

the 2002-2003
Keep Smiling Vermont
Oral Health Survey



Vermont Department of Health
Dental Health Services



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The Vermont Department of Health,
 Dental Health Services wishes to thank the
 Vermont Department of Education,
 the participating superintendents, principals,
 teachers, school nurses, parents and children
 for their support of this survey.

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Introduction

Throughout the United States, assessing the oral health of school age children has become a priority. Oral health is a priority area in *Healthy Vermonters 2010*, the State's blueprint for improving public health. *Healthy Vermonters 2010* includes specific oral health objectives outlined in the U.S. Department of Health and Human Services document titled *Healthy People 2010*.

With these two documents we:

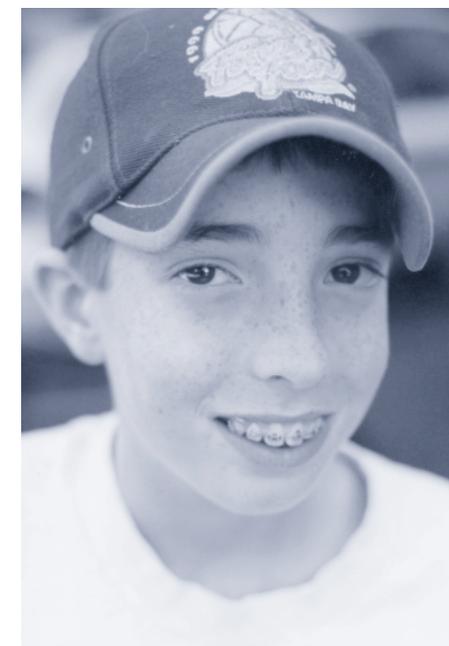
- ▶ Identify health priorities for Vermont
- ▶ Measure where we are compared to where we want to be
- ▶ Measure where we are compared to the nation
- ▶ Build on the success of Healthy Vermonters 2000
- ▶ Emphasize prevention
- ▶ Encourage Vermonters to take an active role in improving their health

The Vermont Department of Health, Dental Health Services in cooperation with the Vermont Department of Education conducted a second statewide assessment of the oral health status and treatment needs of children in the State of Vermont in school year 2002-2003.

An oral health survey was last conducted in Vermont during the 1993-1994 academic year. At that time, over 1,300 children in grades 1, 2 and 3 were screened from 20 elementary

schools. For the 2002-2003 oral health survey, 1,238 children in grades 1, 2 and 3 were screened from the sample of 22 elementary schools. Results from the 2002-2003 oral health survey indicate an improvement in caries experience, untreated decay and sealant utilization. This information, along with national data, will assist the Department of Health to identify disease trends, plan programs, prioritize needs, and support policy development to effectively meet the oral health needs of the children in Vermont.

This document is available at
www.HealthyVermonters.info.



Key Findings

#1 Caries free: 60 percent of the children surveyed in grades 1-3 were caries free which exceeded the Healthy People 2010 goal.

Caries free indicates there is no active decay and there are no restorations present in the mouth.

The percent of children in grades 1-3 having caries experience decreased from 49 percent in 1993-94 to the 2002-03 rate of 40 percent.

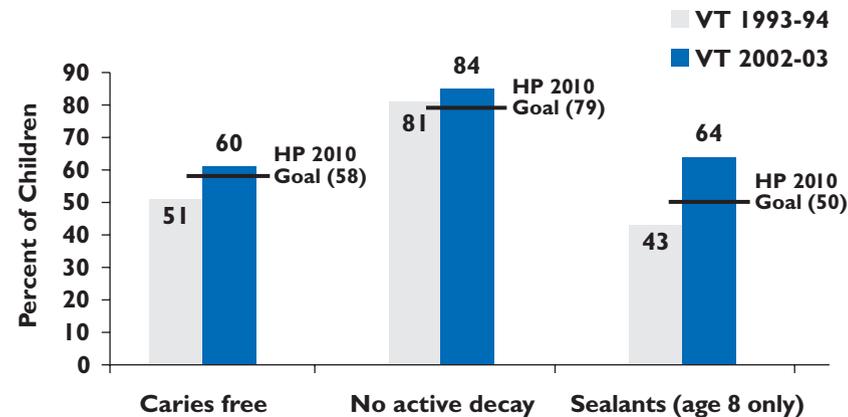
Vermont's rate of caries experience for children in grades 1-3 was two percentage points better than the Healthy People 2010 goal of 42 percent.

