Oral Health Screening for Third Grade Students in Selected Schools in Connecticut and New York

A report for the Foundation for Community Health
June 2006

Prepared by
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Background

There is anecdotally reported but unquantified unmet need for dental care in students in the Foundation for Community Health (FCH) catchment area. To quantify the problem of unmet dental needs among school students in the Foundation for Community Health service area, school-based screenings of third grade students were conducted in selected Connecticut and New York schools from October 19-21, 2005. The screening was a joint endeavor between the FCH and the Department of Oral Health Policy and Epidemiology (OHP&E) at the Harvard School of Dental Medicine (HSDM). The proposal for this project that was submitted to the FCH is appended as Appendix A.

Goals

The main aim of the oral health screenings was to assess the oral health needs of 3rd grade students in the New York and Connecticut communities that are within the FCH catchment area. Additional goals of the screenings included:

1) Providing oral health education to 3rd grade students
2) Identifying children who have dental disease by visual examination
3) Identifying the burden of dental disease in these communities

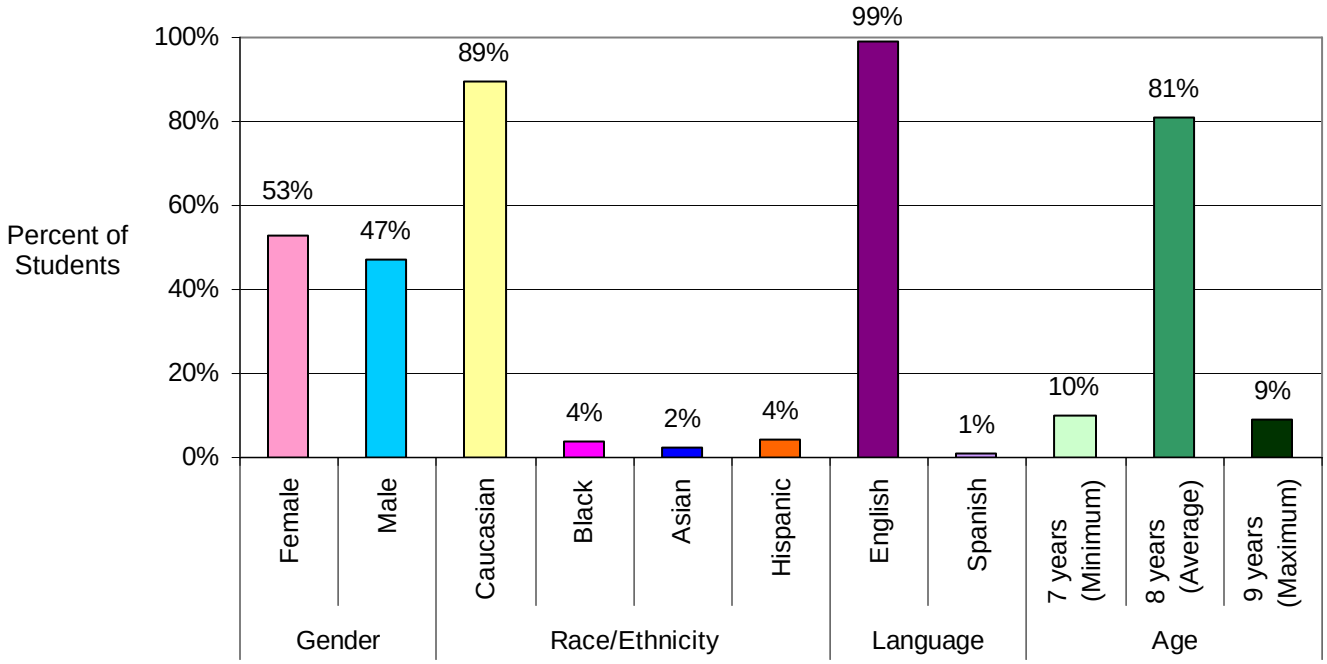
Methodology

The targeted population was all third grade students from nine Connecticut and three New York schools. Participation was voluntary and the recruitment was done by FCH. The screening was done by dentists from HSDM with support from local volunteers. A total of 319 students were screened. The Connecticut schools included: Kent Center, Cornwall, Sharon Center, Warren, Goshen, Botelle, North Canaan, Lee H. Kellogg, and Salisbury. The New York schools included Dover, Alden, and Webutuck. The oral health screening and survey procedures are described in detail in Appendix B. The form that was used for the screenings is attached as Appendix C. A map of the FCH catchment area is shown in Appendix D.

The screening followed the NHANES protocol: only a mirror and light were used to screen the students. On this basis, decayed, missing, and filled primary and permanent teeth were recorded. In addition to these clinical data, information on age, school, race/ethnicity, and primary language spoken at home were collected. Information on oral hygiene status and treatment need assessment was also collected. The members of the department of OHP&E entered the data using an Excel database and analyzed the data using SAS v. 9.0. The findings were reviewed in conjunction with the Chairman of the Department, Dr. Chester W. Douglass. A summary of results, implications and future steps for program development has been formulated for the foundation's consideration. The data tables are attached as Appendix E.

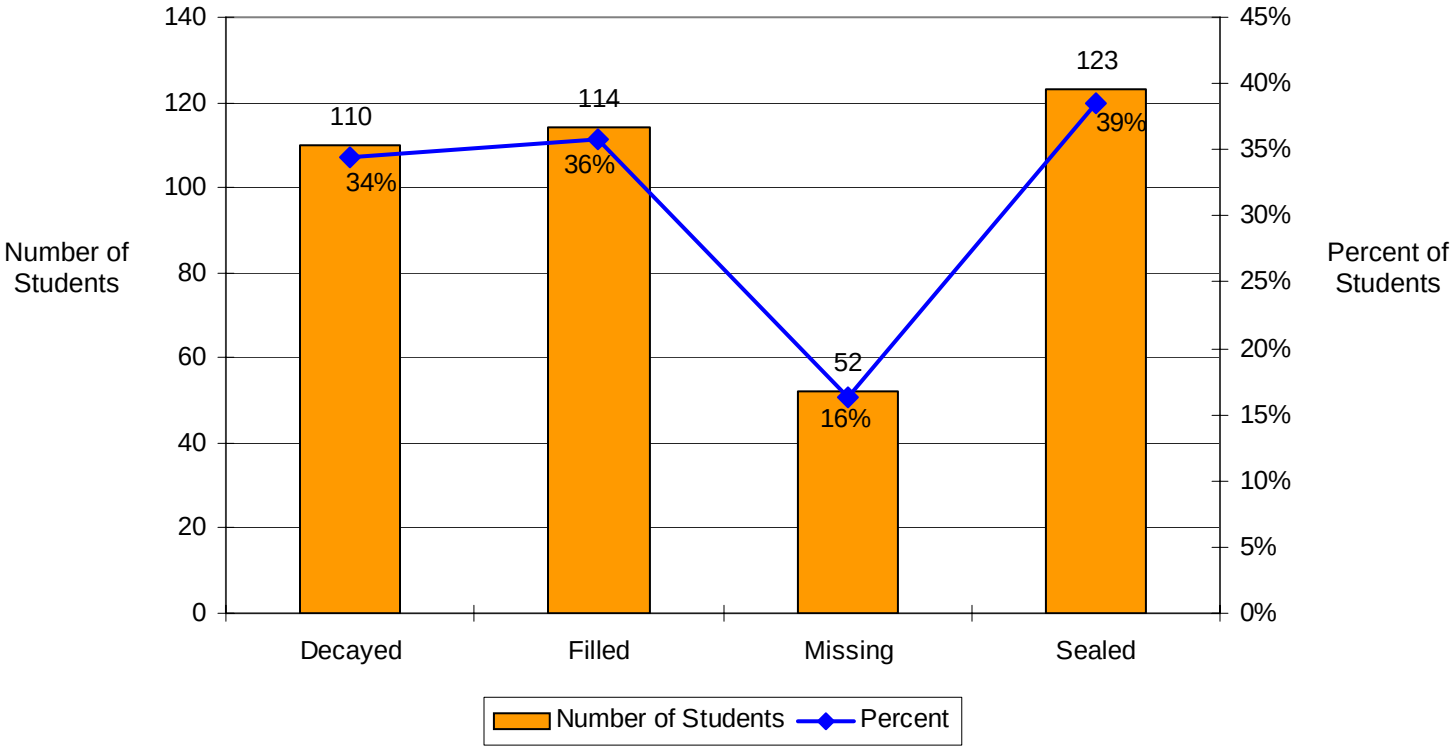
Overall Key Findings

Figure 1: Demographic Characteristics of the Total Students Screened (N = 319)



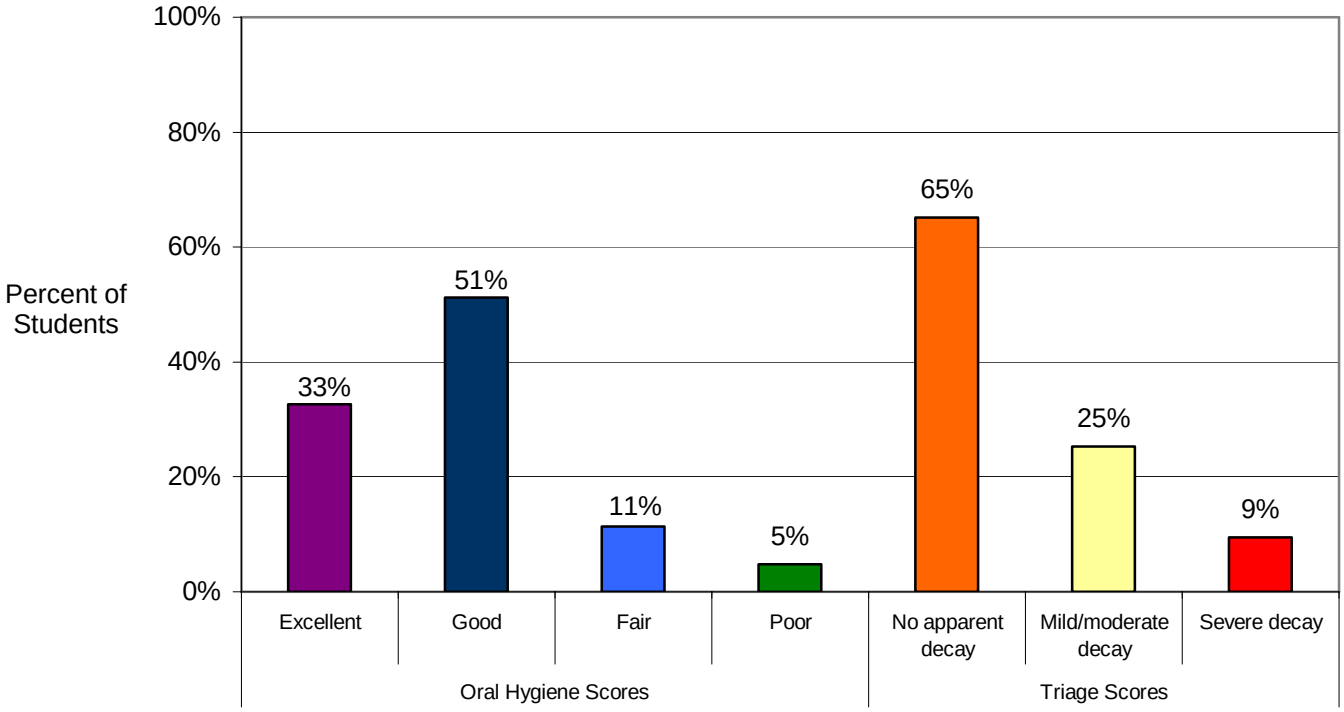
The distribution of the demographic characteristics is shown above in Figure 1. A total of 319 students were screened in the twelve schools that participated. Of the total students, 53% were females and 47% were males. Majority of the students screened were Caucasians (89%). English was the most common language of communication and 99% chose English. The remaining 1% chose Spanish. The minimum age was 7 years, the maximum age was 9 years and the mean age was 8 years for all the schools that participated (Appendix E, Table 1).

