2015-2016

Oral Health Status of Utah's Children

UTAH DEPARTMENT OF HEALTH

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Oral health affects our ability to speak, smile, eat, and show emotions. It also affects self-esteem, school performance, and attendance at work and school. Oral diseases—which range from cavities to gum disease to oral cancer—cause pain and disability for **millions of Americans.**

Centers for Disease Control and Prevention, 2016

Executive Summary

Every five years, Utah's Oral Health Program (OHP) conducts a comprehensive statewide dental screening survey of students, grades 1 – 4, in elementary schools to measure the extent of untreated tooth decay, caries experience, the prevalence of dental sealants, and the need for dental care. The 2015-2016 Oral Health Survey was conducted from September 2015 to January 2016. The survey included two separate data collection methods: a parent questionnaire and a dental screening. Approximately two thousand children, ages 6 to 9 years old, received dental screenings from a statewide representative sample of 47 elementary schools in Utah. By recognizing and understanding the oral health needs of Utah's children, programs and policies can be initiated to ensure good oral health for all children.

Key Findings from the Survey

Caries (Decay) Experience

Nearly two in three children (66%) ages 6 to 9 years old, in first to fourth grades, have experienced cavities. Decay experience can be identified as past (fillings, crowns, or teeth that were extracted) or present (untreated tooth decay or cavities). Compared with the 2010 survey results, the prevalence of caries experience has increased significantly from 52% to 66%.

Untreated Tooth Decay

One in 5 (19%) children had untreated dental decay. This has serious consequences if left untreated, including unnecessary pain and suffering, difficulty chewing, difficulty speaking, and absenteeism from school. The prevalence has not changed substantially compared with the 2010 survey (17%).

Dental Sealants

Less than half (45%) of Utah children have sealants. Dental sealants are a preventive practice used by dental providers to decrease the risk of tooth decay. While improvements have been made since the 2010 survey (26%), there are still more than half of students, grades 1 – 4, who can benefit from this highly effective, safe, and low-cost intervention that protects against cavities.

Need for Dental Treatment

Nearly one-fifth (19%) of children were identified as needing immediate dental care with about two percent (1.5%) needing urgent care due to pain and infection. Not much improvement has been noted in this area compared with the previous survey.

Dental Insurance Coverage

Even though 80% of parents reported that their child has dental insurance, nearly 1 in 6 (18%) children still lacks dental insurance coverage. Children without dental insurance have poorer oral health and less access to care. The uninsured rate has decreased slightly compared with the 2010 survey (22% to 18%).

Time Since Last Dental Visit

More than eighty percent (83%) of parents report that their child visited the dentist in the last year. However, two percent indicated that their child had never been to a dentist. Data shows that children who visited the dentist in the last 6 months were less likely to have untreated decay compared with children who visited the dentist more than one year ago (15% vs. 34%).

Unmet Dental Needs

While strides have been made since the 2010 survey for families accessing needed dental care (87% to 95%), challenges persist as 4% of parents indicated that there was a time during the past year when their child needed dental care but was unable to obtain it. Of those, 75% of parents indicated the reason for not obtaining care was for financial reasons.

Disparities in Care

More than a quarter (26%) of children of Hispanic origin did not have dental insurance. They also experienced higher rates of untreated decay compared with non-Hispanic counterparts (25% vs. 18%). Additionally, unmet dental needs among this population were higher than the state average (15% vs. 4%). Similar outcomes of poorer oral health were also observed for children of racial minorities, specifically their lower rates of utilization of dental sealants (33% vs. 45% state average). Children who qualified for the Free and Reduced Lunch (FRL) program had substantially higher rates of cavities and untreated decay.

Given the extent of the problem and the large number of children being affected, oral diseases are major public health problems. Their impact on individuals and communities is considerable due to pain, suffering, impairment in function, and reduced quality of life. This, combined with insufficient emphasis on primary prevention of oral diseases, poses considerable challenges. Maintaining good oral health is integral to general health and overall well-being. Oral health diseases are largely preventable by practicing good oral health behaviors, including routine oral hygiene, a nutritious diet, and receiving time-appropriate professional dental care. Meaningful collaboration between dental and medical providers, public health programs, and schools will be needed to support policies and programs to prevent dental disease in children.

Several strategies could be implemented to improve the oral health of children in Utah:

- Increase access to dental insurance and care.
- Enhance the public's understanding of the importance of oral health and its benefits to overall health and quality of life.
- Improve coverage by educating families about CHIP, Medicaid, and other dental insurance.
- Expand access to community water fluoridation.
- Expand school-based caries prevention activities such as fluoride varnish programs and sealants in elementary schools.
- Provide better incentives and reimbursements to dental practitioners who see low-income individuals.
- Focus on closing the dental care access gap by increasing awareness of existing community resources.

The results of the survey will be used as a guide for the Utah Department of Health's Oral Health Program in determining future activities, to monitor trends over time, and to improve the oral health status of Utah children.

Introduction

Dental caries is the most common chronic disease affecting children in the U.S. Among youth ages 5 to 17, the prevalence of dental caries occurs four times more than asthma and seven times more than hay fever. The report, *Oral Health in America: A Report of the Surgeon General*, emphasizes the importance of this silent epidemic that is hitting American children hard. The report advocates greater awareness of the importance of oral health and its role in general health and well-being. Good oral health is integral to overall health. Favorable oral health in childhood can lead to better health later in life.