#2 No active decay: 84 percent of the children in grades 1-3 surveyed had no active decay present in their mouth, which exceeded the Healthy People 2010 goal.

Untreated dental decay can result in needless pain and suffering, difficulty speaking and chewing, increased cost of care, and loss of self-esteem.

The 2002-03 rate of untreated dental decay for children in grades 1-3 (16%) has continued to decline below the 1993-94 survey level of 20 percent. Of the 196 children with untreated decay, each child averaged 2.3 decayed teeth.

Children covered by Medicaid and those covered by private dental insurance/cash have both surpassed the Healthy People 2010 goal.



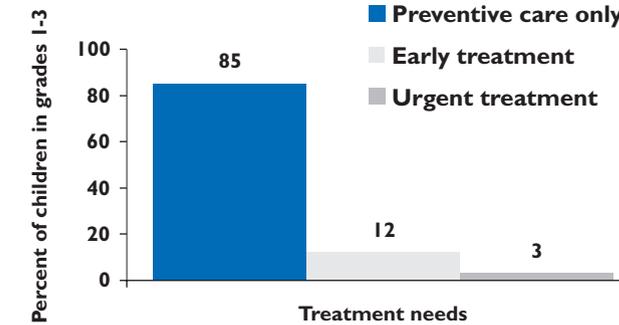
#3 Sealants: 64 percent of the 8-year-old children had sealants on at least one of their permanent molars, which exceeded the Healthy People 2010 goal of 50 percent.

Sealants have been shown to reduce decay in the pits and fissures of teeth.

Sixty-four percent of 8-year-old children in the 2002-03 survey had sealants on their permanent molars compared to 43 percent in the 1993-94 survey.

Three possible reasons for the high sealant utilization are:

- ▶ recognition by Vermont dentists of the importance of sealant placement
- ▶ increased utilization by children in Vermont's Medicaid program
- ▶ emphasis by the Tooth Tutor Program on sealant placement



#4 Treatment Needs: 85 percent of the children in grades 1-3 required preventive dental care only.

Slightly more than three percent of the children were in need of urgent dental treatment because of pain and/or infection.

- ▶ Criteria for preventive dental care only: no obvious problems
- ▶ Criteria for early dental treatment: caries without accompanying signs or symptoms, spontaneous bleeding of the gums, or suspicious white or red soft tissue areas
- ▶ Criteria for urgent dental treatment: signs or symptoms that include pain, infection, swelling, or soft tissue ulceration of more than two weeks duration (determined by questioning)

#5 Concentration of decay: 23 percent of the children in grades 1-3 experienced 82 percent of the decay found in primary and permanent teeth.

The majority of Vermont children in grades 1-3 were found to be in good dental health. This was evidenced by the 60 percent of children with no decayed or filled teeth. Of the children with decayed or filled teeth:

- ▶ 17 percent had 1-2 teeth with decay or fillings
- ▶ 21 percent had 3-8 teeth with decay or fillings
- ▶ Only 2 percent had 9-12 teeth with decay or fillings

#6 Dental Fluorosis: 96 percent of the children in grades 1-3 had no obvious signs of dental fluorosis.

Fluorosis is a disturbance of enamel due to excessive fluoride intake during the developmental period.

- ▶ No obvious signs of fluorosis (95.9%)
- ▶ Mild fluorosis (3.6%) - the white opaque areas involve less than 50 percent of the total surface area in at least one tooth
- ▶ Moderate fluorosis (0.5%) - 50 percent or more of the total surface area is affected in at least one tooth



Survey Results 1993-1994 compared to 2002-2003

The percent of the children in grades 1-3 who were caries free **increased** by nine percentage points. The 1993-94 rate was 51 percent compared to the 2002-03 rate of 60 percent. The percent of children in grades 1-3 with untreated decay **decreased** from 20 percent in 1993-94 to 16 percent in 2002-03.

The percentage of 8-year-old children with at least one sealant on a permanent molar had **increased** by 21 percentage points. The 2002-03 rate was 64 percent compared to 43 percent in 1993-94.

