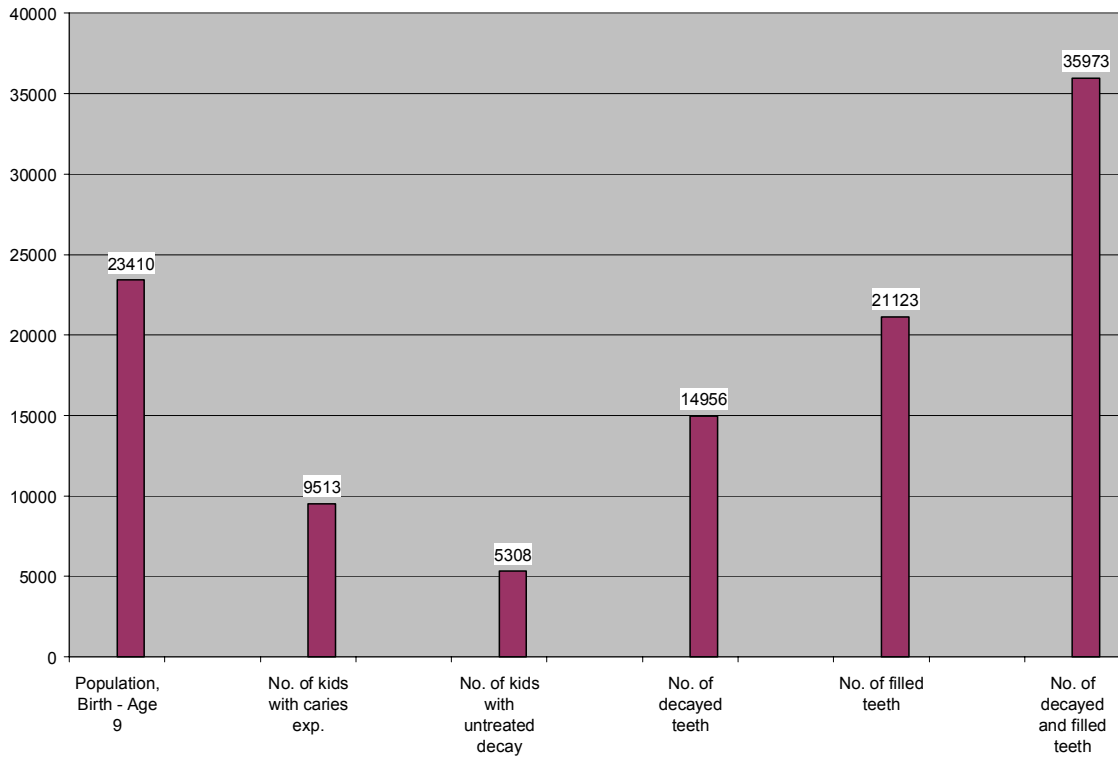
Adults

Based on the *NHANES* data, it is estimated that over 30,000 adults on the Cape have existing, untreated decay involving some 88,000 teeth. It is estimated that over 9,000 seniors on the Cape over age 65 have existing, untreated decay involving some 22,000 teeth.

As these data have not been adjusted for the number of low-income individuals, and the virtually total lack of community water fluoridation, these numbers may understate dental disease in these population groups.

