

Children's Oral Health Surveillance Report 2000–2009

A Summary of the Cambridge *Healthy Smiles* Screening Program

Division of Epidemiology and Data Services
July 2013



Claude-Alix Jacob
Chief Public Health Officer

CAMBRIDGE PUBLIC HEALTH DEPARTMENT



Cambridge Health Alliance



The *Children's Oral Health Surveillance Report 2000–2009: A Summary of the Cambridge Healthy Smiles Screening Program* is published by the Division of Epidemiology and Data Services, Cambridge Public Health Department, Cambridge, Massachusetts.

This report is not copyrighted and may be used and copied without permission. Citation of the source, however, is appreciated.

Suggested citation: Cambridge Public Health Department. *Children's Oral Health Surveillance Report 2000–2009: A Summary of the Cambridge Healthy Smiles Screening Program*. 2013.

This report was prepared by the following staff of the Division of Epidemiology and Data Services, Cambridge Public Health Department: Leanne Lasher, MPH; Susan Kilroy-Ames, MPH; and James Buszkiewicz, MPH. We would also like to thank Anna Wielgosz, MPH; Suzy Feinberg, MPH; and Ian Reynolds, MPH for their contributions to this report.

We would like to acknowledge Joyce Lefevre, Dr. John Giunta, the Cambridge Public Health Department's Dental Advisory Committee (see Appendix), and all of the screening volunteers for their continued dedication to the *Healthy Smiles* program.

Cover photo credits: Suzy Feinberg (far left, far right) and Priscila de Calvache (center).

Table of Contents

<i>Healthy Smiles</i> Dental Screening Program Overview	4
Special Highlight: Impact of the Screening Program	4
About the Data	5
Table 1: Student (preschool through grade 4) participation in <i>Healthy Smiles</i> dental screenings by year, 2000–2009.....	5
Cambridge Children’s Oral Health Surveillance Overview	7
Oral Health among <i>Healthy Smiles</i> Participants	8
Untreated Decay.....	8
Caries Experience.....	10
Serious Decay.....	12
References	14
Appendix: Healthy People 2010 Oral Health Objectives for Children	15
Table A1: Healthy People 2010 objectives for dental caries experience and untreated decay among children and adolescents 2 to 15 years of age.....	15
Appendix: Detailed Data Tables	16
Table A2: <i>Healthy Smiles</i> screening outcomes among all students by demographics and 5-year period, 2000–2009.....	16
Table A3: Untreated decay among students preschool through grade 4 by demographics and year, 2000–2009.....	17
Table A4: Caries experience among students preschool through grade 4 by demographics and year, 2000–2009.....	18
Table A5: Serious decay among students preschool through grade 4 by demographics and year, 2000–2009.....	19
Table A6: <i>Healthy Smiles</i> screening outcomes among all students by demographics, 2008–2009.....	20
Table A7: <i>Healthy Smiles</i> screening outcomes among third grade students by demographics, 2008–2009.....	21
Appendix: The Dental Advisory Committee	22
Table A8: The Cambridge Public Health Department Dental Advisory Committee	22

Healthy Smiles Dental Screening Program Overview

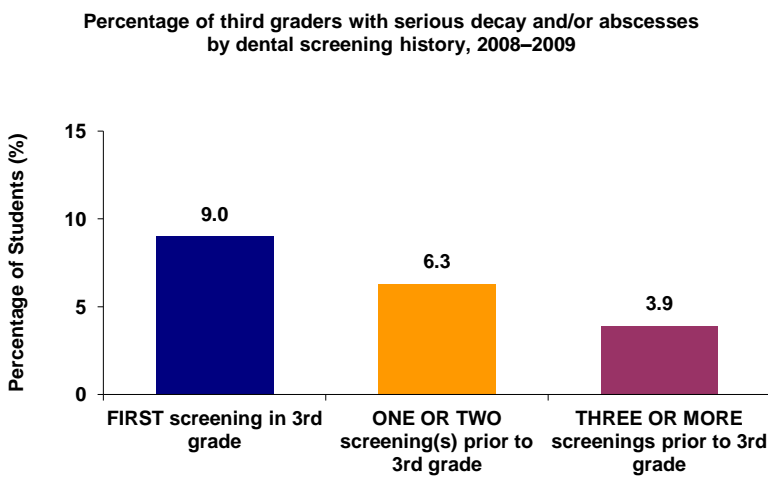
Established in 1997, the *Healthy Smiles* program provides classroom instruction, visual dental screenings, and, when necessary, referrals for dental care. Dental screening visits are conducted annually among children in preschool through grade 4 in Cambridge (MA) public, charter, and parochial schools.

Several days prior to the dental screenings for school-age children, *Healthy Smiles* staff and volunteers provide classroom instruction with an age-appropriate video about oral health and a 30-minute discussion about oral hygiene and the upcoming screening. Following the dental screening, results are sent home to families. For families who speak Spanish, Portuguese, or Haitian Creole, their child's results are translated into the family's home language.

Children are referred for dental care when problems are identified. When there is an urgent need for treatment, the program manager works closely with an affiliated clinic to facilitate immediate access. Referrals are also made to local pediatric dentists. The referral process often involves the combined efforts of the dental program manager, school administration, and school nurses.



Special Highlight: Impact of the Screening Program



School-based dental screenings can have a positive impact on the oral health of children. Specifically, frequent and/or early school-based dental screenings are associated with reduced findings of untreated decay, caries experience, and serious decay. Analysis of data from 2008–2009 (shown at left) showed that serious decay was significantly lower (59% lower [OR=0.41 (0.27, 0.61)]) among students with three or more screenings prior to the third grade compared to students whose first screening occurred in the third grade (3.9% vs. 9.0%).

About the Data

This report presents a summary of dental screenings conducted among Cambridge students who participated in the *Healthy Smiles* program between the 2000 and 2009 school years. School year is denoted as the year in which it ended and includes the summer immediately following. Data are combined into two five-year periods (2000–2004 and 2005–2009) unless otherwise specified. Three oral health factors (untreated decay, caries experience, and serious decay) are presented by grade, race/ethnicity, gender, and language.

The percentages presented in this report are based on the total number of screenings conducted between 2000 and 2009, not the total number of students (with the exception of Table 1). Since most students are screened annually, it is likely that a student is counted more than once in the time periods presented.

Unless otherwise noted, *Healthy Smiles* dental screening data include students in preschool through grade 4 and represent 98% of all students screened. (The remaining 2% is comprised of a small number of older students in grades 5–8 who received *Healthy Smiles* screenings).

A total of 24,883 dental screenings of children in preschool through grade 4 were completed between 2000 and 2009. Table 1 includes information on the number of students in preschool through grade 4, the number of screenings conducted annually, and the estimated percentage of students screened annually.

Table 1: Student (preschool–grade 4*) participation in *Healthy Smiles* dental screenings by year, 2000–2009

School Year	Number of Students Preschool – Grade 4	Total Number of Screenings	Estimated Percent** of Students Screened
2000	1,857	1,797	97%
2001	1,737	1,664	96%
2002	3,050	2,778	91%
2003	2,987	2,797	94%
2004	2,965	2,693	91%
2005	3,167	2,628	83%
2006	3,006	2,428	81%
2007	3,140	2,575	82%
2008	3,298	2,713	82%
2009	3,329	2,810	84%
TOTAL	28,536	24,883	87%

Note: Screenings conducted during the summer are counted with the preceding school year. Reasons for students not being screened include parental refusal, child refusal, teacher refusal, and absence.