Figure 2: Distribution of ≥1 Decayed, Filled, Missing and Sealed Teeth in the Total Students Screened (N = 319)



All of the students except one student had mixed dentition (both primary and permanent teeth). One student had permanent dentition only. Overall about 66% did not have any decayed teeth, which means that the remaining 34% had ≥1 decayed teeth. Of the total students 64% did not have any filled teeth, and 83% did not have any missing teeth. When looking at sealants, overall 61% did not have any sealed teeth. Figure 2 shows the distribution of students with decayed, filled, missing and/or sealed teeth. Of total number of students, 34% had one or more decayed tooth, 36% had one or more fillings, 17% had one or more missing teeth, and 39% had one or more sealants (Appendix E, Table 2).

Figure 3: Distribution of Oral Hygiene and Urgency of Care Triage Scores (N = 319)



Oral Hygiene Scores
(Reference: Oral Hygiene Index Scores, World Health Organization)

Excellent: No evidence of plaque/calculus
Good: Minimal plaque
Fair: Moderate plaque/calculus
Poor: Heavy plaque/calculus

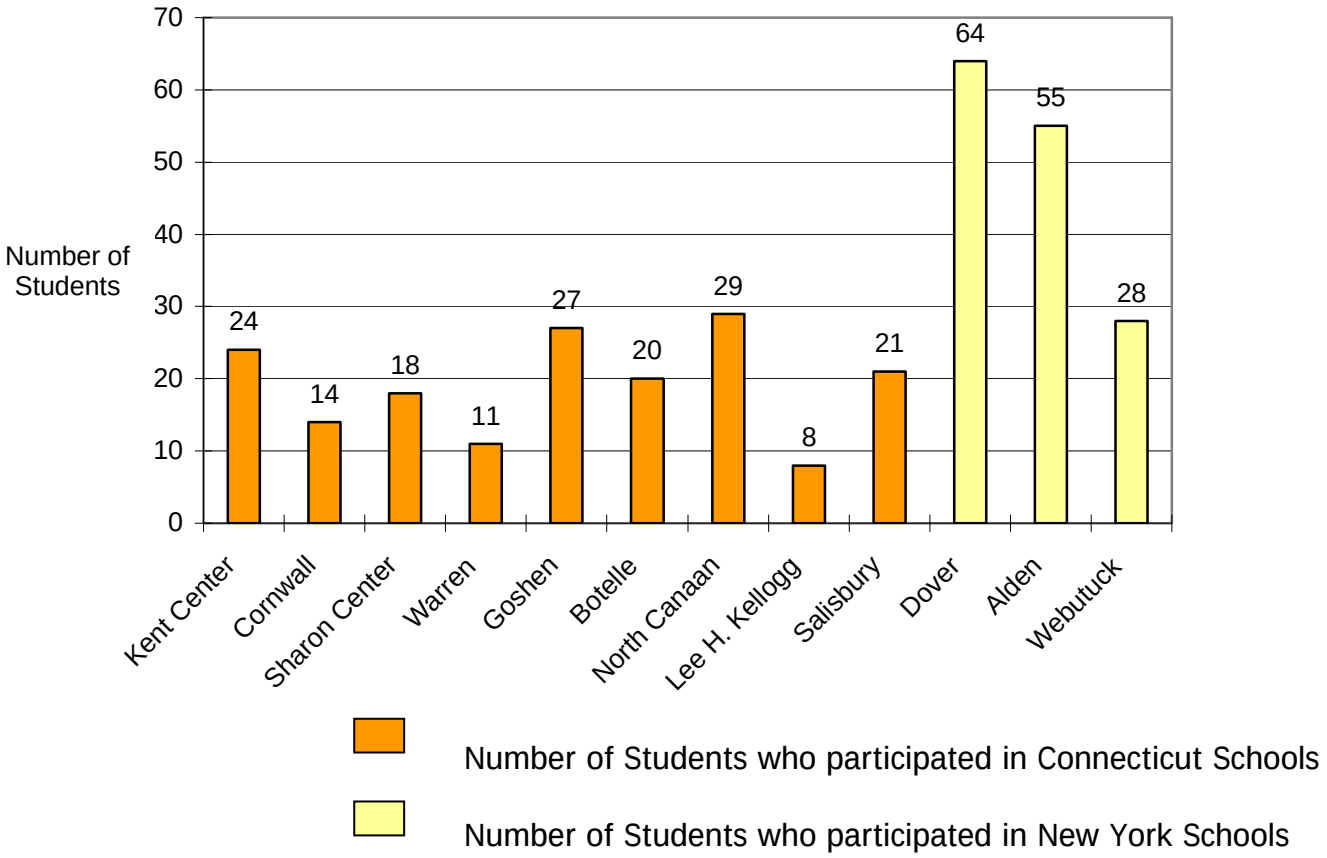
Triage Scores: Implies how urgent the child needs to see a dentist.

No apparent decay: No cavity; see dentist every 6 months
Mild/moderate decay: May have a cavity; see dentist as soon as possible (implies a visit within a few weeks)
Severe decay: See dentist immediately

When evaluating the Oral Hygiene scores overall, 11% received a fair score while 5% had poor oral hygiene. When evaluating the urgency of treatment using the Triage Scores, 9% had severe decay requiring immediate dental care and 25% of the students had mild/moderate decay requiring dental care within 6 months (Appendix E, Table 2).

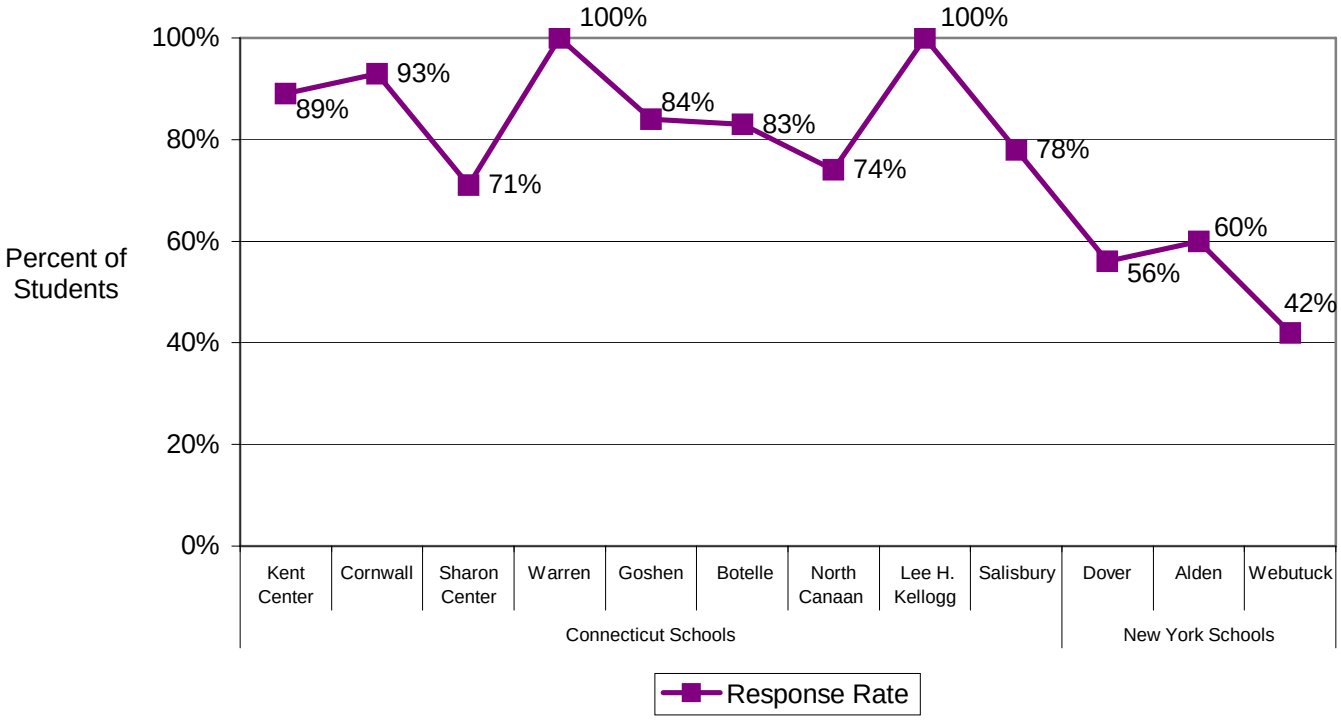
Key Findings by School

Figure 4: Total Number of Students who Participated by School



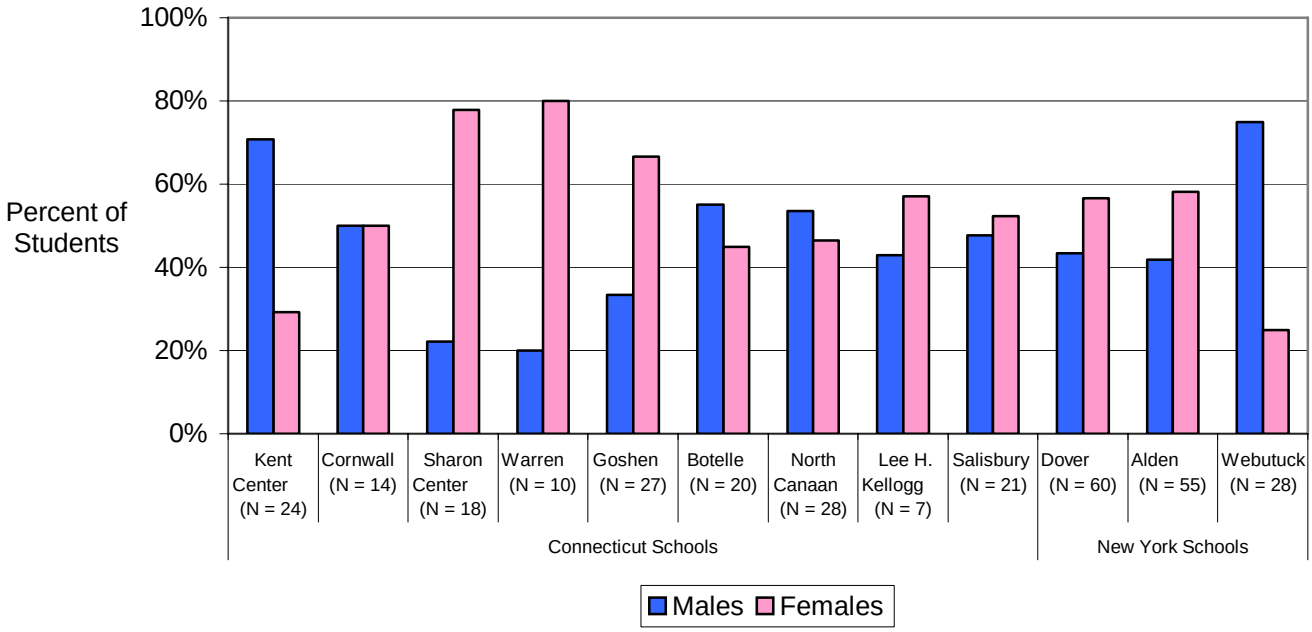
A total of 319 students participated in the survey. A total of 9 schools in Connecticut and 3 schools in New York participated in the oral health screening. The New York schools had greater number of students compared to the Connecticut schools (Appendix E, Table 3).