Children

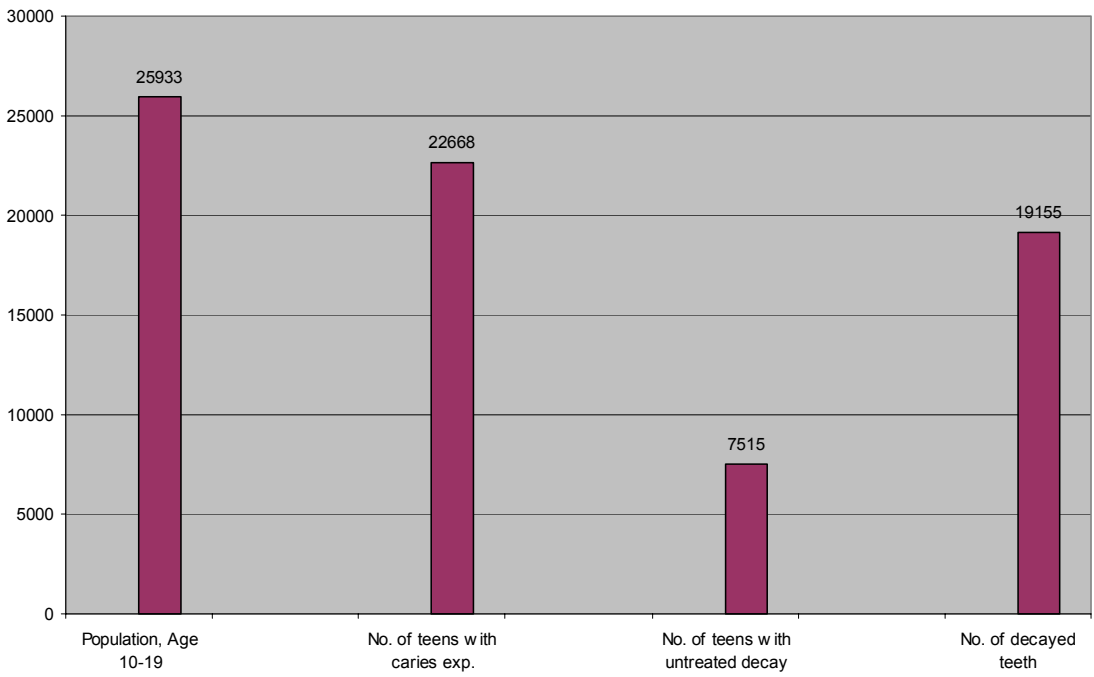
Profile, Cape Kids



Based on the NHANES data, it is estimated that 5,308 children in Barnstable County, aged two to age nine, have untreated dental decay.

Adolescents

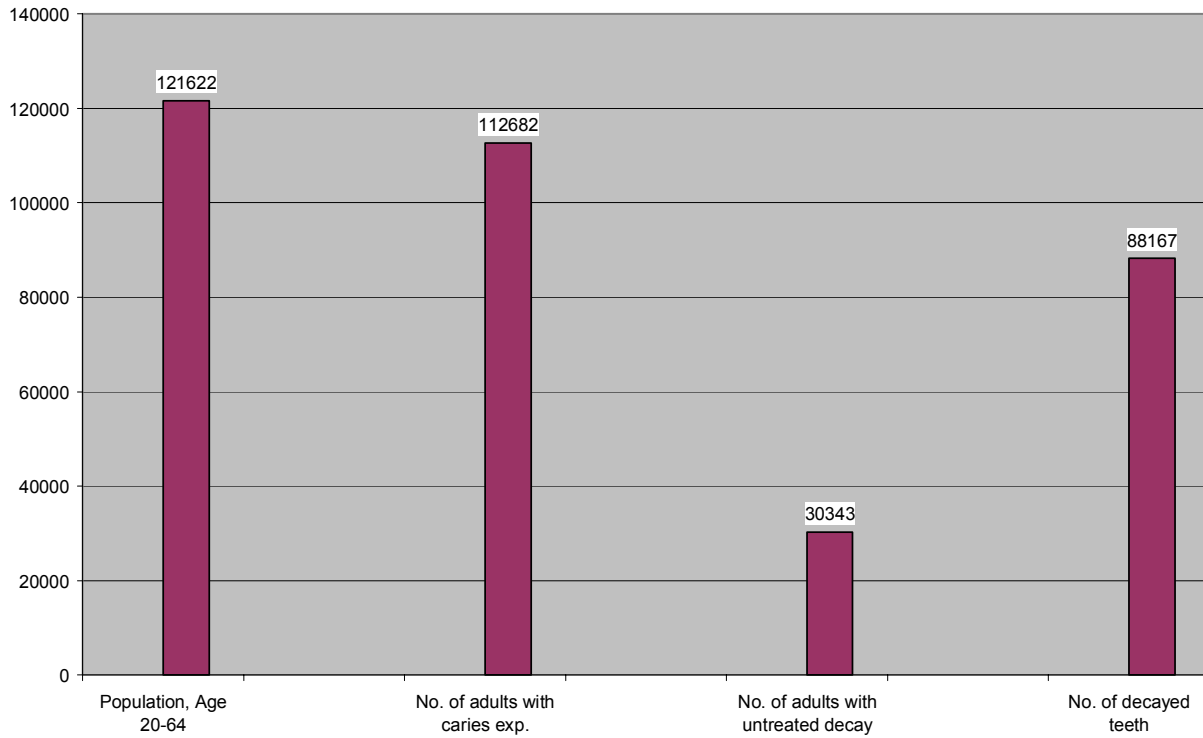
Profile, Cape Teens



Based on the NHANES data, more than 7,500 Cape teens aged ten to nineteen have untreated dental decay in close to 20,000 teeth.