The National Oral Health Objectives for the Year 2010 (Healthy People 2010) outline several oral health status objectives for young children. For 6- to 8-year-old children there are three primary oral health status objectives:

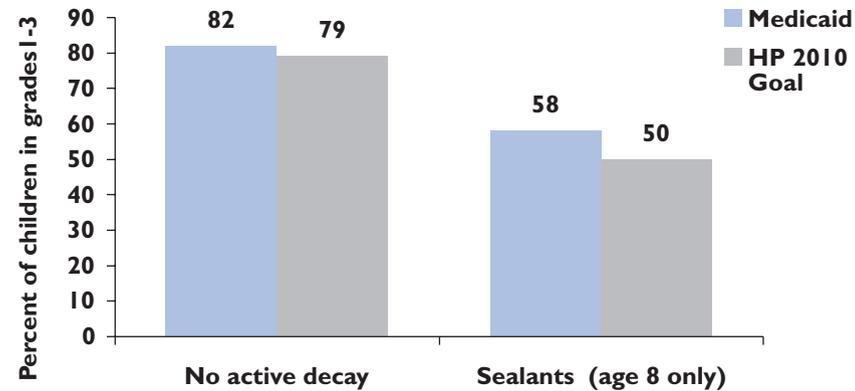
- ▶ To decrease the proportion of children who have experienced dental caries in permanent or primary teeth to 42 percent



- ▶ To decrease the proportion of children with untreated dental caries in permanent or primary teeth to 21 percent
- ▶ To increase the proportion of 8-year-old children receiving protective sealants on the occlusal surfaces of permanent molar teeth to 50 percent

The State of Vermont has **exceeded** the Healthy People 2010 objectives as evidenced by the data collected during the 2002-03 oral health survey.

Even children covered by Medicaid exceeded the Healthy People 2010 objectives by three percentage points for untreated decay and eight percentage points for sealants.



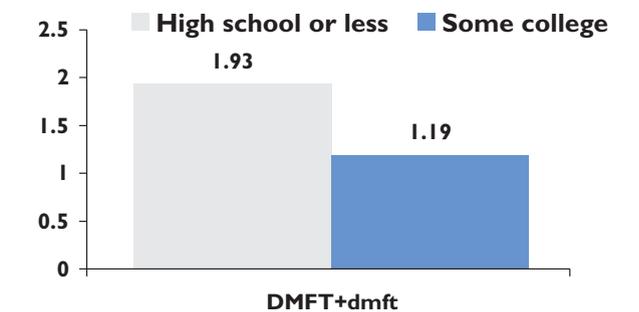
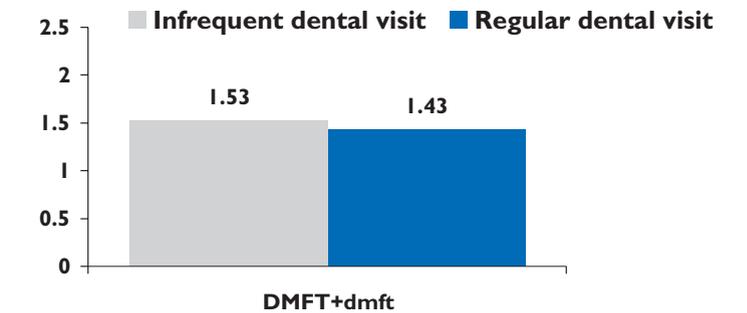
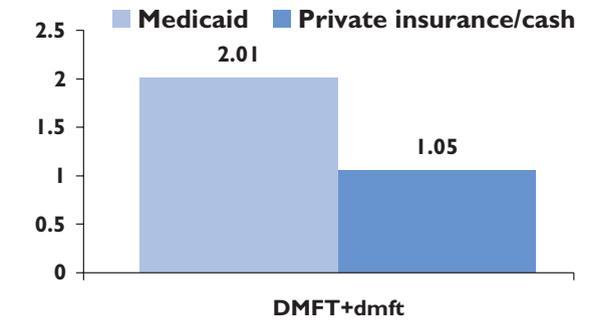
Possible reasons for improvement in the oral health status of Vermont children since the 1993-94 survey:

- ▶ Continuing cooperation of the dentists in Vermont in serving children
- ▶ One of the highest rates of utilization by Medicaid children in the United States
- ▶ Tooth Tutor Dental Access Program with its emphasis on the concept of establishing a dental home
- ▶ Sealant placement in the dental office
- ▶ Overall increase in use of fluorides

Decayed, Missing and Filled Teeth (DMFT+dmft)

The number of Decayed, Missing and Filled Teeth (DMFT+dmft) **declined** from 2.4 in 1993-94 to 1.5 in 2002-03.