* Screenings of older students (grades 5–8) have been removed from these annual counts.

** This is an estimated percentage because the number of screenings conducted each year is not deduplicated. In some instances students may be screened more than once per year.

During a dental screening, a team of dental hygienists, a retired dentist, students, and volunteers perform a visual examination using a pen light and mouth mirror. The screening form used by *Healthy Smiles* was adapted from the basic screening survey created by the Association of State and Territorial Dental Directors and the Centers for Disease Control and Prevention.³ Data are collected on a paper form and entered into a Microsoft Access database. Analyses were performed using SAS software version 9.3.⁴

Definitions of dental terms included in this report are as follows:

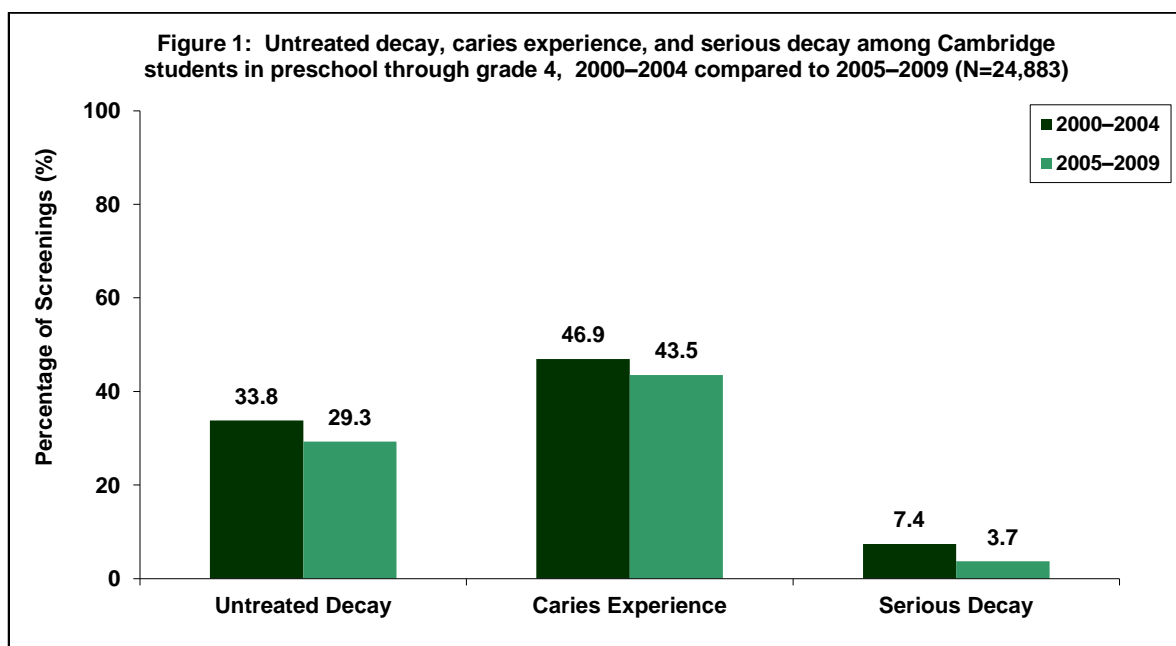
- **Untreated Decay:** Untreated decay in any tooth (primary or permanent) at the time of screening.
- **Caries Experience:** Fillings and/or untreated decay in any tooth (primary or permanent) at the time of screening. This denotes the historical presence of dental decay.¹
- **Serious Decay:** Serious decay and/or abscesses in any tooth (primary or permanent) at the time of screening. This denotes the presence of pain, infection, or swelling that requires the next dental visit to be conducted as soon as possible. Although serious decay is not a commonly used term in national data (there are no Healthy People 2010 objectives²) it is considered a robust measure for the *Healthy Smiles* program because a licensed dental hygienist verifies that all findings of serious decay are accurate.

Care must be taken in interpreting the data in this report. Readers should be aware that:

- Data are current as of April 1, 2013 and are subject to change.
- New students who have never been screened or treated enter the *Healthy Smiles* screening program annually, while existing students leave *Healthy Smiles*, either because they age out of the program or they leave the Cambridge schools.
- The student demographics of each grade level vary from year to year.
- Demographic data is not readily available in some of the participating private schools. As a result, approximately 26% of the data for preschool screenings are missing racial/ethnic information and 27% of the data for preschool screenings are missing primary language spoken at home.
- This report does not account for potential variation in refusals to participate in the *Healthy Smiles* program that may occur across racial/ethnic groups.
- Information on dental sealants is collected during the screening process, but is not a major focus of the *Healthy Smiles* screening program. Thus data on the presence or absence of dental sealants at the time of screening are not included in this report.
- Entry age requirements vary by type of school in Cambridge (public and private preschools and kindergartens). For this reason, students enrolled in preschool and kindergarten at the time of screening were combined for analysis purposes.

Cambridge Children's Oral Health Surveillance Overview

- Between 2000 and 2009, *Healthy Smiles* program staff and volunteers screened 10,163 individual students (preschool–grade 4) for a total of 24,883 screenings. An average of 2,488 screenings is conducted annually.
- Between the periods 2000–2004 and 2005–2009, oral health improved among Cambridge children participating in the *Healthy Smiles* program:
 - 13% reduction in untreated tooth decay (from 33.8 to 29.3%)
 - 7% reduction in caries experience (from 46.9% to 43.5%)
 - 50% reduction in serious tooth decay (from 7.4% to 3.7%)

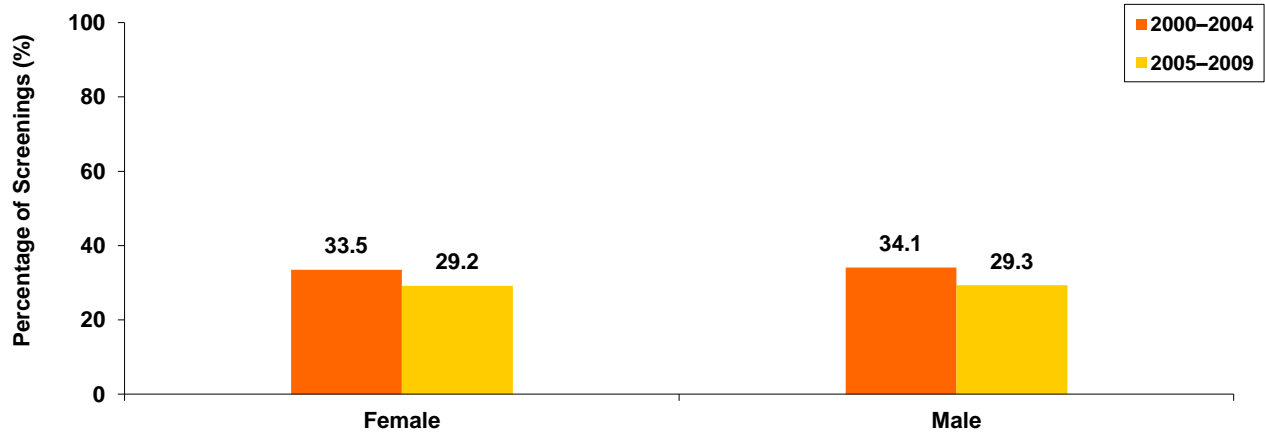


Untreated Decay

Untreated decay, also referred to as dental caries or cavities, is a progressive, destructive chronic disease caused by bacteria that damage the hard tooth structures, enamel, dentin, and cementum.¹ Overall, untreated decay among Cambridge children participating in the *Healthy Smiles* program decreased by 13% (from 33.8% to 29.3%) between the time periods of 2000–2004 and 2005–2009.