Adults

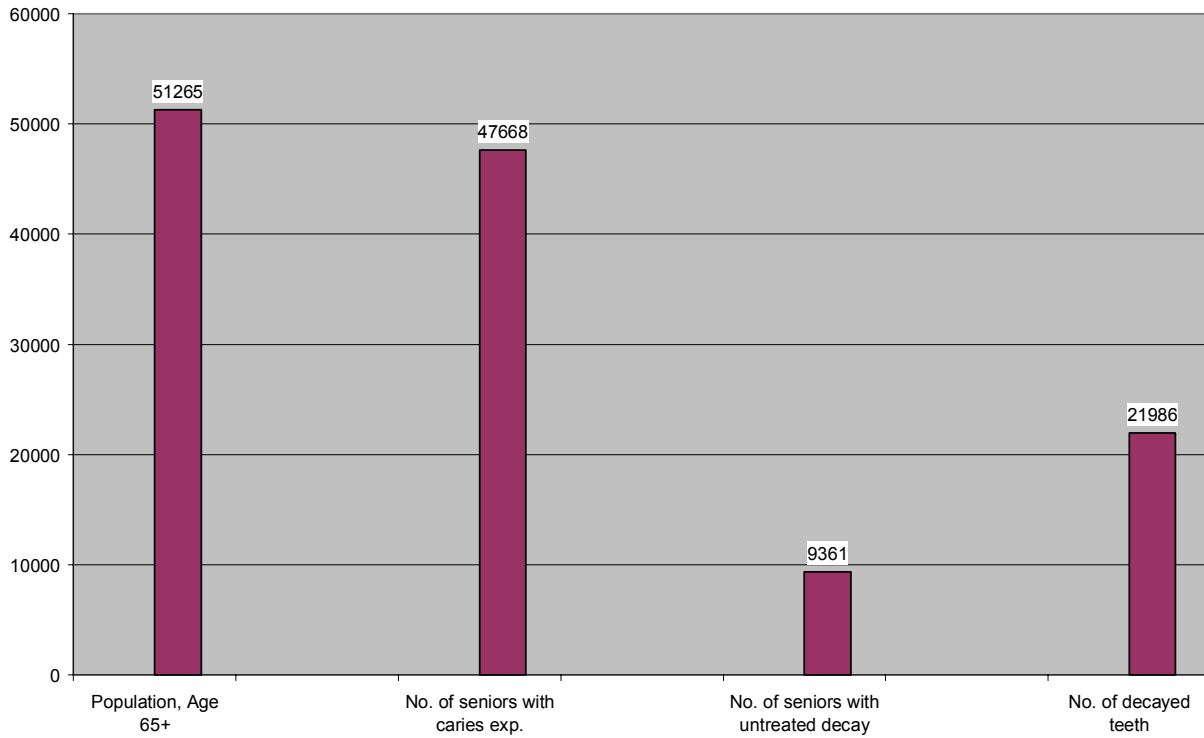
Profile, Cape Adults, 20-64



Based on the NHANES data, it is estimated that over 30,000 adults on the Cape have existing, untreated decay involving some 88,000 teeth.