- ▶ Of the 1,238 children in the 2002-03 survey, 743 had a DMFT+dmft of 0.
- ▶ The average number of decayed and filled (dmft) primary teeth was 1.40.
- ▶ The average number of decayed and filled (DMFT) permanent teeth was 0.06.
- ▶ Children covered by Medicaid had almost double the rate of decayed, missing and filled teeth (2.01) compared to those children covered by private dental insurance/cash (1.05).
- ▶ The DMFT+dmft showed little difference in those children who had infrequent dental visits (1.53) and those children who had regular dental visits (1.43). An infrequent dental visit is defined as not visiting yearly and a regular dental visit is defined as one to two visits a year.
- ▶ Those children whose parents/guardians reported having a high school degree or less had more decayed and/or filled teeth (1.93) than those whose parents/guardians reported having some college education (1.19).



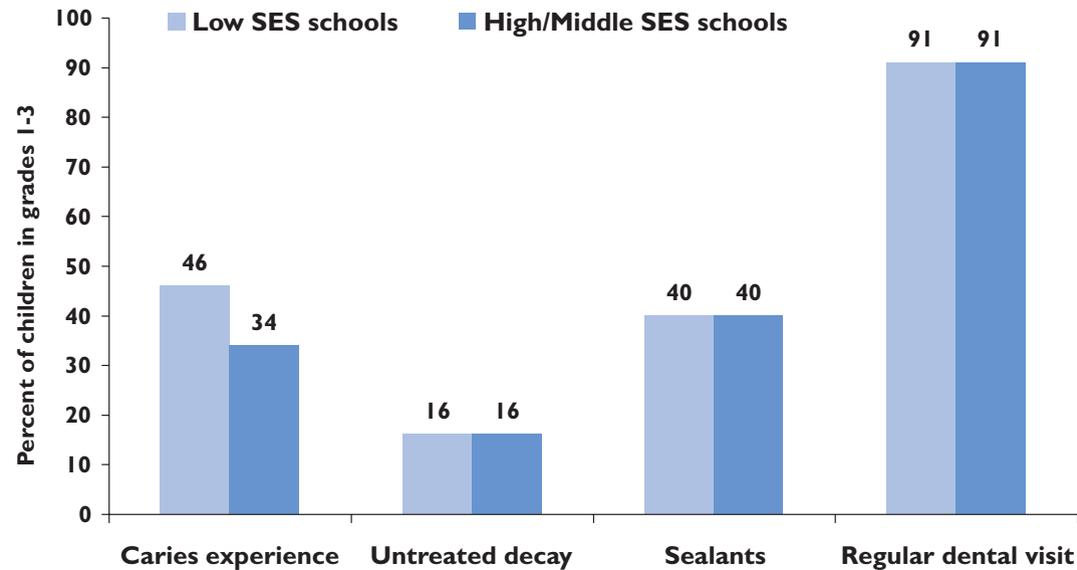
Low SES Schools compared to High/Middle SES Schools

Participation in or eligibility to participate in the Vermont Free and Reduced Meal Program is a reliable indicator of socioeconomic status (SES).

- ▶ Eligibility for the Free and Reduced Meal Program is 130 percent of the Federal Poverty Level (FPL) or \$23,530 for a family of four (2003).
- ▶ The Free and Reduced Meal percentage for children in both the participating schools and the State as a whole was 31 percent.
- ▶ For the purpose of this survey, low SES was defined as schools having a Free and Reduced Meal Program eligibility greater than 31 percent. The high/middle SES schools had a Free and Reduced Meal Program eligibility of less than 31 percent.