Figure 5: Participation Response Rate by School



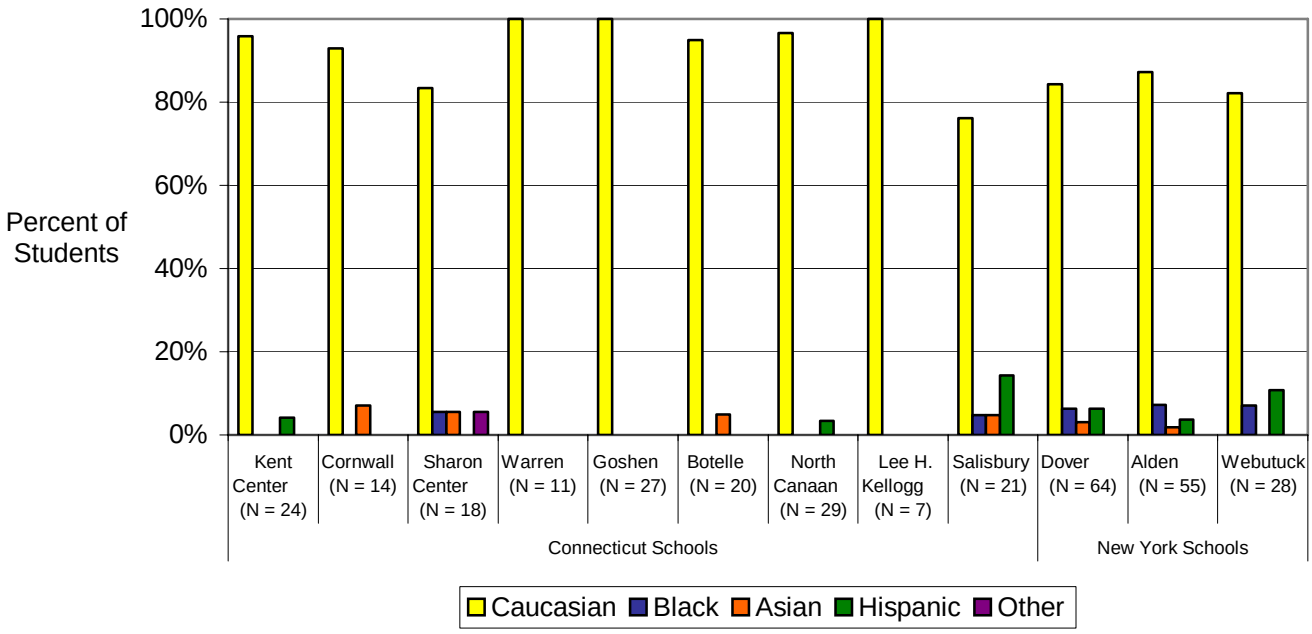
When looking at the participation response rate, even though the New York schools were larger in size, the Connecticut schools had higher response rates than the New York schools (Appendix E, Table 3). Among those who participated in the twelve schools, the age distribution was similar with mean age of 8 years (minimum age was 7 years and maximum age was 9 years). Only one school (Webutuck) had a response rate of lower than 50%.

Figure 6: Gender Distribution by School



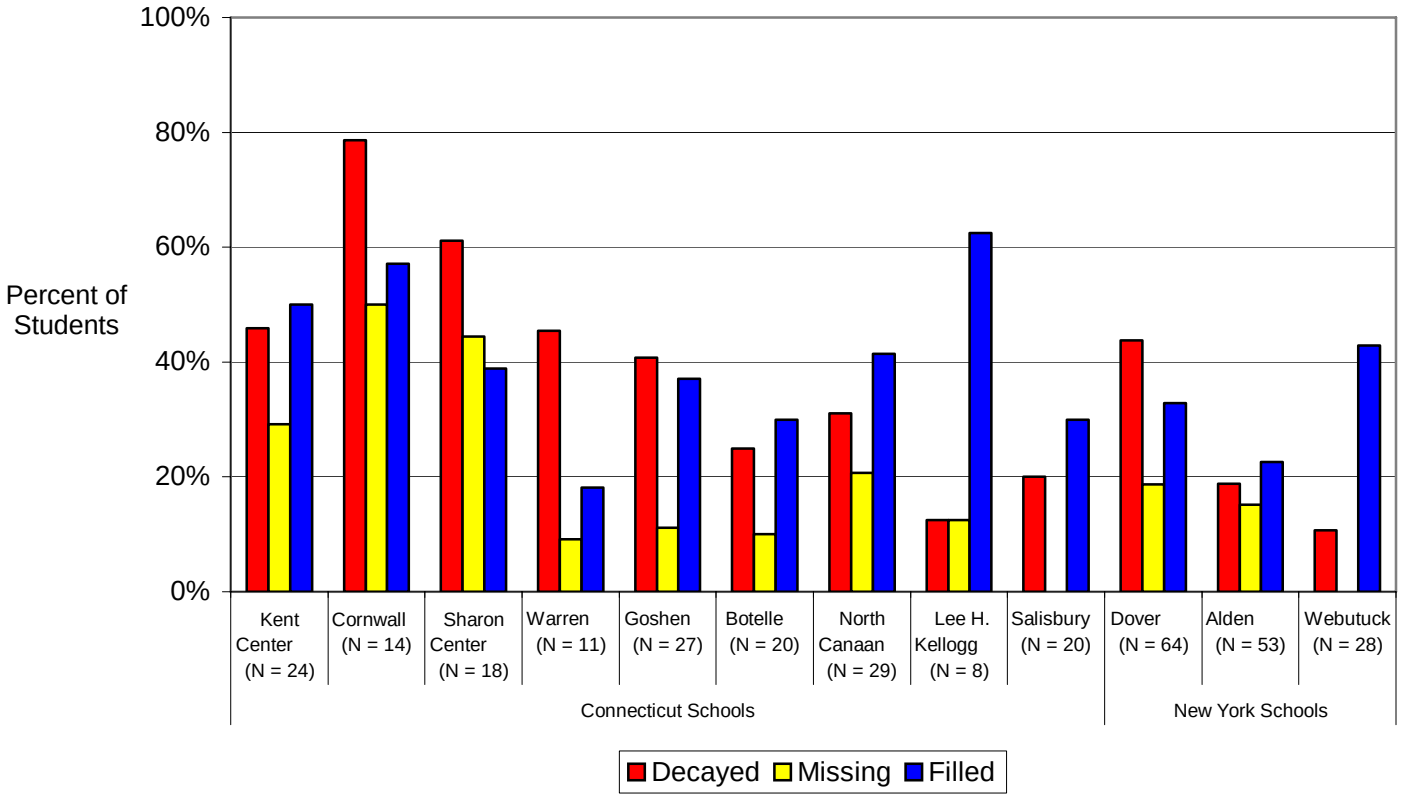
When looking at the gender distribution the Kent Center, Botelle, North Canaan and Webutuck schools had majority males. The rest of the schools had majority females. In particular Sharon Center, Warren and Goshen had a high percentage of females when compared to their percentage of males (Appendix E, Tables 4, 5).

Figure 7: Race/Ethnicity Distribution by School



Overall among all of the schools, majority of the students were Caucasians with the New York schools being slightly more diverse than the Connecticut schools (Appendix E, Tables 4, 5).

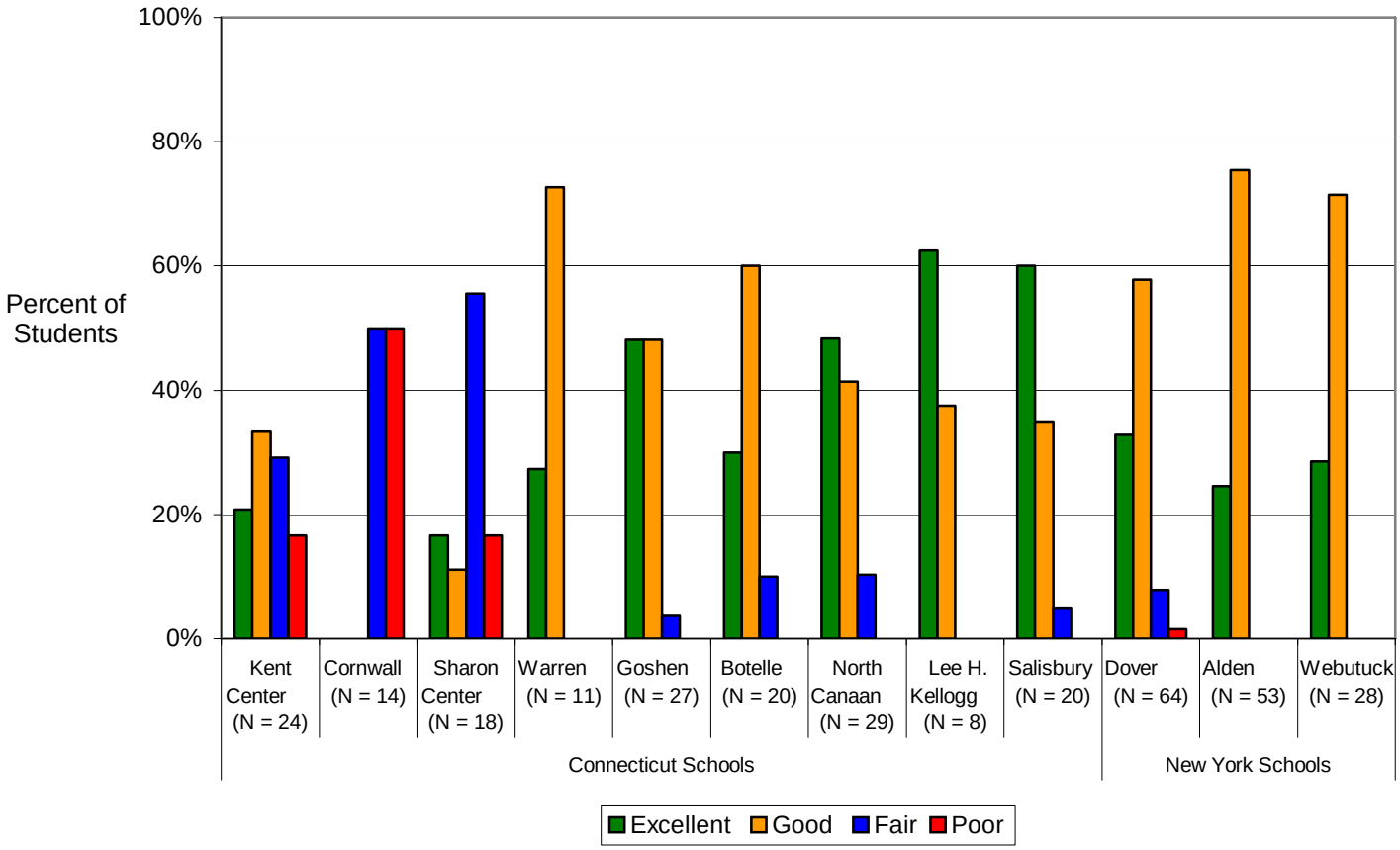
Figure 8: Distribution of Students with ≥1 Decayed, Missing and Filled Number of Teeth



Overall on average about 34% of the students had ≥1 decayed teeth, 17% had ≥1 missing teeth, and 36% had ≥1 filled teeth. The average percent of students with decayed teeth is higher than the comparable third grade children in New York (33%) and Massachusetts (26%).

When looking at the distribution of students with ≥1 decayed, missing and filled teeth, among the Connecticut schools, the Cornwall school had the most percent of students with ≥1 decayed teeth (79%) followed by the Sharon Center school (61%). Among the New York schools, the Dover school had the highest percent of students with ≥1 decayed teeth. The Kent Center, Cornwall and Lee H. Kellogg schools had the most percent of students with ≥1 filled teeth (Appendix E, Tables 6, 7).