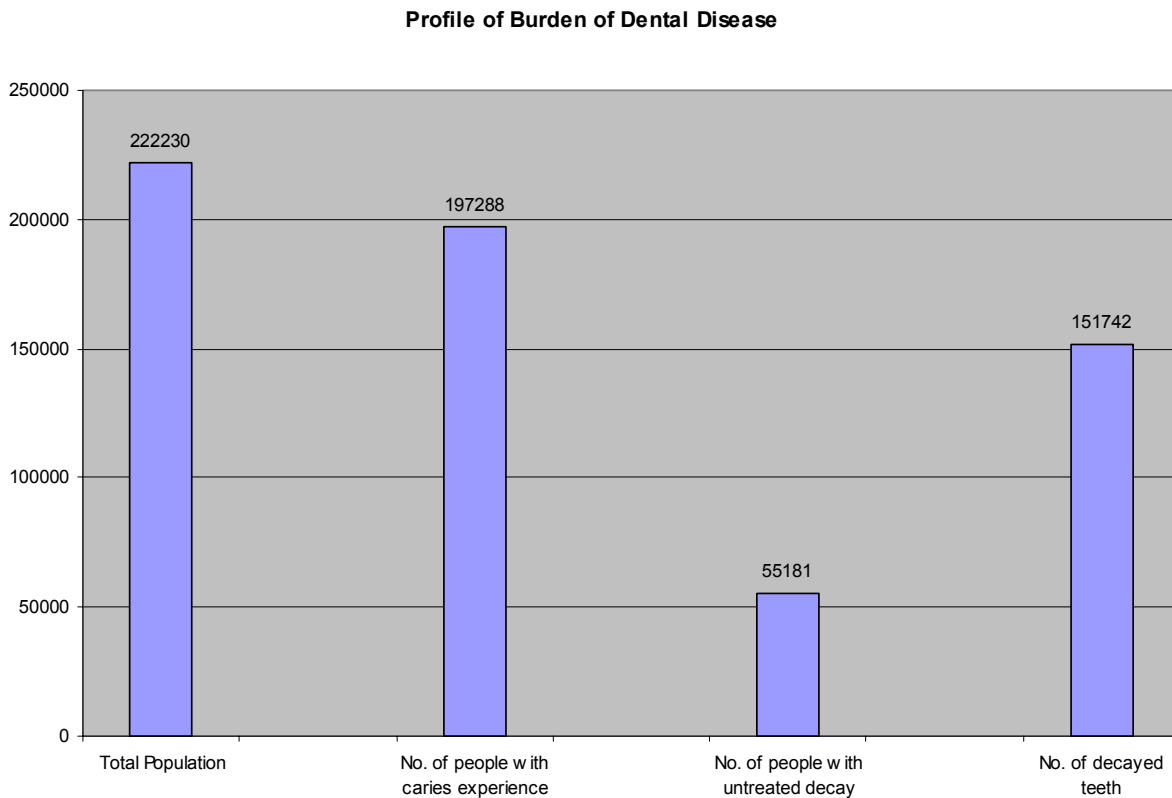
Seniors

Profile, Cape Seniors, 65+



Based on the NHANES data, it is estimated that over 9,000 seniors on the Cape over age 65 have existing, untreated decay involving some 22,000 teeth.

Overall



Combining the population groups, an overall view emerges of the enormous burden placed on the Cape's year-round residents by the most common chronic disease, dental disease. Once again, extrapolating from the NHANES data, it is inferred that 55,181 of the 222,230 residents, or one in four Cape residents, have untreated dental disease. Taking the Islands into account, an additional 3,720 people on Martha's Vineyard and 2,480 people on Nantucket have untreated decay. This brings the regional total to 61,381 people living with untreated dental decay.

Based on the analysis of data from national, state and local sources, the **children on the Cape and the Islands:**

- **An average of 33% of kindergarten and elementary school students screened in Barnstable County had caries experience.**
- **An average of 50% of children from low to moderate income families screened in Dukes County had caries experience.**
- **28.7% of children screened through prevention programs offered in the tri-county schools had untreated decay.**

Based on the analysis of data from national, state and local sources, **adults on the Cape and Islands:**

- **An estimated 24% of all adults in Barnstable County have untreated tooth decay.**
- **37% of low to moderate income adults screened on Martha's Vineyard had untreated dental disease.**
- **27% of seniors screened on Martha's Vineyard had complete tooth loss.**

V. BARRIERS TO ACCESS

While it is known that many people in the United States do not receive essential dental services, one data source confirming such was the 2000 GAO Report of Oral Health in Low Income Populations.¹⁵ Barriers to care included limited availability of public programs, lack of dental insurance, lack of access to affordable care, lack of culturally competent providers, and fear of dental visits. In addition, some people with limited oral health literacy may not be able to find or understand information and services.

A. Availability

According to the *Oral Health in America: A Report of the Surgeon General*, there is a declining trend in the dentist-to-population ratio in the US.¹ As stated in the Catalyst Institute's *Massachusetts Oral Health Report: Mapping Access to Oral Health Care in Massachusetts*, "the American Dental Association estimates that the dentist-to-population ration will range from approximately 48-53 dentists per 100,000 people in 2020, compared to approximately 60 dentists per 100,000 in 1990. With many dentists nearing retirement, there are not enough dental students in the training pipeline to replace them."¹⁶

The *Massachusetts Oral Health Report* estimates that there are 5,000 active registered dentists in Massachusetts. While close to 2,000 are enrolled as MassHealth providers, only 878 dentists, about 18%, billed for at least one claim during MA fiscal year 2005. The Report also attempted to shed light on the ways in which provider availability barriers such as the number and types of dentists, their geographic distribution and their participation in public health insurance programs impact access to dental care.¹⁶ The major findings of this report included:

- Rural areas tend to lack providers
- The majority of MassHealth dentists are in urban areas
- 30% of the cities and towns in Massachusetts don't have enough dentists to care for the people who live there

- 20% of cities/towns in our state have NO dentist
- 58% have no dental specialists
- 65% have no pediatric dentists
- More than 50% have no dentist that accepts MassHealth

It is important to note that “having dental insurance does not guarantee receiving dental care if there is no dentist available to provide it” or if the available dentist does not accept an individual’s insurance.

While community health centers are a critical component of the oral health delivery system for many people, they alone do not have the capacity to meet current demand, according to Catalyst Institute’s 2007 report, *Toward a Stronger Oral Health Safety Net*.¹⁷ Among the findings in their study to identify the challenges faced in community health center dental programs were the following:

- In 33% of community health centers in Massachusetts providing dental care, new patients waited three months or more to be seen for their first appointment.
- In 50% of community health center dental programs, existing patients waited five weeks or more to be seen for their next appointment
- In 80% of the centers, emergency visits represented 10% or more of total patient visits.
- 22 dental programs were recruiting for one or more positions.

On Cape Cod and the Islands, the availability of dental care is an access issue. Health Professional Shortage Areas (HPSAs) are designated by HRSA as having shortages of primary medical care, dental or mental health providers and the shortages may be geographic (a county or service area), demographic (low income population) or institutional (comprehensive health center, federally qualified health center or other public facility).