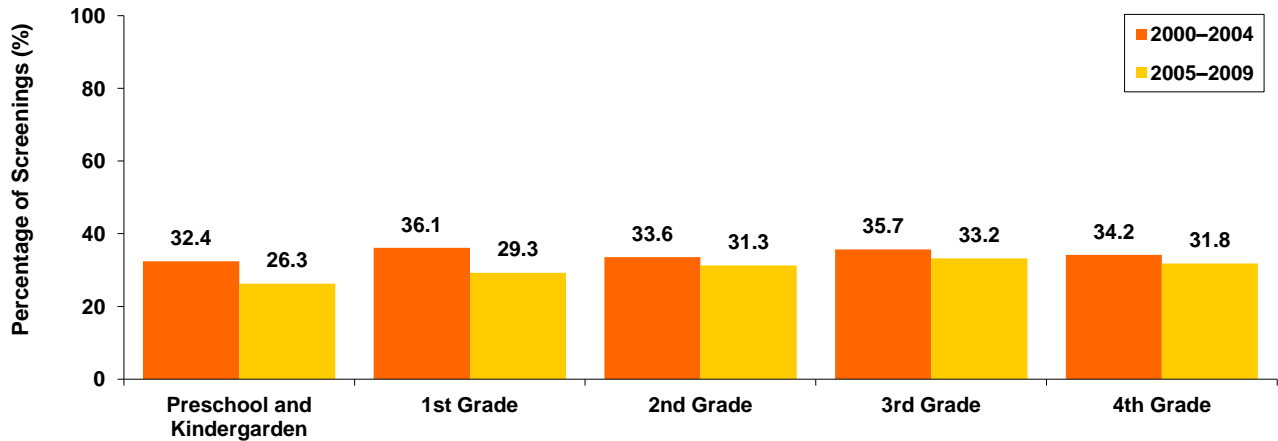
GENDER

Figure 2: Untreated decay among Cambridge students preschool through grade 4 by gender, 2000–2004 compared to 2005–2009 (N=24,800)



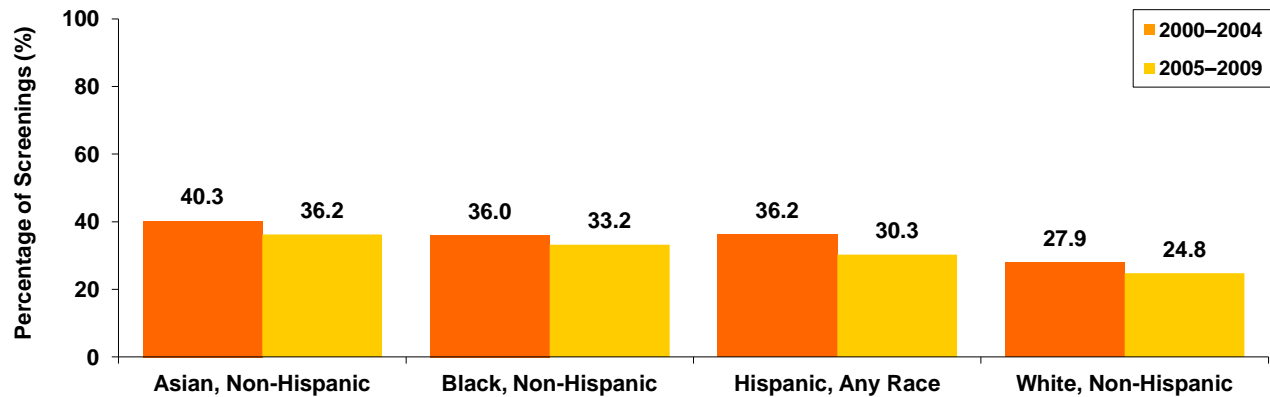
GRADE

Figure 3: Untreated decay among Cambridge students preschool through grade 4 by grade, 2000–2004 compared to 2005–2009 (N=24,883)



RACE/ETHNICITY

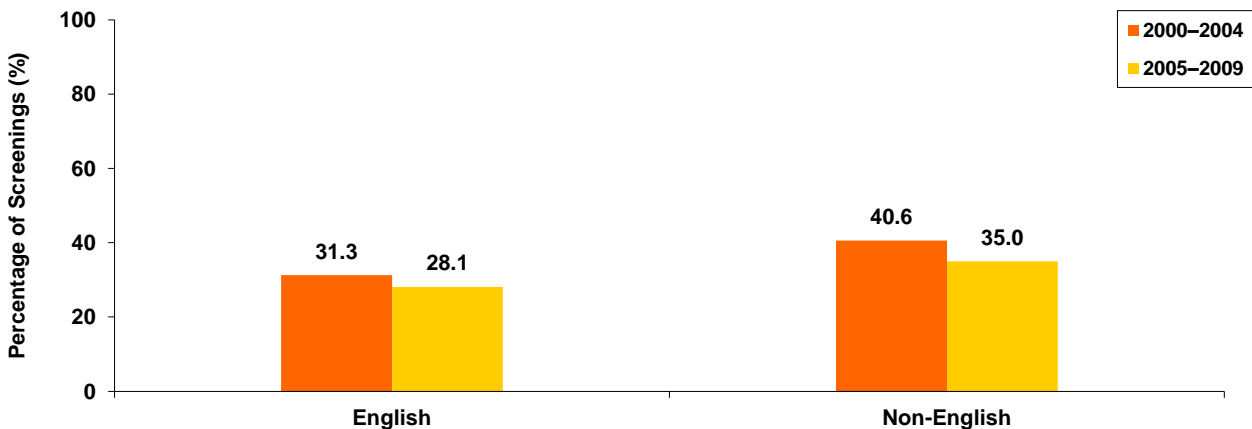
Figure 4: Untreated decay among Cambridge students preschool through grade 4 by race/ethnicity, 2000-2004 compared to 2005-2009 (N=22,810)



Note: For data and details on the racial/ethnic category "Other, Non-Hispanic" (not shown in this figure), please see Appendix: Detailed Data Tables.