Figure 9: Oral Hygiene Scores by school

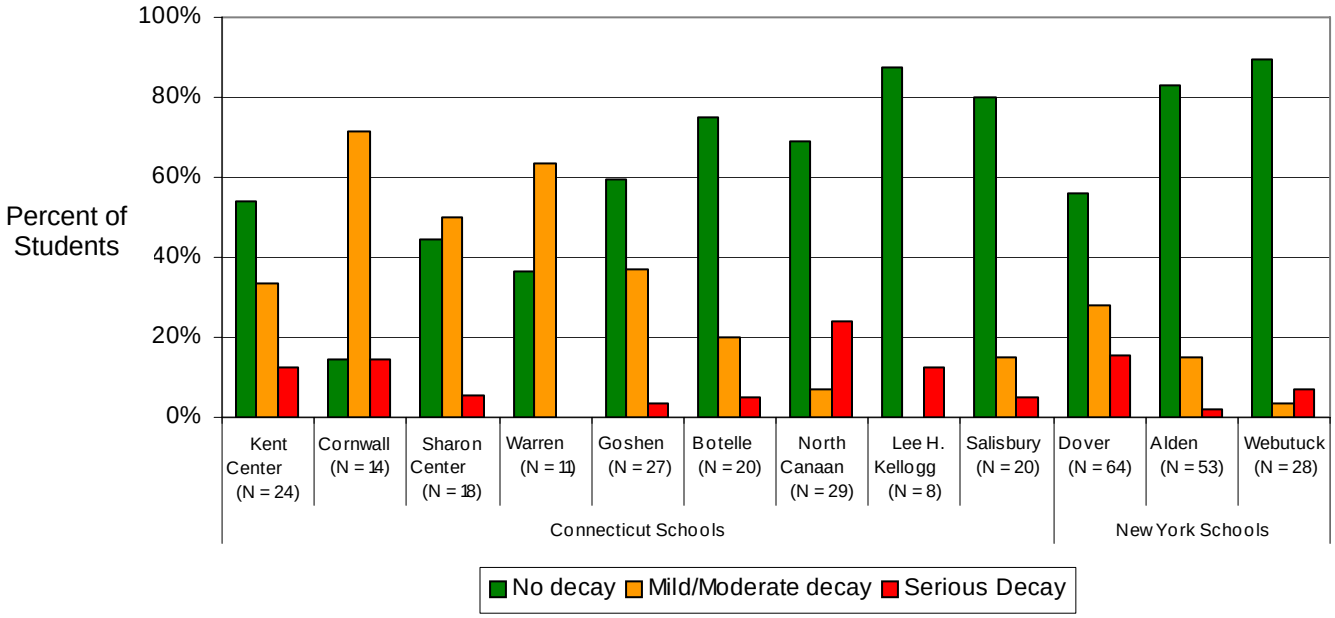


Oral Hygiene Scores
(Reference: Oral Hygiene Index Scores, World Health Organization)

Excellent: No evidence of plaque/calculus
Good: Minimal plaque
Fair: Moderate plaque/calculus
Poor: Heavy plaque/calculus

The Oral Hygiene Scores showed that the majority of the schools had excellent or good oral hygiene. The Connecticut schools Kent Center, Cornwall and Sharon Center had the highest percent of students with either fair or poor oral hygiene. It is notable that the Cornwall school had no students with either excellent or good oral hygiene(Appendix E, Tables 6, 7).

Figure 10: Urgency of Care Triage Scores by School

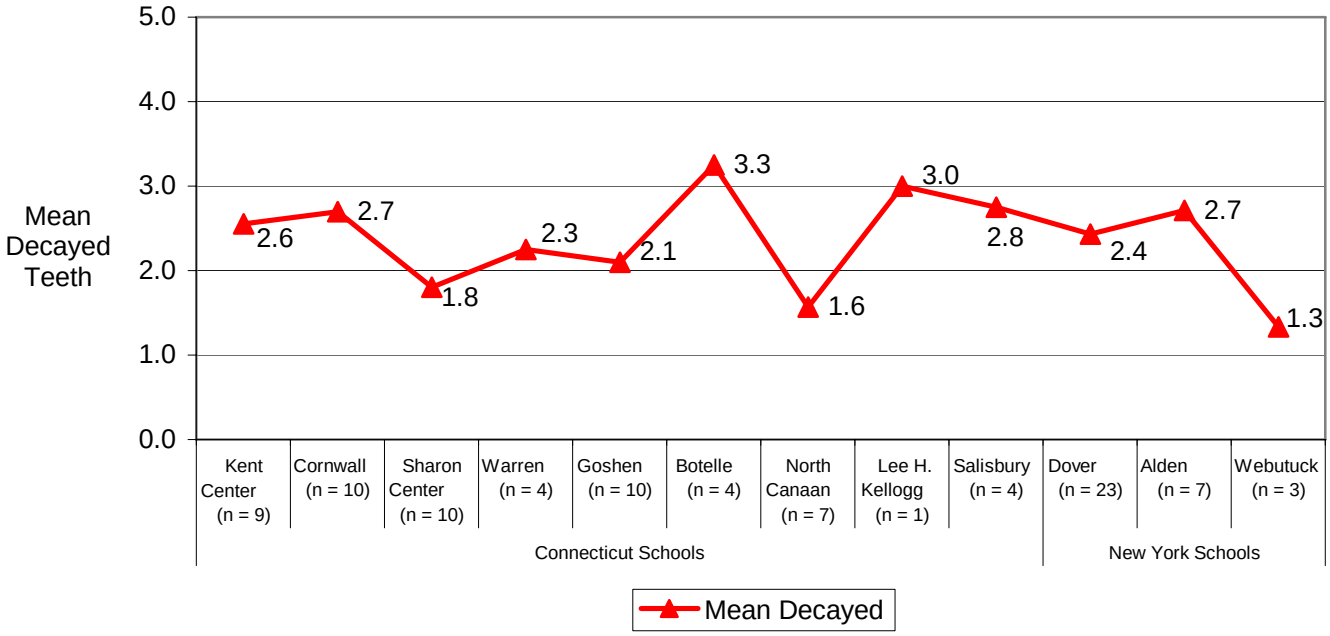


Triage Scores: Implies how urgent the child needs to see a dentist.

No apparent decay: No cavity; see dentist every 6 months
Mild/moderate decay: May have a cavity; see dentist as soon as possible (implies a visit within a few weeks)
Severe decay: See dentist immediately

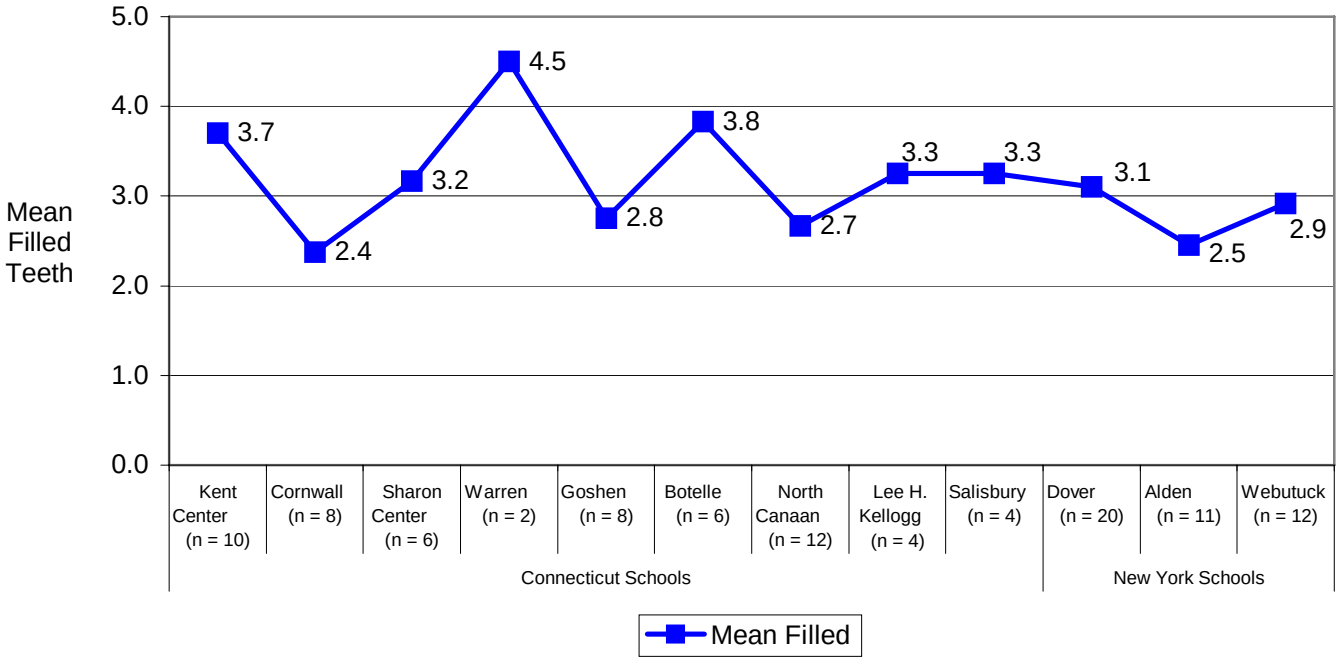
The distribution of Urgency of Care Triage Scores by school showed that almost all of the schools except for the Warren school had some students (about 9%) who had decayed teeth and were in need of dental care. The Cornwall, Sharon Center and Warren schools had less than 50% of the students with no decayed teeth. Schools with greater than 10% of students with serious tooth decay needing immediate treatment included the Kent Center, Cornwall, N. Canaan, Lee H. Kellogg and Dover schools (Appendix E, Tables 6, 7).

Figure 11: Distribution of Mean Decayed Primary Teeth by School in Children with ≥1 Decayed Primary Teeth



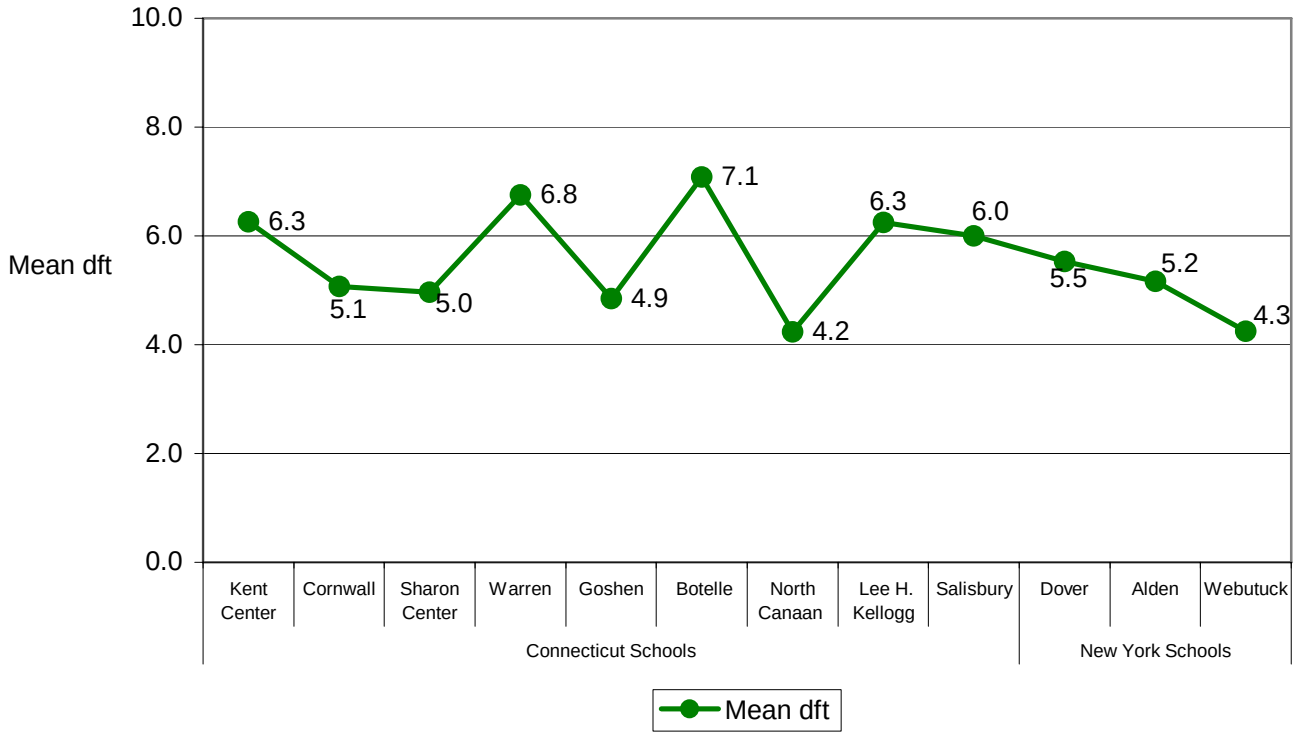
The mean decayed primary teeth is calculated by summing the total number of primary teeth that is decayed and averaging over the total number of students with ≥1 decayed primary teeth. Figure 11 shows the distribution of mean decayed primary teeth by school in students with ≥1 decayed teeth. The Botelle and Lee H. Kellogg schools have the highest mean decay in the primary dentition while the Sharon Center, N. Canaan and Webutuck schools have the lowest mean decay (Appendix E, Tables 8, 9).