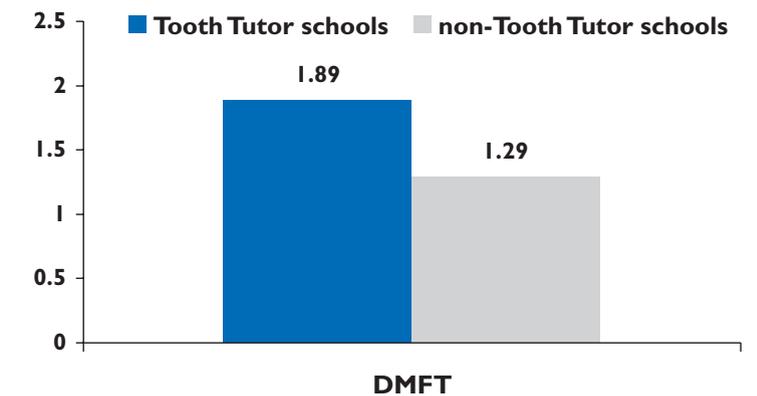
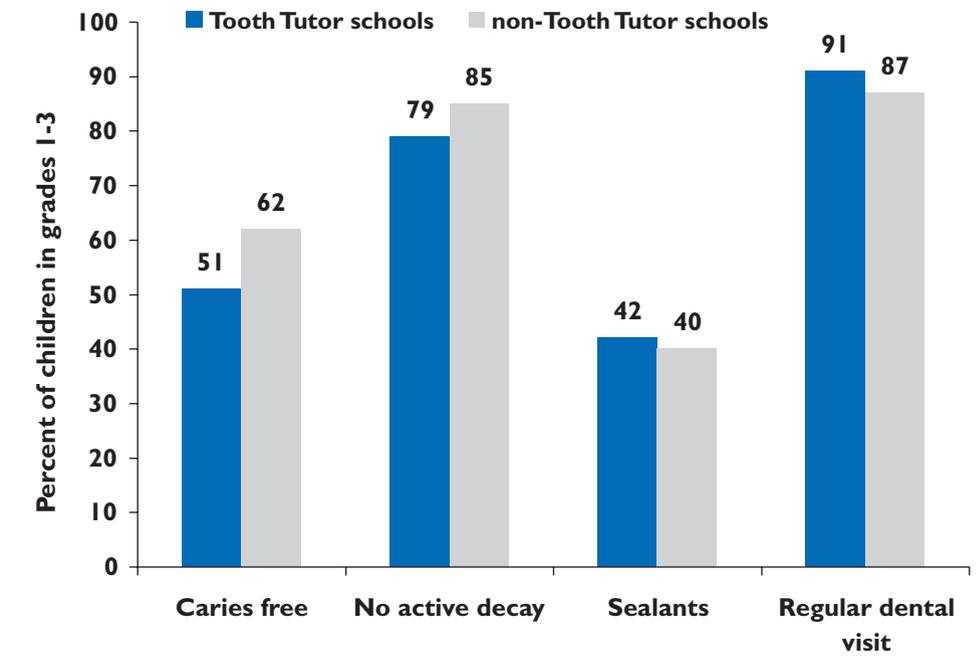
- ▶ There was no difference in the percent of children with untreated decay, sealants or regular dental visits in low or high/middle SES schools.
- ▶ However, a significantly higher proportion of children in the low SES schools, had a history of dental decay (caries experience).



Tooth Tutor Schools compared to non-Tooth Tutor Schools

Vermont's Tooth Tutor Dental Access Program gives schools a realistic and effective approach to improving dental health by employing a dental hygienist to assist parents/guardians in finding a dental home for their child. A dental home is a usual place of care that provides preventive, comprehensive and continuous care in a dental office.

- ▶ Tooth Tutor schools were lower SES as indicated by the percent of children eligible for the Free and Reduced Meal Program:
 - 33 percent eligible in Tooth Tutor schools
 - 28 percent eligible in non-Tooth Tutor schools
- ▶ Caries experience and active decay were higher in Tooth Tutor schools.
- ▶ Sealants and regular dental visits were higher in Tooth Tutor schools, which can be attributed to the efforts of the dental hygienist to link these children with a dental home.
- ▶ The DMFT was 1.89 in the Tooth Tutor schools compared to 1.29 in the non-Tooth Tutor schools.

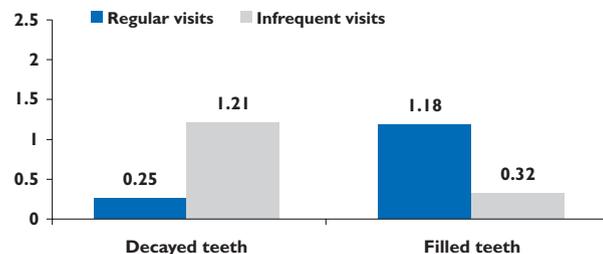
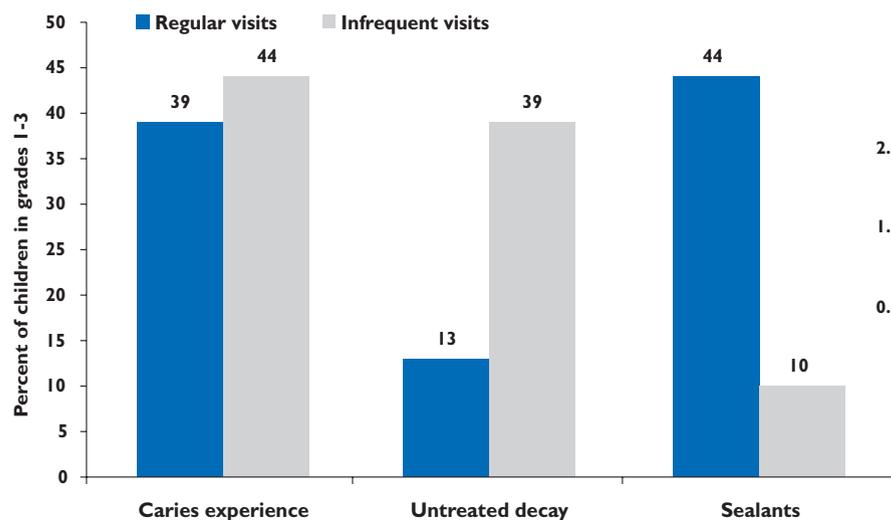