LANGUAGE

Figure 5: Untreated decay among Cambridge students preschool through grade 4 by language, 2000-2004 compared to 2005-2009 (N=22,089)

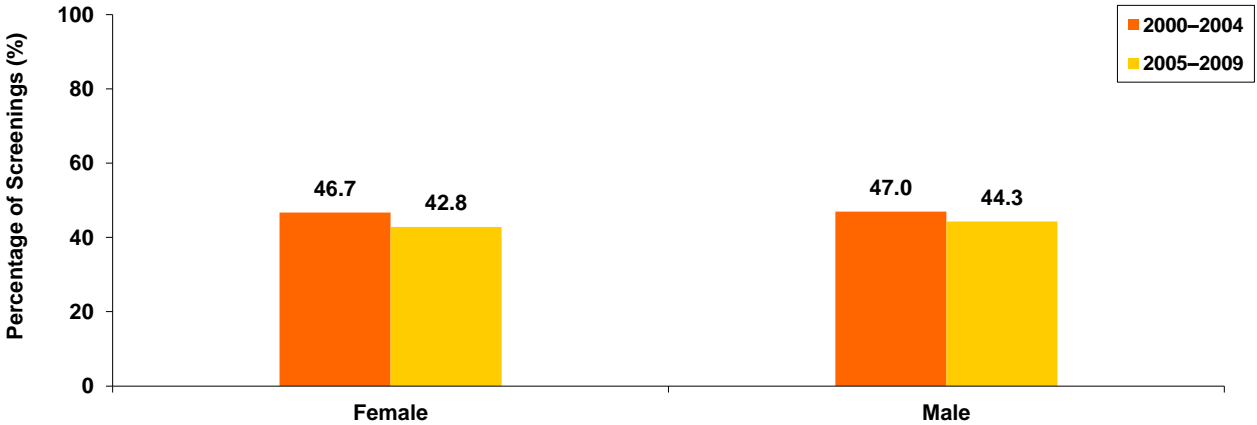


Caries Experience

Caries experience indicates the historical presence of dental decay noted by fillings and/or untreated decay.¹ Caries experience among all students participating in the *Healthy Smiles* program decreased by 7% (from 46.9% to 43.5%) between the periods 2000–2004 and 2005–2009.

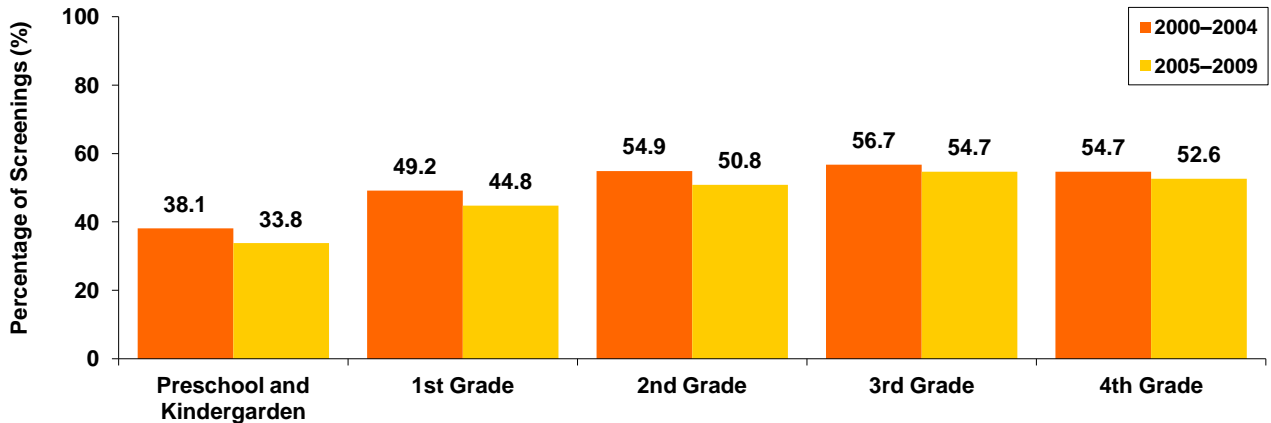
GENDER

Figure 6: Caries experience among Cambridge students preschool through grade 4 by gender, 2000–2004 compared to 2005–2009 (N=24,800)



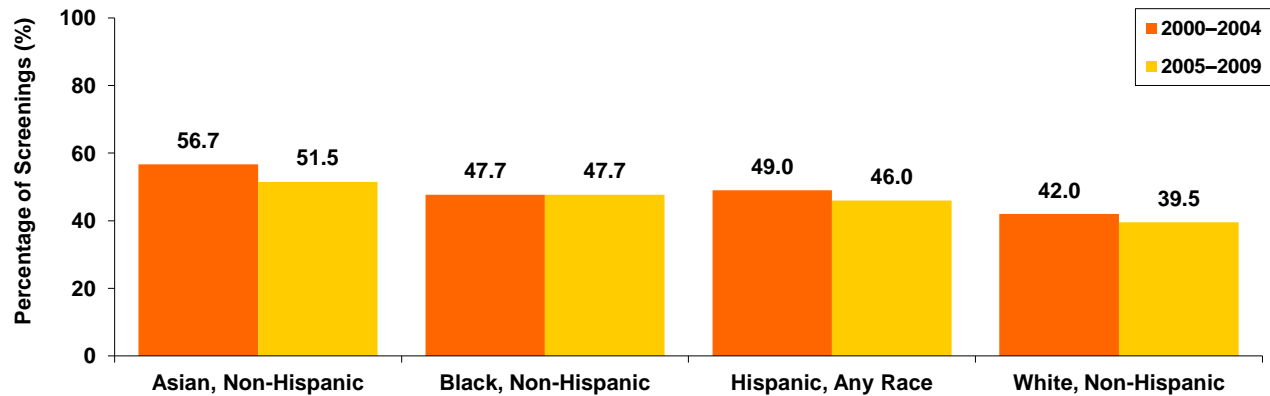
GRADE

Figure 7: Caries experience among Cambridge students preschool through grade 4 by grade, 2000–2004 compared to 2005–2009 (N=24,883)



RACE/ETHNICITY

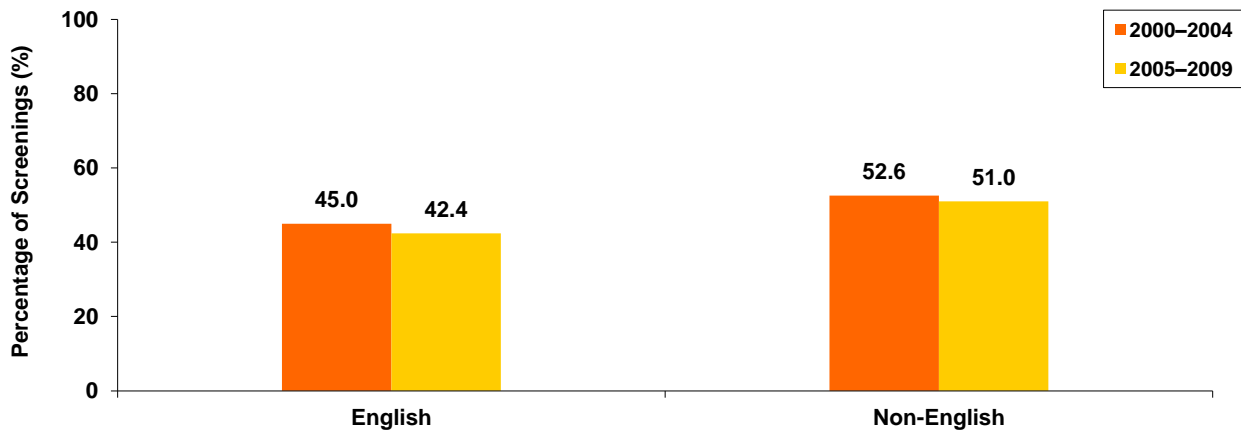
Figure 8: Caries experience among Cambridge students preschool through grade 4 by race/ethnicity, 2000-2004 compared to 2005-2009 (N=22,810)



Note: For data and details on the racial/ethnic category “Other, Non-Hispanic” (not shown in this figure), please see Appendix: Detailed Data Tables.