Figure 12: Distribution of Mean Filled Primary Teeth by School in Children with ≥1 Filled Primary Teeth



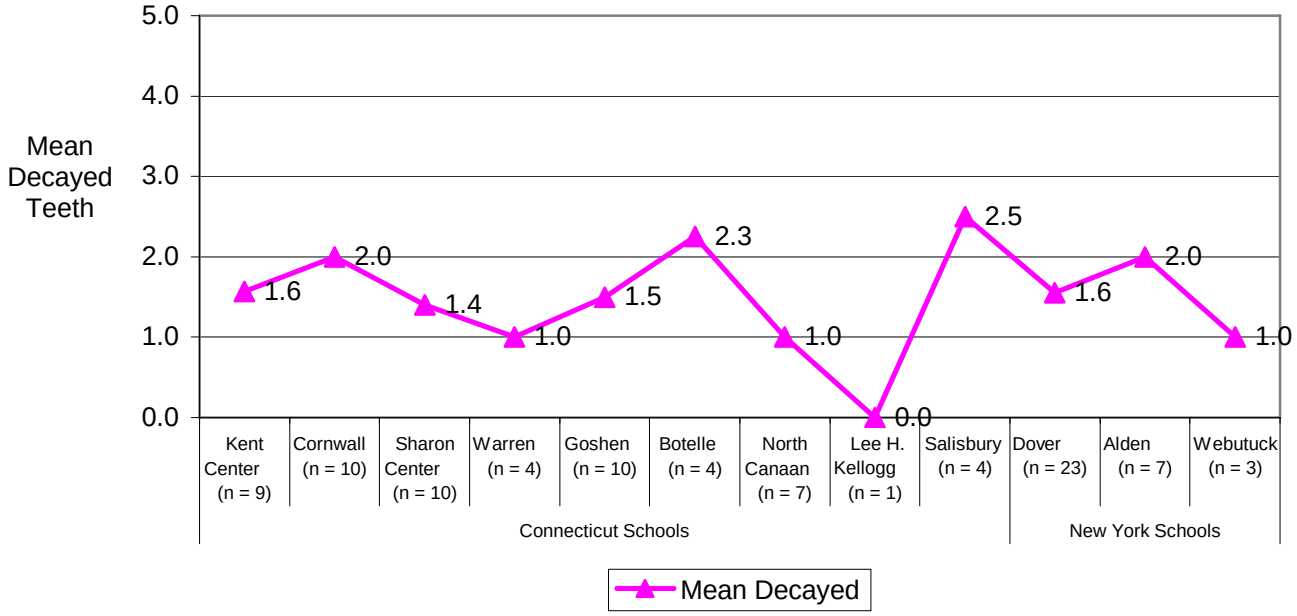
The mean filled primary teeth is calculated by summing the total number of primary teeth that is filled and averaging over the total number of students with ≥1 filled primary teeth. The distribution of the mean filled primary teeth shows that the Kent Center, Warren and Botelle schools have higher mean filled teeth than the other schools. Among the Connecticut schools, the Cornwall school had the lowest mean filled teeth and among the New York schools, the Alden school had the lowest mean filled teeth (Appendix E, Tables 8, 9).

Figure 13: Distribution of Mean dft Scores in the Primary Dentition in Children with ≥1 dft



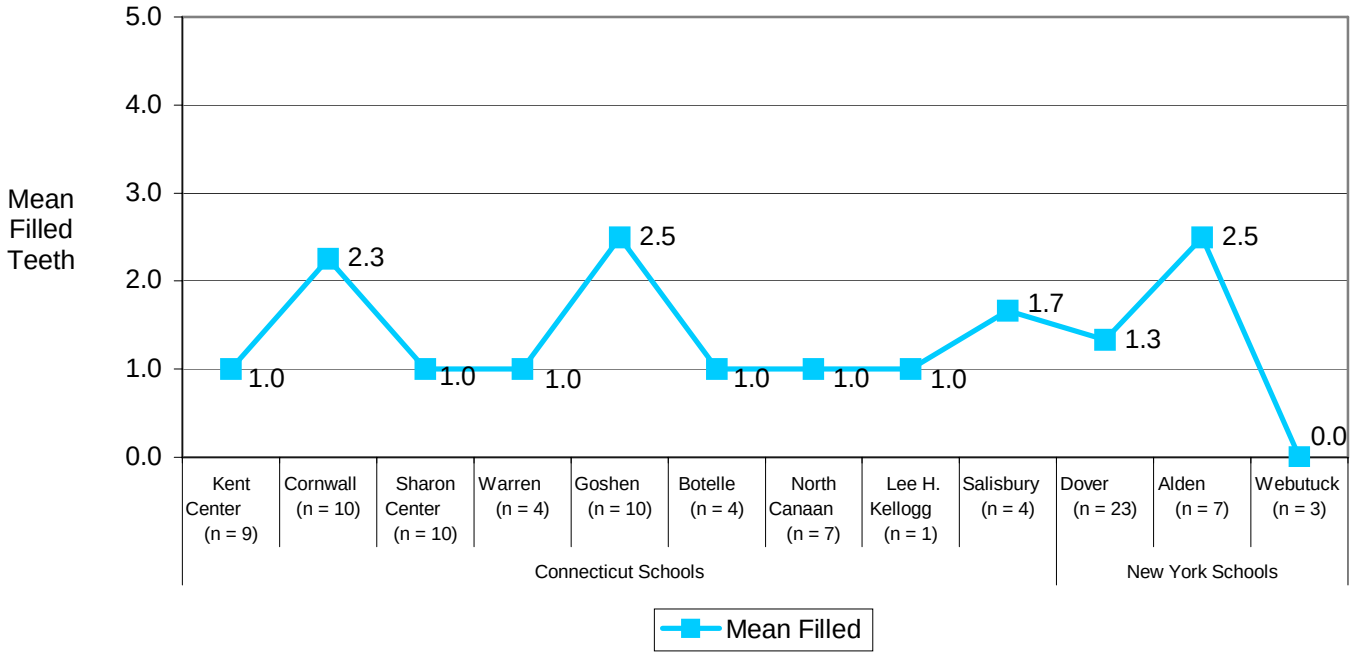
The mean dft score is used to evaluate primary teeth and is calculated by summing the total number of primary teeth that is decayed and/or filled and averaging over the total number of students with ≥1 decayed and/or filled primary teeth. When analyzing the distribution of the mean dft score overall, the Connecticut schools had higher mean dft scores than the New York schools. Among the Connecticut schools the Botelle school had the highest mean dft score closely followed by the Warren school (Appendix E, Tables 8, 9).

Figure 14: Distribution of Mean Decayed Permanent Teeth by School in Children with ≥1 Decayed Permanent Teeth



The mean decayed permanent teeth is calculated by summing the total number of permanent teeth that is decayed and averaging over the total number of students with ≥1 decayed permanent teeth. Figure 14 shows the distribution of mean decayed permanent teeth in students with ≥1 decayed teeth. The Salisbury and Botelle schools have the highest mean decay in the permanent dentition followed closely by the Cornwall and Alden schools. The Lee H. Kellogg school had no students with decayed permanent teeth (Appendix E, Tables 8, 9).

Figure 15: Distribution of Mean Filled Permanent Teeth by School in Children with ≥1 Filled Permanent Teeth

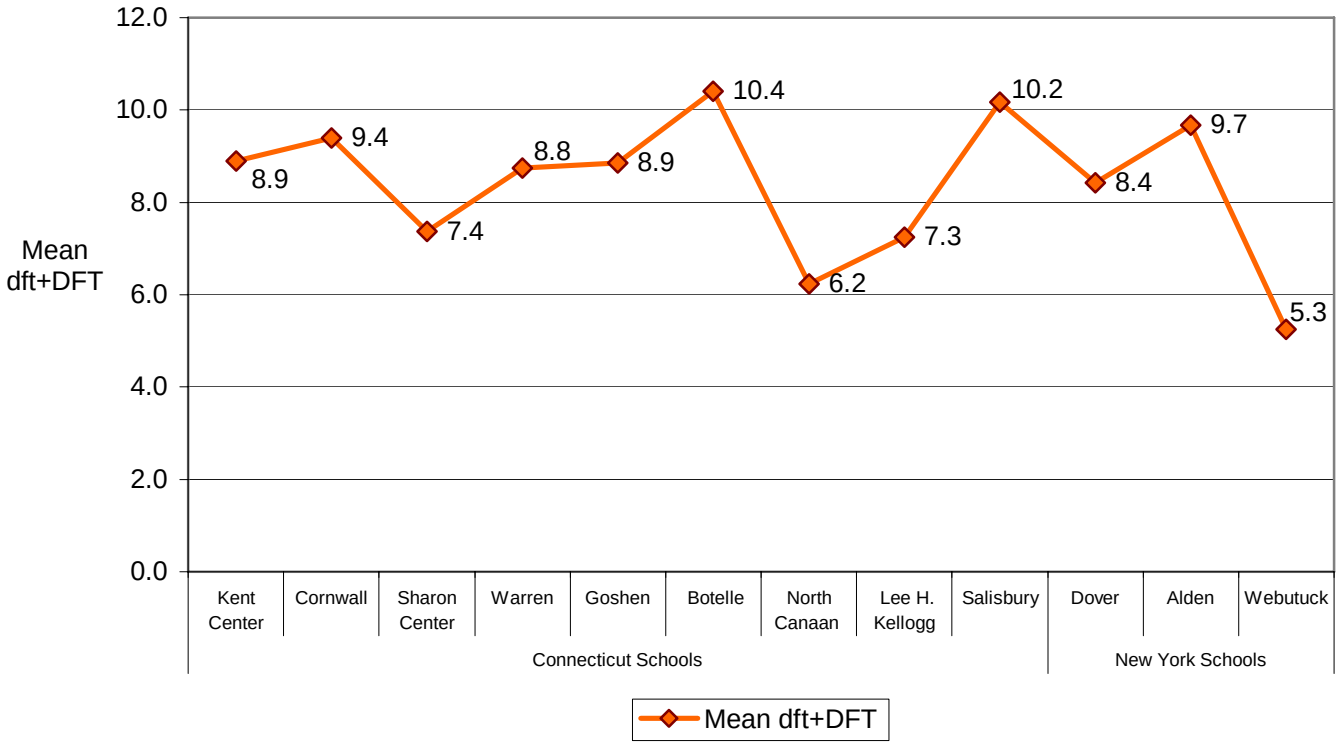


The mean filled permanent teeth is calculated by summing the total number of permanent teeth that is filled and averaging over the total number of students with ≥1 filled permanent teeth. Figure 15 shows the distribution of mean filled permanent teeth in students with ≥1 filled teeth. The Connecticut schools Cornwall and Goshen have the highest mean filled teeth in the permanent dentition. Among the New York schools, the Alden school had the highest mean filled permanent teeth while the Webutuck school had no students with filled permanent teeth (Appendix E, Tables 8, 9).