As of January 2009, all of the Cape and Islands are considered Dental Health Professional Shortage Areas. The MA Office of Oral Health reported that the tri-county region had dental HPSA designations based on the following criteria¹⁸:

Lower/Outer Cape as a low income population

Mid-Cape as a geographic area

Upper-Cape as a geographic area

Dukes County as a single county

Nantucket as a geographic area

On Martha's Vineyard, there are currently eight dentists in private practice, one pedodontist and seven general practitioners. Currently, none of these accepts MassHealth. An orthodontist who practices in New Bedford comes to the Vineyard twice a month. There is one oral surgeon and there are no periodontists on the Vineyard to serve the population of about 15,000. A dental clinic located at the Martha's Vineyard Hospital that had been closed since 2004, reopened in April 2008 to target the low income uninsured and underinsured. Care is provided by one dentist working four days a week. By October 2008, the waiting list at the hospital clinic stood at over 1,000.

On the island county of Nantucket, there are seven dentists in private practice. Three of these dentists are new MassHealth providers. The number of MassHealth patients that they will accept is yet to be determined. There are no specialty practices on Nantucket.

As of June 2008, the community dental centers reported that they were treating eight to ten emergencies daily. Wait time for appointments at the Ellen Jones Community Dental Center for new patients visits, existing patient follow-up visits and hygiene appointments was six to seven months. However, the completion of the three new operatories and hiring of additional staff are expected to reduce wait times to about one month. At Mid-Upper Cape Community Health Center, the wait time for an appointment for an existing patient follow-up visit is about six months. New patients are being booked for their first appointment about four months from

the time they call. The wait for hygiene appointments is approximately 5 months. At the Martha's Vineyard Dental Center, the wait list has been closed at 1,000. As of June 2008, there were three safety net community health/dental centers with 11 operatories and 6.0 FTE dentists providing dental care in Barnstable and Dukes County targeting uninsured, Medicaid and other vulnerable patients.

The Community Health Center of Cape Cod in Mashpee, with 3 chairs and 2.0 FTE dentists, began seeing patients in August. Outer Cape Health Services, Inc. began providing dental care in the office of a private practice in September.

B. Affordability

Since 1998, the Barnstable County Department of Human Services has conducted a regular assessment of *The Human Condition* in the County. Over the years, as high as 83% of key informants have identified dental care as a serious unmet service need. In the 2008 update, *Monitoring the Human Condition*, approximately 342,000 pieces of quantitative data were tabulated and reported. Two oral health issues were among the top five issues and service barriers faced by Cape Codders.²

- 25% of respondents reported "not having enough money to pay the doctor, dentist or to buy prescription medications"
- 23% reported problems "paying for or getting dental insurance"
- The top six barriers to service access for all households included:
 - Could not afford fees/costs for services
 - Services not accepting new patients
 - Cost of time away from work
 - Paying insurance deductible/co-payment
 - Services located too far away
 - Unable to take time away from work

Seventeen percent (17%) of the hand-written comments in answer to the open-ended question, "What do you dislike most about Cape Cod?" made reference to high costs and the lack of affordability of goods and services.

If the focus is shifted to the neediest households (the approximately 19% of households encountering the highest levels of problems and experiencing some of the most serious barriers in accessing help):

- A staggering 74% of respondents reported "not having enough money to pay for the doctor, dentist or to buy prescription medications" and
- 62% reported problems "paying for or getting dental insurance."
- The top six barriers to access for the neediest households included:
 - Could not afford fees/costs for services
 - Cost of time away from work
 - Paying insurance deductible/co-payment
 - Services not accepting new patients
 - Services located too far away
 - Unable to take time away from work

Virtually the same study of the human environment was undertaken in Nantucket County in 2006. Based on the findings of *the Nantucket Health & Human Services Needs Assessment Study*, the number one and two health and healthcare related issues on Nantucket were⁴:

- "Paying for or getting dental insurance," reported by 27% of Nantucket households
- "Not having enough money to pay the doctor, the dentist or to buy prescription medication," reported as an issue by 25% of households

Again, if the focus is shifted to the most needy households:

- An astounding 83% of households reported "not having enough money to pay the doctor, the dentist or to buy prescription medication"
- 79% reported problems "paying for or getting dental insurance."

- The top six barriers to access needed services included:
 - Could not afford fees/costs for services
 - Cost of time away from work
 - Unable to take time away from work
 - Services not accepting new patients
 - Paying insurance deductible/co-payment
 - Insurance not accepted for services

In Dukes County (Martha's Vineyard), affordability as a barrier to care emerged as a major finding of the Vineyard Smiles Oral Health Community Assessment.³

The cost of dental care was reported to be out of reach for most children from lower income families on Martha's Vineyard, as well as adults.

- 39% of those completing the Questionnaire for Adults reported that someone in their household who needed dental care in the past 12 months was unable to obtain care.
- Thirteen percent (13%) reported that someone in their household went to the hospital emergency room because of problems with teeth, mouth or dentures.