LANGUAGE

Figure 9: Caries experience among Cambridge students preschool through grade 4 by language, 2000-2004 compared to 2005-2009 (N=22,089)

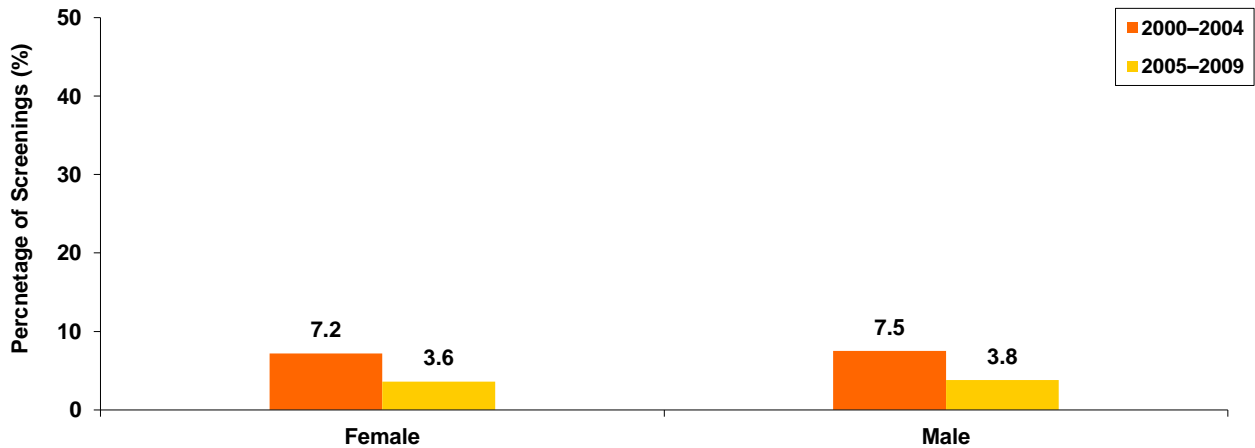


Serious Decay

As defined by the *Healthy Smiles* program, serious decay indicates the presence of signs and symptoms such as pain, infection, or swelling that require that the next dental visit be conducted as soon as possible. Although serious decay is not a commonly used term in national data (there are no Healthy People 2010 objectives²), it is considered a robust measure for the *Healthy Smiles* program because a licensed dental hygienist verifies that all findings of serious decay are accurate. The percentage of serious decay among all Cambridge children participating in the *Healthy Smiles* program decreased by 50% (from 7.4% to 3.7%) between 2000–2004 and 2005–2009.

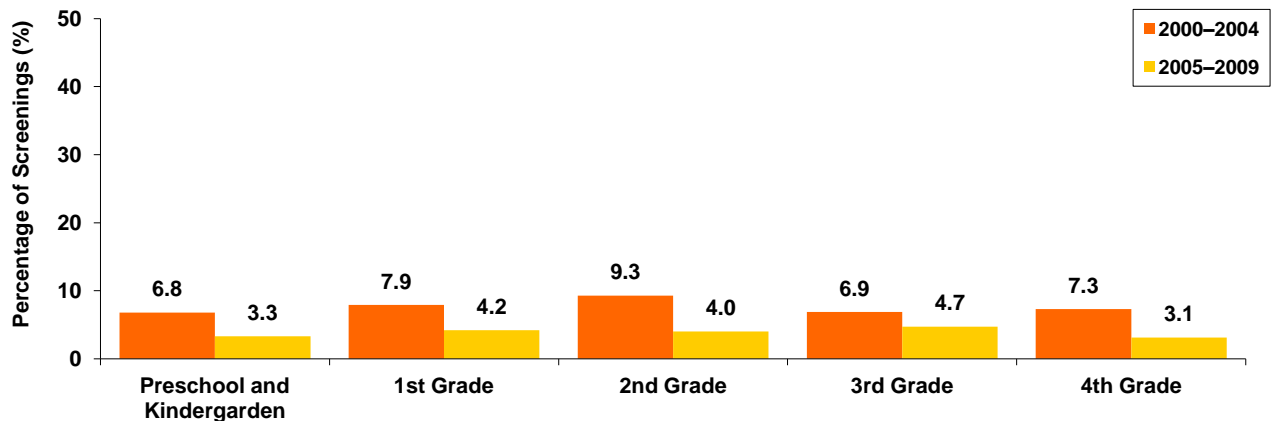
GENDER

Figure 10: Serious decay among Cambridge students preschool through grade 4 by gender, 2000-2004 compared to 2005-2009 (N=24,772)



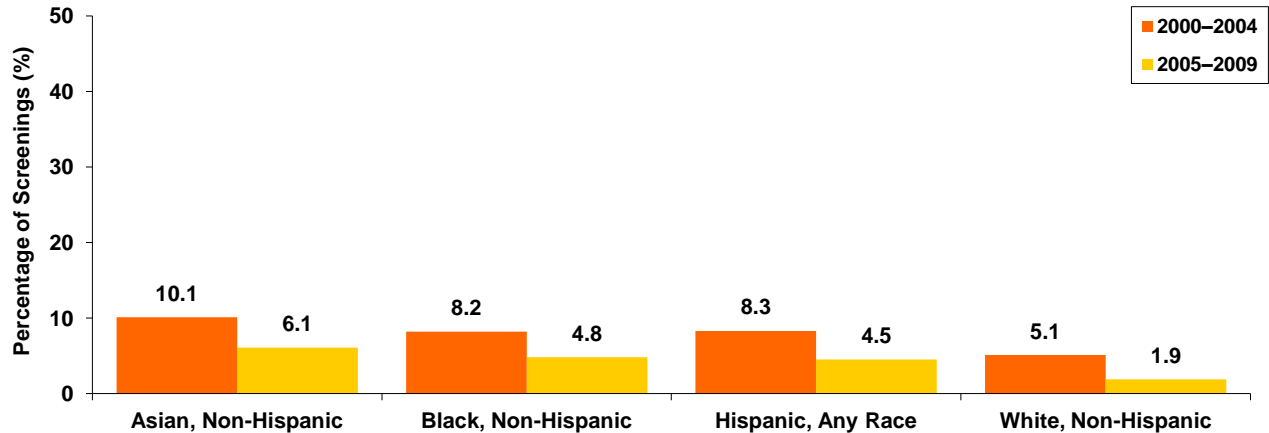
GRADE

Figure 11: Serious decay among Cambridge students preschool through grade 4 by grade, 2000-2004 compared to 2005-2009 (N=24,855)