Figure 16: Distribution of Mean DFT Scores in the Permanent Dentition in Children with ≥1 DFT

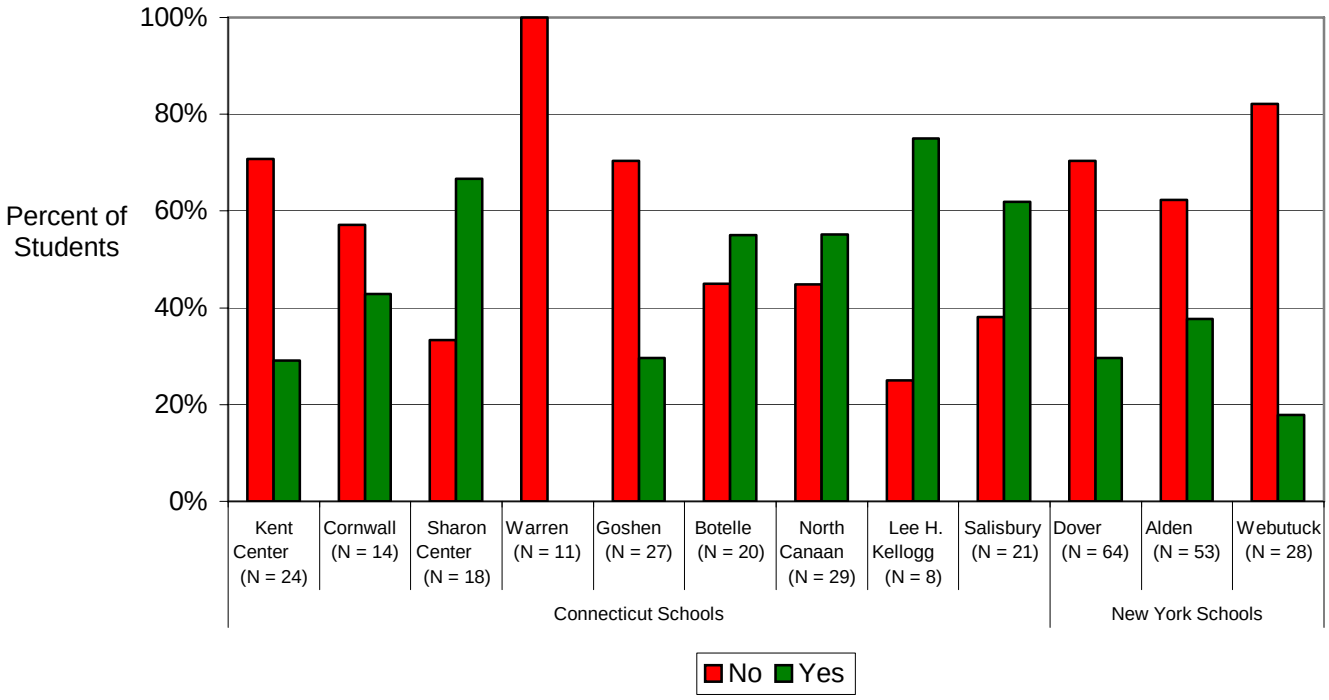
The mean DFT score is used to evaluate permanent teeth and is calculated by summing the total number of permanent teeth that is decayed and/or filled and averaging over the total number of students with ≥1 decayed and/or filled permanent teeth. Overall when analyzing the distribution of the mean DFT score, the Connecticut schools had higher mean DFT scores than the New York schools. Among the Connecticut schools the Cornwall, Goshen and the Salisbury schools had the highest mean DFT scores. Among the New York schools, Alden had the highest mean DFT score. Overall the Lee H. Kellogg and Webutuck schools have the lowest mean DFT scores (Appendix E, Tables 8, 9).

Figure 17: Distribution of Overall Mean dft+DFT Scores by School in Children with ≥1 dft+DFT



The combined distribution of the dft and DFT scores for the students is shown above in Figure 17. Overall, among the Connecticut schools, the Botelle and Salisbury schools had the highest scores followed by the Cornwall, Warren and Goshen schools. Among the New York schools, the Alden school had the highest overall mean followed by the Dover school. The Webutuck school had the lowest score compared to all other schools (Appendix E, Tables 8, 9).

Figure 18: Percent of Students with ≥1 Sealants by School



The distribution of students with ≥1 sealants is shown in Figure 18. Of the 12 schools, the Lee H. Kellogg school had the highest percentage (75%) of students with ≥1 sealants followed by the Sharon Center (67%) and the Salisbury (62%) schools. All of the New York schools had less than 50% of the students with ≥1 sealants. Overall the Kent Center, Goshen, Dover and Webutuck schools had the highest percentage of students without sealants and in particular the Warren school had no students with sealants (Appendix E, Tables 6, 7).

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Figure 19: Association between Poor Oral Hygiene and ≥ 1 Decayed, Filled and Sealed Teeth in the Total Population Screened

	Poor Oral Hygiene		Fisher's Exact p value
	Yes	No	
≥ 1 Decayed teeth	14 (12.8%)	95 (87.2%)	<0.0001
≥ 1 Filled teeth	7 (6.2%)	106 (93.8%)	0.4125
≥ 1 Sealed teeth	3 (2.5%)	119 (97.5%)	0.1761
≥ 1 Decayed and Filled teeth	14 (8.1%)	158 (91.9%)	0.0022

The association between poor oral hygiene and decayed, filled, sealed teeth was evaluated for the total screened population. Poor oral hygiene appeared to be strongly associated with ≥1 decayed teeth. When combining decayed and filled teeth the association remained significant. Filled and/or sealed teeth did not appear to be associated with poor oral hygiene.

Summary of Results

- The participation response rate was higher among the Connecticut schools
- Overall about 66% did not have any decayed teeth, which means that the remaining 34% had ≥1 decayed teeth
- Of the total students screened, 64% did not have any filled teeth, and 83% did not have any missing teeth. When looking at sealants, overall 61% did not have any sealed teeth
- Of the total number of students 36% had ≥1 fillings, 17% had ≥1 missing teeth, and 39% had ≥1 sealants
- The Kent Center, Cornwall and Sharon Center schools had the highest decayed missing and filled teeth
- The Connecticut schools Kent Center, Cornwall and Sharon Center had the highest percent of students with either fair or poor oral hygiene
- Schools with greater than 10% of students with serious decay needing immediate treatment included the Kent Center, Cornwall, N. Canaan, Lee H. Kellogg and Dover schools
- Overall, the mean decayed and filled scores (mean dft+DFT scores) among the Connecticut schools was high for the Botelle and Salisbury schools followed by the Cornwall, Warren and Goshen schools. Among the New York schools, the Alden school had the highest overall mean score
- All of the New York schools had less than 50% of the students with ≥1 sealants. Overall the Kent Center, Goshen, Dover and Webutuck schools had the highest percentage of students without sealants and in particular the Warren school had no students with sealants
- Poor oral hygiene appeared to be strongly associated with ≥1 decayed teeth. Filled and/or sealed teeth did not appear to be associated with poor oral hygiene

Considerations for Future Oral Health Programs

In order to improve the health of the children within the FCH service area, it will be necessary to routinely document the unmet dental needs of students within the community. On this basis, rational programmatic recommendations can be formulated which might consider the following types of dental programs:

- An emphasis on the oral health education in the school curriculum
- Preventive dentistry programs appropriate for each age group
  - Sealants: Target first permanent molars
  - Use of fluorides: Use one or more types of fluoride such as topical fluorides and fluoride varnish
- Access to dental care to meet the existing treatment needs
- A maintenance and follow-up surveillance system
- Periodic program evaluation

Additional Information Needed for Program Planning

- Current preventive dentistry programs in schools and communities within the catchment area (Ex: Current fluoride programs)

- The distribution of dentists and safety net dental care facilities within or near the catchment area

- The distribution of pediatricians and primary care providers within or near the catchment area.

- Status of Medicaid and other dental programs in Connecticut, New York and South West Massachusetts.

- It is recommended that the above information be collected in preparation for a meeting among interested parties for establishing a Foundation for Community Health Oral Health Program.

- The effects of State dental practice laws on models of preventive programs.

- Fluoridation status of cities and towns in Connecticut.

Dental Needs Assessment of Third Graders in the Foundation for Community Health Catchments Area

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Dr. Martin Nweeia, D.M.D., Practice of General Dental Medicine, Sharon CT., and Clinical Instructor, Department of Restorative Dentistry and Biomaterials Sciences, Harvard School of Dental Medicine.

Executive Summary:

Problem:

There is anecdotally reported but unquantified unmet dental need in children in the Foundation for Community Health service area. Unmet dental need has serious and enduring physical and psychological consequences. In 1996, American students missed 1,611,000 school days because of acute dental problems[1].

Solution:

To quantify the problem of unmet dental needs among schoolchildren in the Foundation for Community Health service area, we propose to conduct school-based screenings of third grade children.

Funding requirements:

To achieve the goals of this screening, funds to cover personnel, supplies, and travel are requested. The total requested amount is $16,750

Organization and its expertise:

The Department of Oral Health Policy and Epidemiology at the Harvard School of Dental Medicine has extensive experience and expertise in the conduct of community-based dental screenings and the community-based provision of oral health services. In conjunction with local personnel, they will serve to establish screening procedures, analyze data, and make program recommendations.

Statement of Need:

Dental caries remains the single most common disease of childhood that is not self-limiting or amenable to a course of antibiotics. The popular statement that half of U.S. schoolchildren have never experienced tooth decay fails profoundly to reflect the extremity and severity of this still highly prevalent condition of childhood [2].

According to the 2000 census, it was estimated that 5.1% of children ages 5 – 17 in Litchfield County (Connecticut) live in poverty. In Columbia County (New York), the estimate of the same value was 13.3%, and in Dutchess County, it was 8.4%. http://www.census.gov/hhes/www/saipe/county.html Though these reported rates give baseline information for the Foundation catchment area, there is currently no needs assessment data available that accurately reports the prevalence of dental caries in children or adults in these populations.

Listed among the healthy people 2010 goals (as 21-1b) is reducing "the proportion of children with dental caries experience in their primary and permanent teeth." The baseline value for children 6-8 in 1988-1994 was 52% (data sources: National Health and Nutrition Examination Survey (NHANES), CDC, NCHS; Oral Health Survey of Native Americans, 1999, IHS; California Oral Health Needs Assessment of Children, 1993–94, Dental Health Foundation; Hawai'i Children's Oral Health Assessment, 1999, State of Hawaii Department of Health.), and the 2010 target is 42% (http://www.healthypeople.gov/document/html/objectives/21-01.htm). Goal 21-2b is to "Reduce the proportion of children with untreated dental decay in primary and permanent teeth". The baseline value for children 6-8 in 1988-1994 was 29%, and the target is 21% (http://www.healthypeople.gov/document/html/objectives/21-02.htm). Goal 21-8 is to "Increase the proportion of children who have received dental sealants on their molar teeth." The 1988-94 baseline for 8 year-old children was 23%, and the 2010 target is 50% (http://www.healthypeople.gov/document/html/objectives/21-08.htm). Goal 21-10 is to "Increase the proportion of children and adults who use the oral health care system each year". The baseline in 1996 for persons aged 2 and older was 44% (source: Medical Expenditure Panel Survey (MEPS), AHRQ); the goal is 56% (http://www.healthypeople.gov/document/html/objectives/21-10.htm). Goal 21-12 is to "Increase the proportion of low-income children and adolescents who received a preventive dental services during the past year". The baseline in 1996 was that 20% of children and adolescents under age 19 years at or below 200% of the Federal poverty level received any preventive dental service (source: Medical Expenditure Panel Survey (MEPS), AHRQ). The 2010 target is 57% (http://www.healthypeople.gov/document/html/objectives/21-12.htm).

Currently, there is limited information that demonstrates or even predicts the level of dental decay in children from the Foundation catchment area. Dental needs in children within these townships have been anecdotally noted in focus groups and from results of a provider survey conducted by the Needs Assessment Committee of the Foundation for Community Health. Because of this expressed need and the lack of data available to document it, this dental needs assessment was sought to record the extent of childhood dental disease in these areas of New York and Connecticut. Once completed, the assessment will guide the implementation of future programs to address these needs.