C. Acceptability

The issue of acceptability, i.e., whether the services are equipped to respond to cultural, language and physical differences, also stands as a barrier to care. Currently, four of the five community health/dental centers have Portuguese language capacity to respond to the needs of our largest immigrant group—Brazilians. One private group practice purports to have Portuguese and Spanish language capacity. Anecdotal reports by advocates for people with disabilities, including physical, developmental and mental impairments, describe little success in finding dental providers who are able to make appropriate accommodations.

VII. EASING THE BURDEN: CURRENT CAPACITY

There are currently 200 dentists on Cape Cod, Nantucket and Martha's Vineyard who are members of the Cape Cod District Dental Society. While some dentists in practice are not members of the district dental society and some members are not in practice, this is a reasonable approximation of the number of active dentists serving the three counties' combined population of 250,000.

When MassHealth coverage for adult dental care was eliminated in March 2002, most Cape dentists had already dropped out of as a result of dissatisfaction with pre-approval, reimbursement rates, slow payment and the many patients who did not keep their appointments. Currently, there are sixteen dentists in general practice honoring this public insurance vehicle.

At the time of the 2006 Vineyard Smiles Oral Health Community Assessment, Martha's Vineyard had ten dentists in eight private practices that were all at capacity. Only one of the practices accepted children with MassHealth, and this was on a limited basis. Two private practices provided discounted care, also on a limited basis.

Safety net providers play a critical role in the delivery of oral health care for many people in the three-county area, as they do across the country. The Institute of Medicine describes safety net providers as those who provide a significant level of health services to uninsured, Medicaid and other vulnerable patients. In 2006, about 73% of the 1002 health centers (supported by the Health Resources and Service Administration--HRSA) provided preventive dental services and 69% provided emergency and restorative care. HRSA reported that in that year more than 2.5 million patients had about 6.1 million dental visits at community health centers.¹⁹

According to James Hunt, President and CEO of the Massachusetts League of Community Health Centers, “safety net providers of oral health play a critical role in ensuring timely access and improving individual and community oral health for many Americans.” In the HRSA 2006 Data Massachusetts Rollup Report, the 33 Massachusetts community health center dental programs reported more than 263,500 dental encounters for more than 92,000 patients.²⁰

During the period that Tri-CCOHE collected baseline data, January 1 through June 30, 2008, the only safety net providers of oral health services that were offering care during that entire period were the Mid-Upper Cape Community Health Center in Hyannis and the Ellen Jones Community Dental Center in Harwich, both sites under the auspices of Harbor Health Services. During this six-month interval, both sites provided 10,310 patient visits and completed a total of 15,227 procedures. Of the total procedures performed, 5% were emergencies, 15% were endodontal or oral surgery, 20% were restorative, 1% was periodontal, 22% were preventive and 38% were “other.” In sum, 78% of the procedures were for treatment of disease and 22% were preventive care.

Tri-County Treatment Capacity

Given our current capacity, affordable dental care can be provided to approximately 18,000 Tri-County residents in a year.

Based on 2008 data, the current capacity in Barnstable County* is approximately 17,000 residents, as follows:

<u>Program</u>	<u>Annual Patient Capacity</u>
Ellen Jones Community Dental Center (3 operatories)	2,749
Mid/Upper Cape Community Health Center (6 operatories)	5,498
Cape Cod Community Health Center (3 operatories)	2,093
Outer Cape Health (seeing patients in office of private practice)	135
Cape Cod Dentists Care	500
MassHealth, via private practitioners	5,994

* Some of the people served in Barnstable County are from Dukes and Nantucket Counties.

In Dukes County, the annual capacity is approximately 950 people, as follows:

<u>Program</u>	<u>Annual Patient Capacity</u>
Martha's Vineyard Hospital Dental Center	900
Martha's Vineyard Dental Access Program	50

In Nantucket County, there is no 2008 data to estimate current capacity. The only known providers of affordable care are the few dentists who provided pro-bono care to Nantucket children identified as in need of care when participating in the ForsythKids program and the three providers who began accepting MassHealth in 2008.

There are approximately 13,100 children attending pre-kindergarten through grade 5 classes in public elementary schools on Cape Cod, Martha's Vineyard and Nantucket.⁷ Of these, an estimated 2,480 are from low-income families. The ForsythKids program opens participation to all students (who have parental permission to participate) in public schools on Cape Cod and Nantucket. The Vineyard Smiles program opens participation to children with MassHealth insurance. Cape Cod Community College externs provide screening and cleaning to students identified by the school nurses in the schools where they offer services. Based on data from January 1 through June 30, 2008, 2,294 children, or 17.5% of all children in pre-school classes through grade 5 (not only those in low-income families), participated in available school-based prevention programs.

Based on 2008 data, the Cape Cod Community College Dental Hygiene clinic has the capacity to provide hygiene and periodontal services to about 1,200 people.