RACE/ETHNICITY

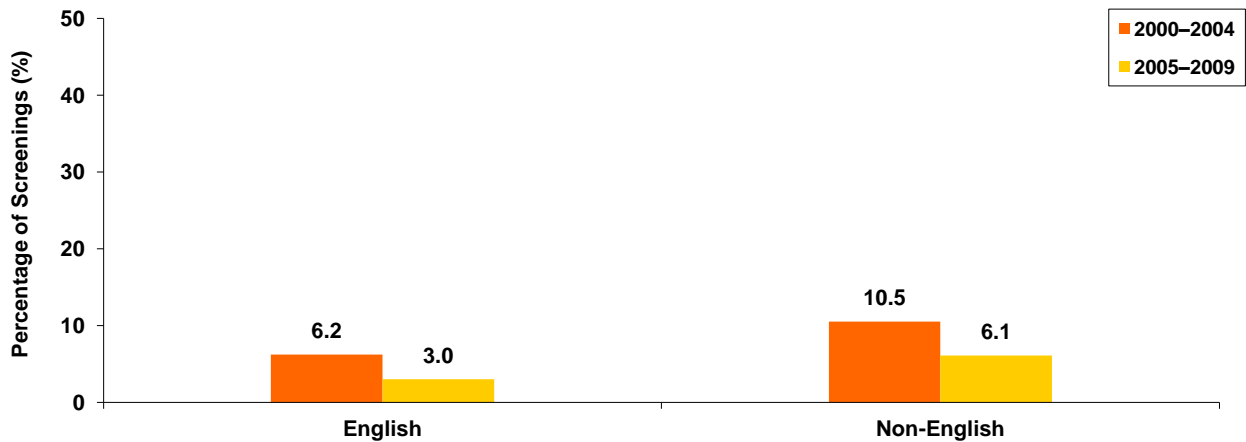
Figure 12: Serious decay among Cambridge students preschool through grade 4 by race/ethnicity, 2000-2004 compared to 2005-2009 (N=22,782)



Note: For data and details on the racial/ethnic category "Other, Non-Hispanic" (not shown in this figure), please see Appendix: Detailed Data Tables.

LANGUAGE

Figure 13: Serious decay among Cambridge students preschool through grade 4 by language, 2000-2004 compared to 2005-2009 (N=22,061)



References

1. Massachusetts Department of Public Health, Office of Oral Health. The Status of Oral Disease in Massachusetts: A Great Unmet Need 2009. <http://www.mass.gov/eohhs/docs/dph/com-health/oral-health-burden.pdf>. Accessed 23 May 2013.
2. Healthy People 2010. Archive site: <http://www.healthypeople.gov/2010/Default.htm>. Accessed 23 May 2013.
3. Association of State and Territorial Dental Directors. Basic screening surveys: an approach to monitoring community oral health. <http://www.astdd.org/docs/BSSChildren'sManual20081revised2.9.2010.pdf>. Accessed 23 May 2013.
4. SAS version 9.3. SAS Institute; Cary, NC.

Appendix: Healthy People 2010 Oral Health Objectives for Children

Table A1: Healthy People 2010 objectives for dental caries experience and untreated decay among children and adolescents 2 to 15 years of age⁴

Objective	Description	Target	Baseline
21-1.	Reduce the proportion of children and adolescents who have dental caries experience in their primary or permanent teeth		
21-1a.	Reduce the proportion of young children with dental caries experience in their primary teeth	11%	18% of children aged 2 to 4 years had dental caries experience in 1988–1994
21-1b.	Reduce the proportion of children with dental caries experience in their primary and permanent teeth	42%	52% of children aged 6 to 8 years had dental caries experience in 1988–1994
21-1c.	Reduce the proportion of adolescents with dental caries experience in their permanent teeth.	51%	61% of adolescents aged 15 years had dental caries experience in 1988–1994
21-2.	Reduce the proportion of children, adolescents, and adults* with untreated dental decay		
21-2a.	Reduce the proportion of young children with untreated dental decay in their primary teeth	9%	16% of children aged 2 to 4 years had untreated dental decay in 1988–1994
21-2b.	Reduce the proportion of children with untreated decay in their primary and permanent teeth	21%	29% of children aged 6 to 8 had untreated dental decay in 1988–1994
21-2c.	Reduce the proportion of adolescents with untreated dental decay in their permanent teeth	15%	20% of adolescents aged 15 years had untreated decay in 1988–1994

Note: Healthy People 2010 is a Centers for Disease Control and Prevention based initiative that provides "science-based, 10-year national objectives for improving the health of all Americans." See <http://www.healthypeople.gov/2010/redirect.aspx?url=/2010/> for more information.

* Adult indicators are not shown in this table.

Appendix: Detailed Data Tables

Table A2: *Healthy Smiles* screening outcomes among all students by demographics and 5-year period, 2000–2009 (N=24,883)

	Screenings		Untreated Decay				Caries Experience				Serious Decay			
	2000-2004	2005-2009	2000–2004 (N=11,729)		2005– 2009 (N=13,154)		2000–2004 (N=11,729)		2005– 2009 (N=13,154)		2000–2004 (N=11,714)		2005– 2009 (N=13,141)	
	N	N	%	n	%	n	%	n	%	n	%	n	%	n
TOTAL	11,729	13,154	33.8	3,967	29.3	3,847	46.9	5,499	43.5	5,726	7.4	862	3.7	489
Gender														
Female	5,788	6,376	33.5	1,941	29.2	1,860	46.7	2,702	42.8	2,730	7.2	415	3.6	232
Male	5,895	6,741	34.1	2,010	29.3	1,977	47.0	2,773	44.3	2,985	7.5	444	3.8	255
Missing	46	37		16		10		24		11		—		—
Grade														
Preschool and Kindergarten	5,110	5,464	32.4	1,656	26.3	1,438	38.1	1,948	33.8	1,844	6.8	344	3.3	182
First Grade	1,810	2,098	36.1	654	29.3	615	49.2	890	44.8	939	7.9	143	4.2	87
Second Grade	1,504	1,946	33.6	506	31.3	609	54.9	826	50.8	988	9.3	140	4.0	78
Third Grade	1,339	1,861	35.7	478	33.2	618	56.7	759	54.7	1,017	6.9	92	4.7	87
Fourth Grade	1,966	1,785	34.2	673	31.8	567	54.7	1,076	52.6	938	7.3	143	3.1	55
Race/Ethnicity														
Asian, Non-Hispanic	1,364	1,440	40.3	550	36.2	521	56.7	773	51.5	741	10.1	138	6.1	88
Black, Non-Hispanic	4,650	4,329	36.0	1,675	33.2	1,435	47.7	2,218	47.7	2,063	8.2	380	4.8	207
Hispanic, Any Race	1,538	1,613	36.2	556	30.3	489	49.0	754	46.0	742	8.3	128	4.5	73
White, Non-Hispanic	3,738	3,709	27.9	1,041	24.8	919	42.0	1,571	39.5	1,464	5.1	192	1.9	70
Other Race, Non-Hispanic	53	376	37.7	20	22.9	86	49.1	26	35.1	132	—	—	—	—
Missing	386	1,687		125		397		157		584		18		44
Primary Language Spoken at Home														
English	7,989	8,101	31.3	2,502	28.1	2,279	45.0	3,598	42.4	3,435	6.2	492	3.0	242
Non-English	2,810	3,189	40.6	1,142	35.0	1,116	52.6	1,478	51.0	1,626	10.5	293	6.1	195
Missing	930	1,864		323		452		423		665		77		52

Note: The category 'Other Race, Non-Hispanic' includes Non-Hispanic Native American and non-Hispanic mixed racial/ethnic groups.