Project Description:

Oral examinations using only a dental mirror and penlight will be completed during the early Spring of 2005 on the population of third graders from schools in the Foundation catchment area including the New York schools of Pine Plains: Cold Spring Elem., 28 students, Seymour Smith, 61 students, Taconic Hills, 97, Millbrook (Alden Elem.), 80, Webutuck Elem., 70, and Dover, 123 for a total of 459 and Connecticut schools

Budget Item	Description	Anticipated Cost:
	data by students	
HSDM students	Will serve to collect information through oral examinations. They will work in three teams of two students.	$4500 Stipends of $750/student to include travel, food and lodging.
Data Entry		$1850
Data Analysis and Report Generation	HSDM personnel will analyze the data and make recommendations.	$1900
Translation	Translation of forms into INSERT OTHER LANGUAGES	Donated service
Supplies:		
Disposable mirrors	1/child	200 per box @ 35.29
Non-latex gloves	4/child	100/box @ 6.99 each
Penlights	1/examiner	6 per pack @ 9.39 1 @ 15.00
Batteries (for penlight)	3 sets/examiner	4 per pk @ 2.29
Gauze	3/child	200 per pkg @ 3.79
Tongue depressors	2/child	500 per box @ 8.99
Disposable gowns	3/examiner/session	10/pk @ 13.49
Tray covers	1/child	1000 per box @ 24.99
Paper towels	2/child	2400 per case @ 34.99
Goggles	1/examiner	1 each @ 5.99
Masks	1/child	50 per box @ 10.79
Labels	4/child	100 sheet /pk @ 25.89
Expendables (paper, copying, etc)	~10 copies/child	10 cents per page
"Goodie bag" for children	1/child	250 per pack @ 49.00
Toothbrushes	1/child	72 per box @ 39.99
Sanitizing hand lotion	2/session	1 (8oz) @6.49
Total Supplies	Donations will be sought for child goodie bags, though costs have been included in this estimate.	$1900
Travel:		
Travel expenses for HDSM consultant	Consultant from HSDM will travel for 1 overnight visit to the FCH area.	$400
	Total:	$16,750

Organization Information:

The Department of Oral Health Policy and Epidemiology at the Harvard School of Dental Medicine has extensive experience and expertise in the conduct of community-based dental screenings and the community-based provision of oral health services. Several members of the department are board-certified specialists in Dental Public Health. The department has conducted exams in homes across New England; has conducted exams on homeless populations; conducts annual school-based exams in Boston, Cambridge, Everett, and Somerville, MA; and periodically conducts exams in senior centers and nursing homes. In conjunction with

including those in Kent, 30, Norfolk, 28, Salisbury, 26, Sharon, 26, Falls Village, 18, Warren, 16, Goshen (2 classes) 16 and 15, and Cornwall, 13 for a total of 188. The total number of third graders in the entire catchment area is 561.

Data collection materials and screening procedures will be established in conjunction with the Department of Oral Health Policy and Epidemiology at the Harvard School of Dental Medicine. A local coordinator will contact the school districts and individual schools to determine how best to schedule and conduct the screening within each school. Six students from the Harvard School of Dental Medicine will be selected to collect data in three teams over three days, and three local hygienists will be selected to oversee each team. Superintendents and health representatives from each district will help facilitate the consent needed to conduct oral examinations within the schools. Initial contact has been made and ongoing communications will be established upon approval of this grant request. We will pursue a passive consent form whenever possible. This process involves sending out a form that describes the examination process, and only if a parent objects, is the form returned to the school excluding the student from participation. Otherwise an active consent form will be presented where oral examinations are allowed only if the parent consents to their child's dental exam. Before the first screening, a member of Harvard's Department of Oral Health Policy and Epidemiology will travel to the local area to review the data collection materials, review the education and screening procedures, and to calibrate screeners. This person also will be present to supervise the first screening session.

The targeted population will be all third grade students. Prior to the screening, all children (whether or not they are screened) will be given oral health education, educational materials to take home, and a toothbrush. The screening will follow the NHANES protocol: only a mirror and light will be used to screen the children. On this basis, decayed, missing, and filled primary and permanent tooth surfaces will be recorded. No radiographs will be taken and an explorer will not be used. In addition to the clinical data, we will collect information on age, school, race/ethnicity, and primary language spoken at home. In the event that a child is found to need care, a pre determined protocol will be established to notify the parents of the need and recommendations of where to find care if the child currently has no dentist. Information to parents will be provided in the following languages: English, Portuguese, Spanish, and Vietnamese.

Data will be entered into Excel (Microsoft Corp., Seattle, Washington). Data analysis will be conducted by a member of Harvard's Department of Oral Health Policy and Epidemiology. Data analysis will be conducted in Stata 8.0 (Stata Corp., College Station, Texas). The findings will be reviewed in conjunction with the Chairman of the Department, Dr. Chester W. Douglass, and program recommendations will be formulated. The goal will be to create a plan to meet and exceed the 2010 targets for all subpopulations in the service area of the Foundation for Community Health.

Budget:

Budget Item	Description	Anticipated Cost:
Personnel and Services:		
Local Coordinator	Will serve to coordinate the logistics of the screenings and the efforts of the volunteers.	$2500
HSDM Consultant	Will serve to provide data collection materials and to outline screening procedures. Budget includes funds for a single overnight visit to the FCH service area.	$2000
Local Hygienists	Will serve to oversee the collection of	$1700

local personnel, they will serve to establish screening procedures, analyze data, and make program recommendations.

Conclusion:

In order to improve the health of the people within the FCH service area, it is imperative to document the unmet dental needs of children within the community. On this basis, rational programmatic recommendations can be formulated.

References:

1. **Adams, P., G. Hendershot, and M. Marano, *Current Estimates from the national interview survey, 1996.*, . 1996, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics: Hyattsville, MD.**
2. **Edelstein, B. and C. Douglass, *Dispelling the myth that 50 percent of U.S. schoolchildren have never had a cavity.* Public Health Reports, 1995. 110(5): p. 522-30.**

Date:___ /__ /____ SCHOOL#:_____

I. **Patient Information** PLEASE PRINT CLEARLY

1. Student ID _____

2. Gender: ☐Male ☐Female

3. Birth date _____/_____/_____

6. Language: ☐English ☐Spanish ☐_____

8. Race/Ethnicity: ☐Caucasian ☐Black ☐Asian ☐Other ☐Hispanic

II. **Screening Exam (visual only)**

Instructions: Examine teeth for decay, filling, and/or crowns. If tooth is sound, leave box blank. Teeth with crowns are coded as a filling. Temporary restorations are coded as decay.

Codes: **D**=decay, **F**=filling, **M**=missing, **U**=unerupted (or partially erupted)

9. Dentition: ☐Primary only ☐Mixed* ☐Permanent only ☐Edentulous

***must circle tooth letter/ number**

2	3	A / 4	B / 5	C / 6	D / 7	E / 8	F/ 9	G / 10	H / 11	I / 12	J / 13	14	15

RIGHT **LEFT**

31	30	T / 29	S/ 28	R / 27	Q / 26	P / 25	O / 24	N / 23	M / 22	L / 21	K / 20	19	18

Do not write in shaded boxes

	Prim.	Perm.	Total
10.Teeth			
Decay			
Missing			
Filled			
		11.DMF	

12. Sealants placed? ☐ Yes ☐No

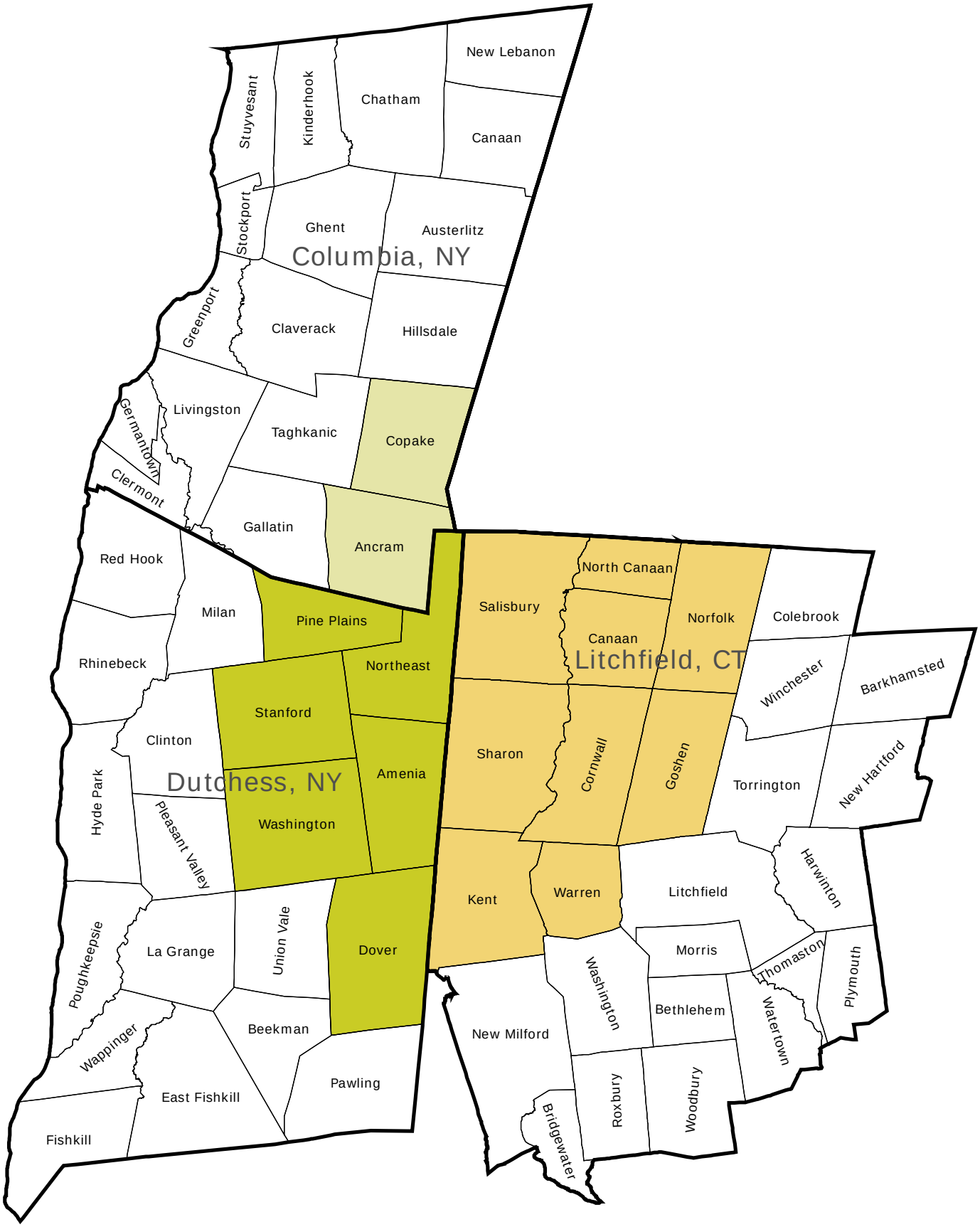
13. Oral Hygiene Score: ☐1=Excellent ☐2=Good ☐3=Fair ☐4=Poor

III. **Referral Information**

14. Caries Triage ☐1=No apparent decay ☐2=mild/moderate decay ☐3=serious decay ☐4=urgent, pain/infection present

15. ☐Other, explain reason: _____

Towns Served by The Foundation for Community Health



APPENDIX E

Table 1: Demographic Characteristics of the Third Grade Children in Connecticut and New York Schools* who participated in the Oral Health Survey (N = 319)

Variable	Distribution
Gender (n, %)	
Female	164 (53%)
Male	148 (47%)
Race/Ethnicity (n, %)	
Caucasian	284 (89%)
Black	12 (4%)
Asian	7 (2%)
Hispanic	14 (4%)
Other	1 (0.3%)
Language (n, %)	
English	316 (99%)
Spanish	3 (1%)
Age	
Mean Age (years)	8 years
Age Range (years)	7 – 9 years
Age groups (n, %)	
7 years (Minimum age)	33 (10%)
8 years (Mean age)	257 (81%)
9 years (Maximum age)	28 (9%)

* Connecticut schools that participated are Kent Center, Cornwall, Sharon Center, Warren, Goshen, Botelle, North Canaan, Lee H. Kellogg, and Salisbury. New York schools that participated are Dover, Alden, and Webutuck.

Table 2: Oral Health Assessment for Third Grade Children in Connecticut and New York Schools* who participated in the Oral Health Survey (N = 319)

Oral Health Assessment Variables	Number of Students	Percent of Students
Dentition		
Mixed	317	99.7%
Permanent	1	0.3%
≥ 1 Decayed Teeth	110	34%
≥ 1 Filled Teeth	114	36%
≥ 1 Missing Teeth	52	16%
≥ 1 Sealed Teeth	123	39%
Oral Hygiene Scores∞		
Excellent	103	33%
Good	162	51%
Fair	36	11%
Poor	15	5%
Urgency of Care Triage Scores†		
No apparent decay	206	65%
Mild/moderate decay	80	25%
Severe decay	30	9%

* Connecticut schools that participated are Kent Center, Cornwall, Sharon Center, Warren, Goshen, Botelle, North Canaan, Lee H. Kellogg, and Salisbury. New York schools that participated are Dover, Alden, and Webutuck.