Regular Dental Visits compared to Infrequent Dental Visits

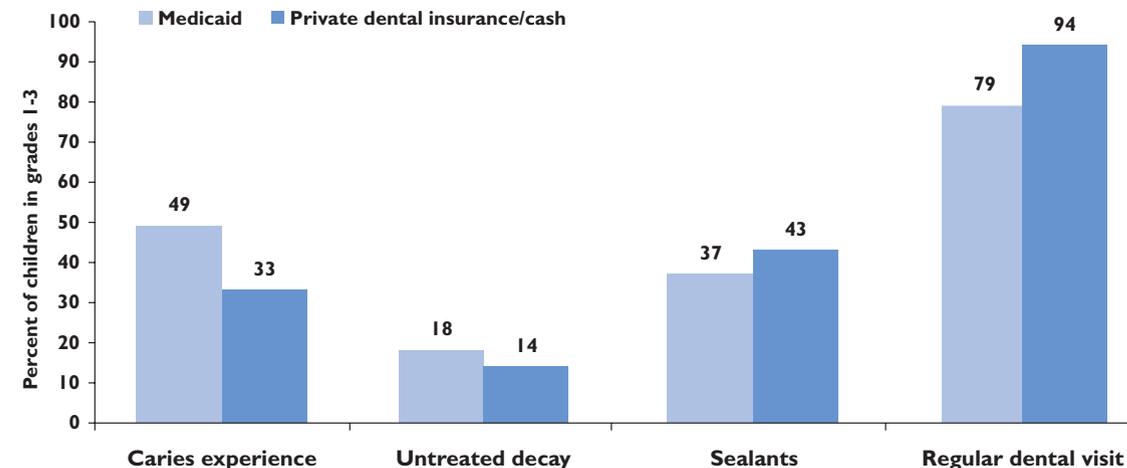


A regular dental visit is defined as one to two visits a year and an infrequent dental visit is defined as not visiting yearly.

- ▶ Among those children surveyed, 87 percent were reported as having a regular dental visit compared to ten percent who visited infrequently.
- ▶ Among those children surveyed, three percent were reported as never having been to the dentist.
- ▶ Children who did not have a regular dental visit had five percentage points greater caries experience than those children who had a regular dental visit.
- ▶ Children who were reported to have regular dental visits compared to those who did not, were less likely to have untreated decay and more likely to have sealants.
- ▶ The average number of decayed teeth was significantly lower (.25 vs. 1.21) and the average number of restored teeth (filled) was significantly higher (1.18 vs. .32) in children who had regular dental visits.

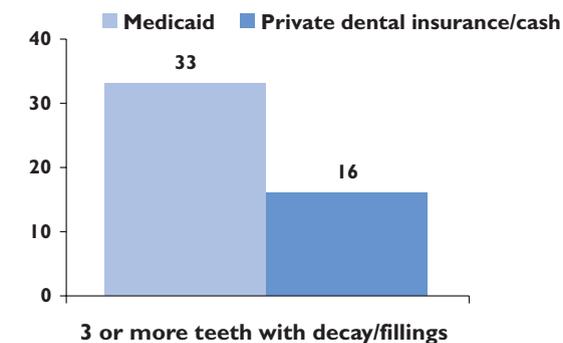


Medicaid compared to Private Dental Insurance/cash



In the 2002-2003 oral health survey, 41 percent of the children participating were reported as having Medicaid coverage.