— Insufficient data (numerator less than 10 or denominator less than 30) or data not available.

Table A3: Untreated decay among students preschool through grade 4 by demographics and year, 2000-2009 (N=24,883)

	2000 (N=1797)		2001 (N=1664)		2002 (N=2778)		2003 (N=2797)		2004 (N=2693)		2005 (N=2628)		2006 (N=2428)		2007 (N=2575)		2008 (N=2713)		2009 (N=2810)	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
TOTAL	28.2	507	34.3	570	35.9	996	35.1	981	33.9	913	37.4	982	33.9	823	28.6	737	24.2	657	23.1	648
Gender																				
Female	26.8	231	33.2	271	34.9	486	35.4	496	34.7	457	38.8	491	34.4	402	28.4	362	23.2	301	22.2	304
Male	29.7	276	35.3	296	36.6	502	34.8	482	33.1	454	36.1	489	33.4	417	28.8	373	25.3	355	23.9	343
Missing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grade																				
Preschool and Kindergarten	24.7	255	34.6	377	32.2	321	36.3	356	34.4	347	35.1	352	30.7	328	23.8	246	22.1	261	21.4	251
First Grade	34.3	136	46.7	35	39.5	189	33.7	153	34.7	141	36.3	145	33.5	119	32.5	142	25.3	108	21.1	101
Second Grade	37.0	34	27.5	11	41.4	193	32.3	153	26.6	115	41.9	172	32.9	104	28.5	106	29.9	122	23.9	105
Third Grade	17.2	10	—	—	37.1	140	38.1	169	34.7	154	38.9	155	42.7	151	31.5	117	24.1	84	28.6	111
Fourth Grade	33.2	72	32.1	142	33.2	153	33.9	150	38.7	156	38.1	158	36.3	121	35.2	126	23.6	82	24.1	80
Race/Ethnicity																				
Asian, Non-Hispanic	39.8	86	42.1	77	43.7	148	40.7	134	35.4	105	46.5	132	42.3	120	31.9	87	31.2	93	29.6	89
Black, Non-Hispanic	28.7	190	33.0	229	38.3	447	38.4	433	37.6	376	41.1	411	37.5	329	33.3	275	25.0	203	26.8	217
Hispanic, Any Race	31.2	77	41.4	77	37.1	137	37.3	139	34.7	126	34.5	123	30.2	91	28.8	91	31.3	94	26.6	90
White, Non-Hispanic	22.8	140	30.4	167	28.3	238	28.7	258	28.5	238	29.9	222	27.9	184	24.2	182	23.8	184	18.8	147
Other Race, Non-Hispanic	—	—	—	—	—	—	—	—	46.2	12	34.4	11	32.7	16	21.7	15	20.8	21	18.4	23
Missing	—	12	—	20	—	23	—	14	—	56	—	83	—	83	—	87	—	62	—	82
Primary Language Spoken at Home																				
English	26.3	327	31.8	379	32.6	609	32.0	608	32.5	579	34.9	593	31.9	482	26.8	422	24.6	399	22.6	383
Non-English	32.1	132	43.4	152	44.3	313	42.8	302	38.2	243	43.6	280	39.5	243	35.2	222	30.0	190	27.2	181
Missing	—	48	—	39	—	74	—	71	—	91	—	109	—	98	—	93	—	68	—	84

Note: The category 'Other Race, Non-Hispanic' includes Non-Hispanic Native American and non-Hispanic mixed racial/ethnic groups.
 — Insufficient data (numerator less than 10 or denominator less than 30) or data not available.

Table A4: Caries experience among students preschool through grade 4 by demographics and year, 2000-2009 (N=24,883)

	2000 (N=1797)		2001 (N=1664)		2002 (N=2778)		2003 (N=2797)		2004 (N=2693)		2005 (N=2628)		2006 (N=2428)		2007 (N=2575)		2008 (N=2713)		2009 (N=2810)	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
TOTAL	37.2	669	42.3	703	52.4	1,456	51.2	1,431	46.1	1,240	46.8	1,231	46.5	1,130	44.0	1,132	41.1	1,116	39.8	1,117
Gender																				
Female	35.0	301	41.6	340	51.6	718	52.4	735	46.2	608	47.7	604	46.5	544	43.6	555	39.8	517	37.3	510
Male	39.5	367	42.9	360	52.9	725	49.9	691	46.0	630	46.1	625	46.6	582	44.4	575	42.5	597	42.2	606
Missing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grade																				
Preschool and Kindergarten	30.7	317	38.0	415	41.8	416	40.9	402	39.5	398	38.4	385	37.7	403	31.2	323	31.3	370	31.0	363
First Grade	42.1	167	50.7	38	56.3	269	50.2	228	46.3	188	45.3	181	47.3	168	50.6	221	42.9	183	38.8	186
Second Grade	51.1	47	37.5	15	63.3	295	57.0	270	46.1	199	53.5	220	50.3	159	51.3	191	54.7	223	44.4	195
Third Grade	44.8	26	—	—	58.4	220	61.3	272	53.2	236	54.9	219	61.0	216	53.2	198	49.1	171	54.9	213
Fourth Grade	51.6	112	52.0	230	55.5	256	58.5	259	54.3	219	54.5	226	55.3	184	55.6	199	48.7	169	48.2	160
Race/Ethnicity																				
Asian, Non-Hispanic	53.7	116	54.6	100	61.7	209	58.1	191	52.9	157	56.3	160	56.0	159	51.7	141	47.0	140	46.8	141
Black, Non-Hispanic	35.6	236	41.3	286	52.7	614	52.8	595	48.7	487	49.3	493	47.9	420	49.8	412	45.4	369	46.4	369
Hispanic, Any Race	39.7	98	47.9	89	52.0	192	53.6	200	48.2	175	46.2	165	51.2	154	41.8	132	46.7	140	44.5	151
White, Non-Hispanic	32.7	201	37.5	206	48.5	407	46.3	416	40.8	341	42.5	315	42.3	279	40.8	306	38.4	297	34.1	267
Other Race, Non-Hispanic	—	—	—	—	—	—	—	—	53.9	14	34.4	11	42.9	21	29.0	20	37.6	38	33.6	42
Missing	—	16	—	22	—	31	—	22	—	66	—	87	—	97	—	121	—	132	—	147
Primary Language Spoken at Home																				
English	35.3	440	39.5	470	50.6	946	49.7	943	44.8	799	45.2	767	44.7	676	43.3	683	40.4	654	38.7	655
Non-English	42.1	173	51.7	181	57.4	406	55.3	390	51.5	328	54.1	348	54.9	338	49.8	314	50.0	317	46.4	309
Missing	—	56	—	52	—	104	—	98	—	113	—	116	—	116	—	135	—	145	—	153

Note: The category 'Other Race, Non-Hispanic' includes Non-Hispanic Native American and non-Hispanic mixed racial/ethnic groups.
 — Insufficient data (numerator less than 10 or denominator less than 30) or data not available.