∞Oral Hygiene Scores:
- Excellent - No evidence of plaque/calculus;
- Good - Minimal plaque;
- Fair - Moderate plaque/calculus;
- Poor -Heavy plaque/calculus

†Triage Scores: Implies how urgent the child needs to see a dentist
- No apparent decay: See dentist once every 6 months;
- Mild/moderate decay: See dentist within 6 months;
- Severe decay: See dentist immediately

Table 3: Number of Students and Participation Response Rate for Third Grade Children in Connecticut and New York Schools* who participated in the Oral Health Survey (N = 319)

Schools	Number of Students	Response Rate
Connecticut Schools		
Kent Center	24	89%
Cornwall	14	93%
Sharon Center	18	71%
Warren	11	100%
Goshen	27	84%
Botelle	20	83%
North Canaan	29	74%
Lee H. Kellogg	8	100%
Salisbury	21	78%
New York Schools		
Dover	64	56%
Alden	55	60%
Webutuck	28	42%

* Connecticut schools that participated are Kent Center, Cornwall, Sharon Center, Warren, Goshen, Botelle, North Canaan, Lee H. Kellogg, and Salisbury. New York schools that participated are Dover, Alden, and Webutuck.

Table 4: Demographic Characteristics of the Third Grade Students in Connecticut schools* who participated in the Oral Health Survey

Demographics	Kent Center	Cornwall	Sharon Center	Warren	Goshen	Botelle	North Canaan	Lee H. Kellogg	Salisbury
Gender									
Males									
Number	17	7	4	2	9	11	15	3	10
Percent	71%	50%	22%	20%	33%	55%	54%	43%	48%
Females									
Number	7	7	14	8	18	9	13	4	11
Percent	29%	50%	78%	80%	67%	45%	46%	57%	52%
Race/Ethnicity									
Caucasian									
Number	23	13	15	11	27	19	28	7	16
Percent	96%	93%	83%	100%	100%	95%	97%	100%	76%
Black									
Number	0	0	1	0	0	0	0	0	1
Percent	0%	0%	6%	0%	0%	0%	0%	0%	5%
Asian									
Number	0	1	1	0	0	1	0	0	1
Percent	0%	7%	6%	0%	0%	5%	0%	0%	5%
Hispanic									
Number	1	0	0	0	0	0	1	0	3
Percent	4%	0%	0%	0%	0%	0%	3%	0%	14%
Other									
Number	0	0	1	0	0	0	0	0	0
Percent	0%	0%	6%	0%	0%	0%	0%	0%	0%

*Connecticut schools that participated are Kent Center, Cornwall, Sharon Center, Warren, Goshen, Botelle, North Canaan, Lee H. Kellogg, and Salisbury.

Table 5: Demographic Characteristics of the Third Grade Students in New York schools* who participated in the Oral Health Survey

Demographics	Dover	Alden	Webutuck
Gender			
Males			
Number	26	23	21
Percent	43%	42%	75%
Females			
Number	34	32	7
Percent	57%	58%	25%
Race/Ethnicity			
Caucasian			
Number	54	48	23
Percent	84%	87%	82%
Black			
Number	4	4	2
Percent	6%	7%	7%
Asian			
Number	2	1	0
Percent	3%	2%	0%
Hispanic			
Number	4	2	3
Percent	6%	4%	11%
Other			
Number	0	0	0
Percent	0%	0%	0%

*New York schools that participated are Dover, Alden, and Webutuck.

Table 6: Oral Health Assessment for Third Grade Students in Connecticut Schools* who participated in the Oral Health Survey

Variables	Kent Center	Cornwall	Sharon Center	Warren	Goshen	Botelle	North Canaan	Lee H. Kellogg	Salisbury
Number of students (n)	n = 24	n = 14	n = 18	n = 11	n = 27	n = 20	n = 29	n = 8	n = 20
≥ 1 Decayed Teeth[Δ]	46%	79%	61%	45%	41%	25%	31%	13%	20%
≥ 1 Filled Teeth[Δ]	29%	50%	44%	9%	11%	10%	21%	13%	0%
≥ 1 Missing Teeth[Δ]	50%	57%	39%	18%	37%	30%	41%	63%	30%
	n = 24	n = 14	n = 18	n = 11	n = 27	n = 20	n = 29	n = 8	n = 21
≥ 1 Sealed Teeth[Δ]	25%	43%	67%	0%	33%	55%	55%	75%	60%
Oral Hygiene Scores∞	n = 24	n = 14	n = 18	n = 11	n = 27	n = 20	n = 29	n = 8	n = 20
Excellent									
Number	5	0	3	3	13	6	14	5	12
Percent	21%	0%	17%	27%	48%	30%	48%	63%	60%
Good									
Number	8	0	2	8	13	12	12	3	7
Percent	33%	0%	11%	73%	48%	60%	41%	38%	35%
Fair									
Number	7	7	10	0	1	2	3	0	1
Percent	29%	50%	56%	0%	4%	10%	10%	0%	5%
Poor									
Number	4	7	3	0	0	0	0	0	0
Percent	17%	50%	17%	0%	0%	0%	0%	0%	0%
Urgency of Care Triage Scores†	n = 24	n = 14	n = 18	n = 11	n = 27	n = 20	n = 29	n = 8	n = 20
No apparent Decay									
Number	13	2	8	4	16	15	20	7	16
Percent	54%	14%	44%	36%	59%	75%	69%	88%	80%
Mild/moderate Decay									
Number	8	10	9	7	10	4	2	0	3
Percent	33%	71%	50%	64%	37%	20%	7%	0%	15%
Severe decay									
Number	3	2	1	0	1	1	7	1	1
Percent	13%	14%	6%	0%	4%	5%	24%	13%	5%

*Connecticut schools that participated are Kent Center, Cornwall, Sharon Center, Warren, Goshen, Botelle, North Canaan, Lee H. Kellogg, and Salisbury.

∞Oral Hygiene Scores: Excellent-No evidence of plaque/calculus, Good-Minimal plaque, Fair-Moderate plaque/calculus, Poor-Heavy plaque/calculus

†Triage Scores: Implies how urgent the child needs to see a dentist.
No apparent decay: See dentist once every 6 months; Mild/moderate decay: See dentist within 6 months; Severe decay: See dentist immediately

[Δ] Percent of students with ≥1 decayed, ≥1 filled, ≥1 missing and ≥1 sealed teeth by school

Table 7: Oral Health Assessment for Third Grade Students in New York Schools* who participated in the Oral Health Survey

Variables	Dover (n = 64)	Alden (n = 53)	Webutuck (n = 28)
≥ 1 Decayed Teeth$^{\Delta}$	44%	19%	11%
≥ 1 Filled Teeth$^{\Delta}$	19%	15%	0%
≥ 1 Missing Teeth$^{\Delta}$	33%	23%	43%
≥ 1 Sealed Teeth$^{\Delta}$	30%	38%	18%
Oral Hygiene Scores∞			
Excellent			
Number	21	13	8
Percent	33%	25%	29%
Good			
Number	37	40	20
Percent	58%	75%	71%
Fair			
Number	5	0	0
Percent	8%	0%	0%
Poor			
Number	1	0	0
Percent	2%	0%	0%
Urgency of Care Triage Scores			
No apparent Decay			
Number	36	44	25
Percent	56%	83%	89%
Mild/moderate Decay			
Number	18	8	1
Percent	28%	15%	4%
Severe decay			
Number	10	1	2
Percent	16%	2%	7%

*New York schools that participated are Dover, Alden, and Webutuck
∞Oral Hygiene Scores: Excellent - No evidence of plaque/calculus, Good - Minimal plaque, Fair - Moderate plaque/calculus, Poor -Heavy plaque/calculus
†Triage Scores: Implies how urgent the child needs to see a dentist.
No apparent decay: See dentist once every 6 months; Mild/moderate decay: See dentist within 6 months; Severe decay: See dentist immediately
$^{\Delta}$ Percent of students with ≥1 decayed, ≥1 filled, ≥1 missing and ≥1 sealed teeth by school

Table 8: Oral Health Assessment for Third Grade Students in Connecticut Schools* who participated in the Oral Health Survey

Teeth		Kent Center	Cornwall	Sharon Center	Warren	Goshen	Botelle	North Canaan	Lee H. Kellogg	Salisbury
Primary Dentition	Total Decayed Teeth	23	27	18	9	21	13	11	3	11
	Number of Students with Decayed Teeth	9	10	10	4	10	4	7	1	4
	Mean Decayed	**2.6**	**2.7**	**1.8**	**2.3**	**2.1**	**3.3**	**1.6**	**3.0**	**2.8**
	Total Filled Teeth	37	19	19	9	22	23	32	13	13
	Number of Students with Filled Teeth	10	8	6	2	8	6	12	4	4
	Mean Filled	**3.7**	**2.4**	**3.2**	**4.5**	**2.8**	**3.8**	**2.7**	**3.3**	**3.3**
	Mean dft†	**6.3**	**5.1**	**5.0**	**6.8**	**4.9**	**7.1**	**4.2**	**6.3**	**6.0**
Permanent Dentition	Total Decayed Teeth	11	6	7	2	6	9	2	0	5
	Number of Students with Decayed Teeth	7	3	5	2	4	4	2	0	2
	Mean Decayed	**1.6**	**2.0**	**1.4**	**1.0**	**1.5**	**2.3**	**1.0**	**0.0**	**2.5**
	Total Filled Teeth	6	9	2	1	5	3	1	1	5
	Number of Students with Filled Teeth	6	4	2	1	2	3	1	1	3
	Mean Filled	**1.0**	**2.3**	**1.0**	**1.0**	**2.5**	**1.0**	**1.0**	**1.0**	**1.7**
	Mean DFT††	**2.6**	**4.3**	**2.4**	**2.0**	**4.0**	**3.3**	**2.0**	**1.0**	**4.2**
Total	**dft + DFT†††**	**8.9**	**9.4**	**7.4**	**8.8**	**8.9**	**10.4**	**6.2**	**7.3**	**10.2**

*Connecticut schools that participated are Kent Center, Cornwall, Sharon Center, Warren, Goshen, Botelle, North Canaan, Lee H. Kellogg, and Salisbury.

† - The mean dft score is used to evaluate primary teeth and is calculated by summing the total number of primary teeth that are decayed and/or filled and averaging over the total number of students with decayed and/or filled primary teeth.

†† - The mean DFT score is used to evaluate permanent teeth and is calculated by summing the total number of permanent teeth that are decayed and/or filled and averaging over the total number of students with decayed and/or filled permanent teeth.

††† - dft+DFT is the sum of the mean dft and mean DFT scores

Table 9: Oral Health Assessment for Third Grade Students in New York Schools* who participated in the Oral Health Survey

Teeth		Dover	Alden	Webutuck
Primary Dentition	Total Decayed Teeth	56	19	4
	Number of Students with Decayed Teeth	23	7	3
	Mean Decayed Teeth	**2.4**	**2.7**	**1.3**
	Total Filled Teeth	62	27	35
	Number of Students with Filled Teeth	20	11	12
	Mean Filled Teeth	**3.1**	**2.5**	**2.9**
	Mean dft†	**5.5**	**5.2**	**4.3**
Permanent Dentition	Total Decayed Teeth	14	6	1
	Number of Students with Decayed Teeth	9	3	1
	Mean Decayed Teeth	**1.6**	**2.0**	**1.0**
	Total Filled Teeth	4	5	0
	Number of Students with Filled Teeth	3	2	0
	Mean Filled Teeth	**1.3**	**2.5**	**0.0**
	Mean DFT††	**2.9**	**4.5**	**1.0**
Total	**dft + DFT†††**	**8.4**	**9.7**	**5.3**

*New York schools that participated are Dover, Alden, and Webutuck.

† - The mean dft score is used to evaluate primary teeth and is calculated by summing the total number of primary teeth that are decayed and/or filled and averaging over the total number of students with decayed and/or filled primary teeth.

†† - The mean DFT score is used to evaluate permanent teeth and is calculated by summing the total number of permanent teeth that are decayed and/or filled and averaging over the total number of students with decayed and/or filled permanent teeth.

††† - dft+DFT is the sum of the mean dft and mean DFT scores