- ▶ Children covered by Medicaid were more likely to have caries experience (49% vs. 33%) and they were less likely to have a regular dental visit (79% vs. 94%).
- ▶ Among children covered by Medicaid, 18 percent presented with untreated decay compared to 14 percent of the children covered by private dental insurance/cash.
- ▶ The children in grades 1-3 covered by Medicaid had slightly fewer sealants (37%) compared to children with private dental insurance/cash (43%).
- ▶ **Both the children with Medicaid and those children covered by private dental insurance/cash exceeded the *Healthy People 2010* objectives of 21 percent for untreated decay and 50 percent for sealants (8-year-old children).**



- ▶ Among the children paying with private dental insurance/cash, 16 percent had three or more teeth with decay or fillings, while 33 percent of children with Medicaid had three or more affected teeth.

T O P I C :

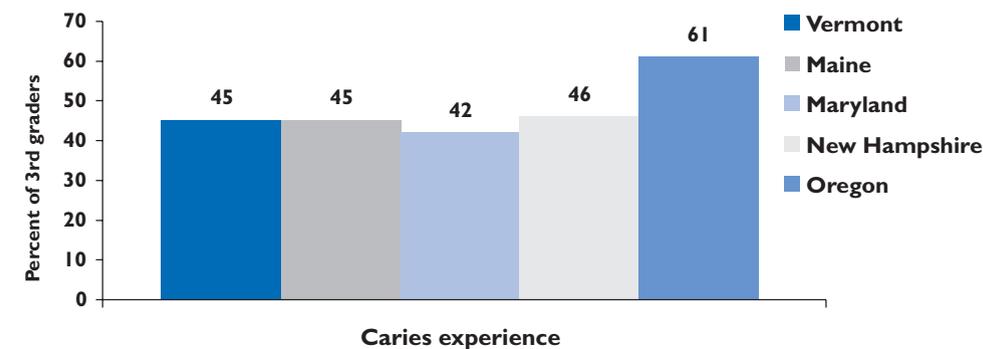
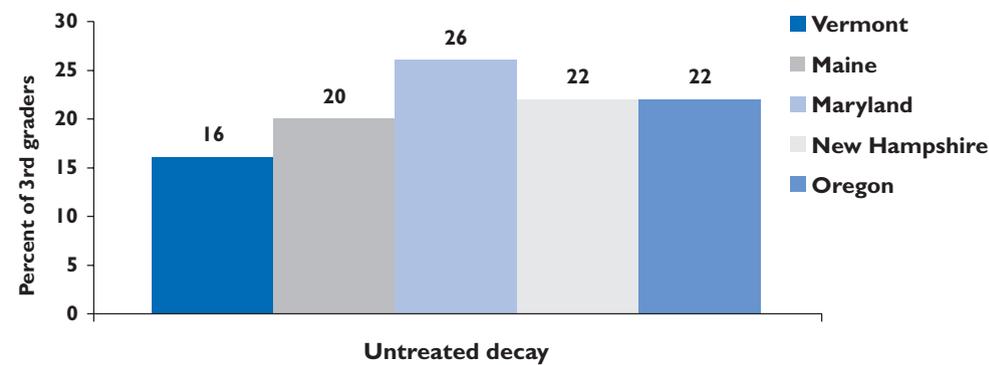
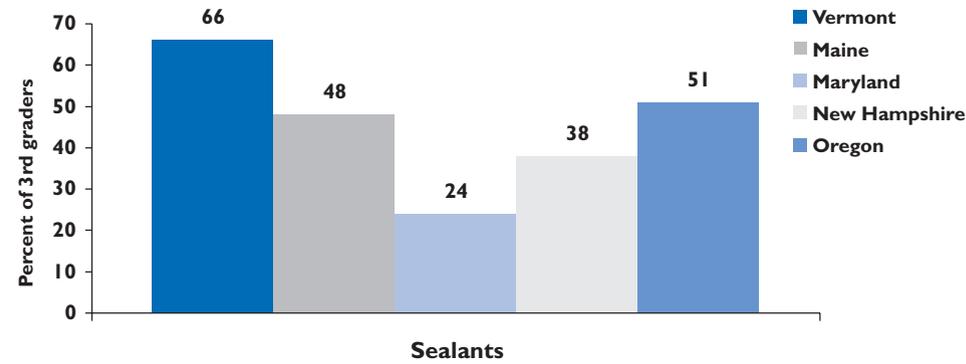
Vermont compared to Other States

Maine, Maryland, New Hampshire and Oregon were chosen as comparison states because they recently completed similar surveys on third grade children.