Access to Emergency Care

Currently, people with limited means who have dental infections with swelling, bleeding, fever or pain may turn to the community hospitals for relief. While this is not the most appropriate or cost-effective site to receive care, it does offer a community safety net for those in need of urgent or emergency care.

Thanks to the dedicated efforts of the community health centers, all patients who call that describe urgent needs are seen either on the same day or the next day for treatment. Approximately eight to ten emergency patients are seen daily at each site. The commitment to meeting urgent needs places stresses on the community dental centers relative to staffing, scheduling and reimbursements. However, with regard to emergency care there is a satisfactory response mechanism in place. With intentions to grow prevention activities and access to affordable care, a decline in the number of emergencies is anticipated.

Access to Preventive Care

Access to preventive care for children has been one of the most significant oral health accomplishments of the past few years. School-based prevention programs now are offered in almost every elementary school on Cape Cod, Martha's Vineyard and Nantucket. These services are offered at no cost to the families and are primarily funded either through the Massachusetts Department of Public Health or the children's insurance. The challenge that remains for school-based programs is to increase the number of children, particularly those accessing the free or reduced lunch program, who participate in the prevention programs that offer screening, cleaning, and application of fluoride varnish and sealants. Appropriate information about the importance of oral health and the benefits of the program need to be shared with parents to maximize student participation.

For adults, access to regular preventive care is part of the routine care offered at their "dental home." Providing people with information on the importance of oral health, guidelines for nature and frequency of preventive care and linking them with an affordable oral health option, either in a public or private oral health setting, so that they can identify a provider as "their dentist," will move us toward improved preventive care for adults.

Access to Restorative Care

Over the past several months, there has been a concerted effort to quantify the number of people in need of access to affordable dental treatment on Cape Cod, Martha's Vineyard and Nantucket. People in need of affordable care have been defined as those insured by MassHealth and Commonwealth Care products, those covered by the Health Safety Net and those who fall in the eligibility-affordability gap (see Section III). In some cases hard data was available and in some cases "best estimates" had to suffice. Comparing those in need with capacity, a picture begins to emerge of the current status and the challenge that remains ahead of us. Our current capacity to provide care was quantified based on available data for 2008. Based on this 2008 data, dentists in public and private oral health settings on the Cape and Islands are currently providing restorative care for approximately 17,000 people.

Access to Specialty Care

Access to affordable specialty care, remains problematic on the Cape and Islands. The safety net providers have the capacity to provide general preventive and restorative care as well as some endodontal and periodontal procedures. The Mid-Upper Cape Community Health Center and the Ellen Jones Community Dental Center have the services of an oral surgeon. The Community Health Center of Cape Cod, Outer Cape Health Services, Inc. and the Martha's Vineyard Hospital Dental Center have no specialists on staff. Other services and providers must be pursued for patients in need of pedodontics, endodontics, periodontics, orthodontics and oral surgery. Occasionally, the only affordable specialty services to be found are at the dental schools in Boston.

As of September 25, 2008, two pedodontists and four orthodontists in private practice in the region accepted MassHealth. At this time, there were no periodontists, endodontists, or oral surgeons accepting MassHealth on Cape Cod, Martha's Vineyard or Nantucket.

The Dental Clinic at Cape Cod Community College provides low cost periodontal services to residents of Barnstable, Dukes and Nantucket Counties. Their services, however, are limited by the semester, school day and year, and requirements for students to treat patients with certain levels of disease. In the past year, the Dental Clinic served approximately 1,300 people in need of periodontal care.

The Cape Cod Dentists Care (CCDC) program that primarily serves patients who fall into the eligibility-affordability gap has 22 participating specialists. Patients served by CCDC-participating general practitioners are referred to these specialists, through the program coordinator, as the need arises. Efforts are underway to make the services of these specialists available to patients of the community health/dental center in need of specialty care.

VII. STRATEGIC INTENT AND DIRECTION

Efforts to positively impact availability, affordability and acceptability of dental care got underway in earnest in 1998 on Cape Cod and the Islands. At that time there was virtually no access to care for low income uninsured residents or those insured by MassHealth. There were no community dental centers, no publicly subsidized operatories, no public health dentists and four private practices serving the low-income uninsured and MassHealth patients. As of December, 2008 there were five community health/dental centers (including Martha's Vineyard Hospital Dental Center), 17 publically subsidized operatories, 8.85 (FTEs) public health dentists, 76 dentists participating in programs to serve the low-income uninsured and 23 dentists accepting MassHealth. While the progress that has been made is commendable, it is far from satisfactory. It is the goal in this region is to create an oral health system with 100% access to emergency, preventive, restorative and specialty care resulting in a reduced incidence of disease and optimal oral health for everyone.