Table A5: Serious decay among students preschool through grade 4 by demographics and year, 2000–2009 (N=24,855)

	2000 (N=1797)		2001 (N=1664)		2002 (N=2778)		2003 (N=2797)		2004 (N=2693)		2005 (N=2628)		2006 (N=2428)		2007 (N=2575)		2008 (N=2713)		2009 (N=2810)	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
TOTAL	8.2	147	10.2	170	8.7	242	6.3	175	4.8	128	4.5	119	5.4	131	3.5	90	2.5	68	2.9	81
Gender																				
Female	7.7	66	9.0	73	9.0	125	6.3	88	4.8	63	4.6	58	5.3	62	3.3	42	2.4	31	2.9	39
Male	8.7	81	11.6	97	8.3	114	6.3	87	4.7	65	4.5	61	5.4	67	3.7	48	2.6	37	2.9	42
Missing		—		—		—		—		—		—		—		—		—		—
Grade																				
Preschool and Kindergarten	7.4	76	9.8	107	7.0	70	4.6	45	4.6	46	4.1	41	4.7	50	2.9	30	2.0	24	3.2	37
First Grade	9.3	37	14.7	11	8.0	38	6.4	29	6.9	28	5.8	23	6.5	23	3.0	13	3.0	13	3.1	15
Second Grade	14.1	13	—	—	14.2	66	8.2	39	4.4	19	4.4	18	4.1	13	6.5	24	3.2	13	2.3	10
Third Grade	—	—	—	—	8.2	31	8.4	37	4.7	21	5.8	23	8.8	31	3.2	12	2.9	10	2.8	11
Fourth Grade	9.2	20	10.6	47	8.0	37	5.6	25	3.5	14	3.4	14	4.2	14	3.1	11	—	—	—	—
Race/Ethnicity																				
Asian, Non-Hispanic	14.4	31	19.1	35	11.2	38	8.2	27	—	—	7.4	21	7.4	21	5.1	14	5.7	17	5.0	15
Black, Non-Hispanic	8.5	56	9.4	65	9.6	112	7.3	82	6.5	65	5.4	54	7.1	62	4.5	37	3.1	25	3.6	29
Hispanic, Any Race	9.3	23	14.1	26	9.2	34	8.1	30	4.1	15	5.3	19	5.3	16	3.8	12	3.7	11	4.4	15
White, Non-Hispanic	5.5	34	7.3	40	6.4	54	3.8	34	3.6	30	2.7	20	2.4	16	1.6	12	1.4	11	1.4	11
Other Race, Non-Hispanic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Missing		—		—		—		—		—		—		14		14		—		—
Primary Language Spoken at Home																				
English	7.0	87	9.0	107	7.0	130	5.1	97	4.0	71	3.8	65	4.4	66	2.4	37	1.9	30	2.6	44
Non-English	10.5	43	13.5	47	12.3	87	10.1	71	7.1	45	7.0	45	7.8	48	6.0	38	5.7	36	4.2	28

Note: The category 'Other Race, Non-Hispanic' includes Non-Hispanic Native American and Non-Hispanic mixed racial/ethnic groups.

— Insufficient data (numerator less than 10 or denominator less than 30) or data not available.

Table A6: *Healthy Smiles* screening outcomes among all students by demographics, 2008–2009 (N=2,810)

	Screenings		Untreated Decay		Caries Experience		Serious Decay	
	%	N	%	n	%	n	%	n
TOTAL		2,810	23.1	648	39.8	1,117	2.9	81
Gender								
Female	48.8	1,368	22.2	304	37.3	510	2.9	39
Male	51.2	1,436	23.9	343	42.2	606	2.9	42
Missing		—		—		—		—
Grade								
Preschool and Kindergarten	41.7	1,172	21.4	251	31.0	363	3.2	37
First Grade	17.1	479	21.1	101	38.8	186	3.1	15
Second Grade	15.6	439	23.9	105	44.4	195	2.3	10
Third Grade	13.8	388	28.6	111	54.9	213	2.8	11
Fourth Grade	11.8	332	24.1	80	48.2	160	—	—
Race/Ethnicity								
Asian, Non-Hispanic	10.7	301	29.6	89	46.8	141	5.0	15
Black, Non-Hispanic	28.9	812	26.7	217	45.4	369	3.6	29
Hispanic of Any Race	12.1	339	26.6	90	44.5	151	4.4	15
White, Non-Hispanic	27.9	784	18.8	147	34.1	267	1.4	11
Other Race, Non-Hispanic	4.5	125	18.4	23	33.6	42	—	—
Missing		449		82		147		—
Primary Language Spoken at Home								
English	60.3	1,693	22.6	383	38.7	655	2.6	44
Non-English	23.7	666	27.2	181	46.4	309	4.2	28
Missing		451		84		153		—

Note: The category 'Other Race, Non-Hispanic' includes Non-Hispanic Native American and Non-Hispanic mixed racial/ethnic groups.

— Insufficient data (numerator less than 10 or denominator less than 30) or data not available.

Table A7: *Healthy Smiles* screening outcomes among third grade students by demographics, 2008–2009 (N=388)

	Number of Screenings among 3 rd Grade Students		Untreated Decay		Caries Experience		Serious Decay	
	%	N	%	n	%	n	%	n
TOTAL		388	28.6	111	54.9	213	2.8	11
Gender								
Female	46.9	181	29.8	54	53.6	97	—	—
Male	53.1	205	27.3	56	56.1	115	—	—
Missing		—		—		—		—
Race/Ethnicity								
Asian, non-Hispanic	13.4	52	40.4	21	57.7	30	—	—
Black, non-Hispanic	36.9	143	29.4	42	55.2	79	—	—
Hispanic of Any Race	10.6	41	24.4	10	56.1	23	—	—
White, non-Hispanic	27.3	106	26.4	28	51.9	55	—	—
Other Race, Non-Hispanic	2.8	11	—	—	—	—	—	—
Missing		35		—		19		—
Primary Language Spoken at Home								
English	60.1	233	30.0	70	56.2	131	—	—
Non-English	29.9	116	29.3	34	52.6	61	—	—
Missing		39		—		21		—

Note: The category 'Other Race, Non-Hispanic' includes Non-Hispanic Native American and Non-Hispanic mixed racial/ethnic groups.

— Insufficient data (numerator less than 10 or denominator less than 30) or data not available.

Appendix: The Dental Advisory Committee

Table A8: The Cambridge Public Health Department Dental Advisory Committee

Member	Organization
Kim DeAndrade, M.Ed.	Cambridge Public Schools
John Giunta, DMD, MS	Tufts University School of Dental Medicine, Professor Emeritus, Massachusetts College of Pharmacy and Health Sciences, Forsyth School of Dental Hygiene
Claude-Alix Jacob, MPH	Cambridge Public Health Department
Susan Kilroy-Ames, MPH	Cambridge Public Health Department
Stacey King, MS	Cambridge Public Health Department
Joyce Lefevre, RDH, BS	Cambridge Public Health Department
Barbara Meade, MS, RN, CPNP	Cambridge Public Health Department
Brian Swann, DDS, MPH	Cambridge Health Alliance
Mary Tavares, DMD, MPH	Harvard School of Dental Medicine, Forsyth Institute