Sealants were identified on 66 percent of the third grade children in Vermont. This was 15 percentage points greater than Oregon, the second best state.

Among comparison states, Vermont had the lowest rate of untreated decay at 16 percent, followed by Maine with 20 percent.

Caries experience was generally equal among the comparison states with the exception of Oregon that reported a greater percentage of third grade children (61%) having a history of caries.



Survey Method

The survey method used was an epidemiological survey utilizing standardized criteria and equipment necessary for conducting oral screenings of Vermont children in grades 1-3. The screenings were conducted by a licensed dental hygienist using gloves, mask, eye protection, portable headlight, and disposable mirror. The screener used diagnostic criteria outlined in the Association of State and Territorial Dental Directors 1999 *Basic Screening Surveys: An Approach to Monitoring Community Oral Health*. Socio-demographic information was obtained from the survey form that was completed by the parent/guardian. Completion of the questions was not required for the child to participate in the screening. The parent/guardian had to provide active consent for their child's participation in the screening activity. Parents/guardians were also encouraged to return the survey form whether or not they gave consent for the oral screening.

The following data was collected during the screening:

- ▶ Child's grade, date of birth, age and gender
- ▶ Caries experience: number of primary and permanent teeth
- ▶ Untreated decay: number of primary and permanent teeth
- ▶ Sealants on permanent molars: yes/no
- ▶ Fluorosis: no obvious, mild, moderate
- ▶ Treatment needs (preventive dental care only, need for early dental treatment, need for urgent dental treatment)
 - Criteria for preventive dental care only: no obvious problems
 - Criteria for early dental treatment: caries without accompanying signs or symptoms, spontaneous bleeding of the gums, or suspicious white or red soft tissue areas
 - Criteria for urgent dental treatment: signs or symptoms that include pain, infection, swelling, or soft tissue ulceration of more than two weeks duration (determined by questioning)

These data items correspond to the objectives outlined in the *Healthy People 2010* and *Healthy Vermonters 2010* documents.

Data Items: Objectives

Caries Experience: Reduce the proportion of children aged 6-8 years with dental caries experience in their primary and permanent teeth.

Untreated Decay: Reduce the proportion of children aged 6-8 years with untreated dental decay in their primary and permanent teeth.

Sealants present: Increase the proportion of children aged 8 years who have received dental sealants on their molar teeth.

Parent/guardian reported information from the survey (this information includes both those parents/guardians who gave consent for their child to be screened and those who only completed the survey questionnaire):

- ▶ Regular dental visit by the parent/guardian: 73 percent
- ▶ Most important reasons that the child was not taken to the dentist in the last year: No reason to go and Cost
- ▶ Highest level of education completed by the parent/guardian: College graduate (42%), Some college (21%), High school/GED (28%), Less than high school (3%) and No response (6%).

Sampling

The oral health survey was based on methodology outlined in the Association of State and Territorial Dental Directors (ASTDD) *Seven-Step Model-Assessing Oral Health Needs* as well as the *Basic Screening Survey* guide. These manuals contain standardized information and oral health surveys that can be used to collect data for monitoring the national oral health objectives of 2010. A data coordinator contracted through the Centers for Disease Control and Prevention (CDC)/ASTDD, Dr. Kathy Phipps selected the sample and completed the data analysis using Epi Info 6.04. Based on the number of schools available for sample selection, we were 95 percent sure that the oral health estimates would be within 2.5 percentage points for first, second and third grade children in the State of Vermont.

To assure that the information collected was representative of first, second and third grade children in Vermont's public schools, the oral health survey was based on a probability sample of public elementary schools. In 2002-2003, there were 228 public elementary schools in Vermont with first, second and third grade children. Of these 228 schools, 17 had less than 20 students enrolled in all three grades. These 17 schools were deleted from the sampling frame. The remaining 211 schools were ordered by the percent of students eligible for the Free and/or Reduced Price Meal program. A random number between 1-10 was selected (random number = 4). The fourth school in the list was selected followed by every ninth school thereafter. If a school refused to participate, a school within the same sampling strata was randomly selected as the replacement. Twenty-three elementary schools were selected and 22 agreed to participate – for a total enrollment of 1,859 children in first, second and third grades. A total of 1,238 children were screened resulting in a participation rate of 67 percent.





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