Given the burden of disease, Tri-County Collaborative for Oral Health Excellence (Tri-CCOHE) has identified dental disease as a public health problem to be addressed through the collaborative efforts of committed providers, advocates, businesses, legislators and funders. Only by increasing the application of preventive measures, maximizing available resources, developing additional treatment capacity, enhancing services and skills to serve special population and working collaboratively can the goal of 100% access be achieved. *Oral Health 2010: The Strategic Plan for Oral Health* developed in 2006 by members of Tri-CCOHE, sets out a vision and mission and maps out a multi-pronged approach to increase access to affordable care and reduce dental disease.²¹

Vision Statement

Optimal oral health for everyone living in Barnstable, Dukes and Nantucket Counties

Mission Statement

To create a regional oral health system with 100% access to emergency, preventive, restorative and specialty dental care through the collaborative efforts of committed individuals, organizations, businesses, funders and legislators.

Goals and Objectives

- Reduce the incidence of dental disease in children in our community
 - Expand pre-school and school-based oral health programs
 - Create awareness of the importance of oral health and the need for access to affordable care.
 - Increase use of fluoride to prevent dental disease
 - Expand prevention education in programs serving children, youth, families

- Increase capacity to provide dental care for the low-income uninsured
 - Maximize the use of existing operatories in the community dental centers
 - Increase the number of operatories that offer affordable access
 - Expand capacity beyond the community health centers (Cape Cod Dentists Care, MassHealth, Cape Cod Community College)
 - Make local access to specialty care available to low-income residents

- Expand capacity and enhance skills to serve special populations
 - Enhance oral health provider skills to serve special populations
 - Offer assistance to special population through patient care coordination

- Improve coordination among existing programs and providers
 - Develop a regional system to expand, enhance, integrate and sustain oral health programs
 - Establish a coordinated system of workforce development

VIII. CONCLUSION

Dental caries, the most common chronic disease for both children and adults, continues to be a physical, social and economic burden for our community. All 250,000 residents of Barnstable, Dukes and Nantucket counties need access to dental programs and services where they can receive evaluation, education, preventive hygiene, treatment and referral, as needed. By this reports' estimates, 67% of our population can be served by the existing cadre of dentists in private practice. Approximately 33% need access to more affordable care. Evaluation of past and current capacity to make such oral health care universally available in our region shows that there has been steady and measurable progress over the past decade. We are currently able to provide access to affordable preventive care for care for an estimated 2,294 children in school-based programs, hygiene for about 1,200 adults at the Cape Cod Community College Dental Hygiene Clinic, and emergency and restorative care for approximately 18,000 children and adults through safety net sites and private providers.

However, the extent and persistence of this fundamentally preventable disease, calls on us to redouble resolve and efforts. In order to further reduce the burden of dental disease on our community members, concerted effort is needed to implement the *Oral Health 2010* plan employing strategic education, collaboration, and innovation.

Education

Bringing more stakeholders to the table to be part of the solution will require a systematic and ongoing public outreach, education and dialogue. Having individuals obtain, process and understand the basic health information and services needed to make appropriate oral health decisions requires oral health literacy. Certainly, dentists and dental hygienists are on the front line of oral health promotion and dental disease prevention. Schools are a likely venue to insure that our children are oral health literate. The School and Adolescent Oral Health (SAOH) Working Group of the Association of State and Territorial Dental Directors has developed an

eight-component school health program plan for integration of oral health into the schools. The SAOH Working Group also has developed tools to assist oral health advocates to promote and school nurses and other school personnel to implement oral health programs.²² In Massachusetts, the Office of Oral Health offers resources, curricula, educational tools, information and guidance on school-based oral health programs.

Collaboration

Given the finite resources available at this time to offer subsidized or low-cost dental care, it is imperative that each resource be maximized. This only can be accomplished if the service providers work together to insure that they each have a discrete and necessary role to play, that patients are directed to the most appropriate service, that funds are sought collaboratively rather than competitively and driven by the needs of the community. As we connect with stakeholders such as dentists in private practice, schools, funders and others to gain their trust and involvement, we need to demonstrate a coordinated community-wide initiative rather than a patchwork of programs that are advocating for the life of their own programs and bumping into one another in pursuit of clinical staff, volunteers, patients and funds.

Innovation

To achieve 100% access to dental care and reduce the incidence of disease, must also experiment and innovate in new approaches to oral health care delivery. New and different organizational and working relationships among practitioners, schools, Councils on Aging, local government agencies, are to be pursued, along with the public and private funding mechanisms to foster and support the organizational structures best able to reduce the burden of dental disease on the Cape and the Islands in an effective and efficient manner.

At the 2008 National Oral Health Conference, Dr. Larry Hill, president of the American Association for Community Dental Programs said, "There is hardly a city or rural county in the country that comes close to having sufficient dental clinical or

prevention services to meet the need.”²³ Clearly, it will require the dedicated participation of all of the stakeholders to achieve the goal of 100% access to affordable emergency, preventive, restorative and specialty dental care and reduce the burden of dental disease. But if it can be done anywhere, it can be done in Barnstable, Dukes and Nantucket counties.

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