In order to assess the oral health status of Utah's elementary school children, the Utah Department of Health's (UDOH) Oral Health Program (OHP) conducted a statewide oral health survey from September 2015 to January 2016. Oral health data were collected on children aged 6 to 9 years in grades 1 through 4 in 47 randomly selected public schools throughout Utah. The survey collected information on caries experience, untreated decay, need for early & urgent dental care, presence of sealants, and access to care (e.g., insurance type, frequency of dental visits, and unmet dental needs). This report provides key findings from the survey.

Methods

The Utah Oral Health survey employed a multi-stage probability sample design. All public elementary school students enrolled in grades 1 through 4 were eligible to participate in this survey. A total of 5,152 students in 47 elementary schools were selected to participate in the survey.

The survey was administered using Association of State and Territorial Dental Directors (ASTDD) basic screening survey (BSS) protocol. The survey consisted of two separate data collection methods:

1. A parent questionnaire
2. A dental screening

Parents were requested to provide consent for dental screening and to complete a brief questionnaire designed to obtain the following information:

- Dental insurance coverage
- Toothache and time since the child had seen a dentist
- Unmet dental needs and problems accessing dental care
- Source of drinking water
- History of fluoride supplementation
- Participation/eligibility for the free or reduced price lunch program
- Demographic information for the child

Children who returned a signed or positive consent form received a dental screening. The Oral Health Program dental team completed the screening using ASTDD diagnostic criteria.

Each child was screened for the following:

- Untreated decay
- Treated cavities
- Tooth surfaces decayed, missing, and filled
- Presence of sealants on permanent molars
- Early and urgent dental treatment need

All children screened were sent home with the dental screening results and recommendations to the parents for follow-up care as needed.

A detailed description of the permission process, dental screening team, screening criteria, sampling, and weighting is presented in the Detailed Methodology in Appendix I.

The data were adjusted to take into account sampling design and non-response. All analyses were completed using SAS statistical software version 9.2.

DENTAL SCREENING MEASURES

Untreated dental decay refers to cavities that have not been filled or treated.

Caries experience was indicated if a child was experiencing active decay or had evidence of caries in the past. Dental caries experience is the sum of treated and untreated cavities.

Tooth surfaces decayed was measured by dmfs/DMFS index. This is the number of decayed, missing, and filled tooth surfaces in a primary or permanent tooth.

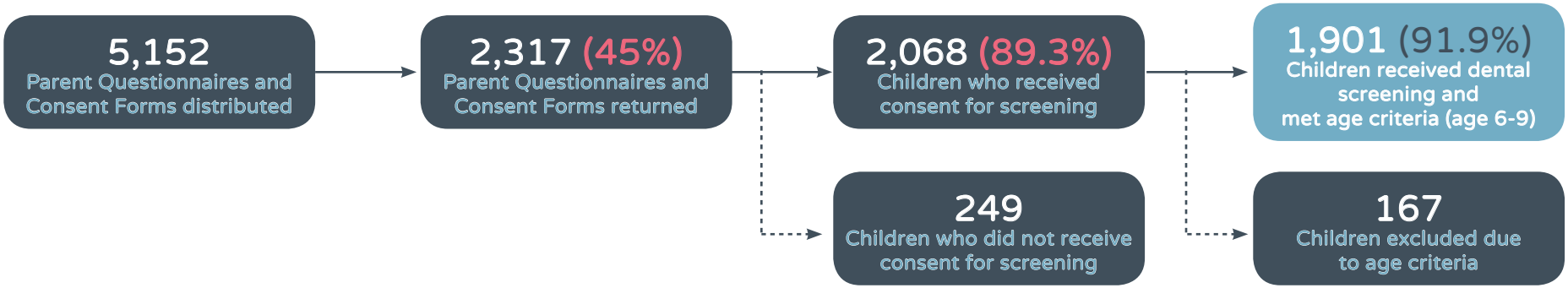
The **treatment needs** was classified as early or urgent dental care based on a child with pain, abscess, or extensive decay.

A **dental sealant** is a plastic material that a dental professional bonds onto the chewing surface of a tooth to protect it from decay.

Results

Forty seven randomly selected public elementary schools across the state participated in the 2015 - 2016 Utah Oral Health Survey during September 2015 to January 2016. More than five thousand (5,152) survey forms were distributed to children enrolled in 1st through 4th grades in the participating schools. A total of 2,317 surveys were returned with a 45% response rate. The findings in this report are based on the 1,901 children (aged 6-9) who received dental screening.

Figure 1. Survey Sampling Methodology, Utah Oral Health Survey, 2015-2016



Sample Characteristics

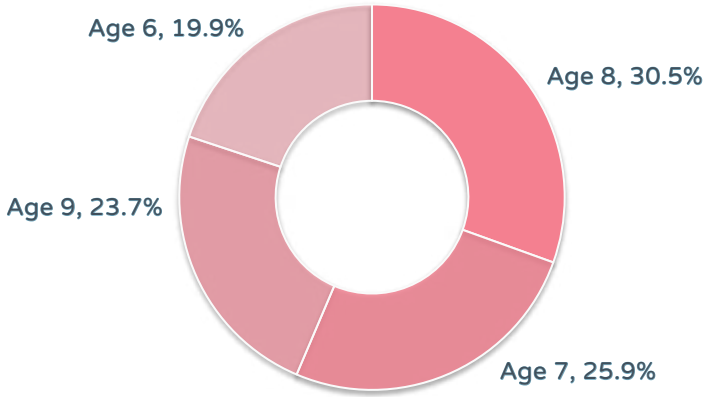
Demographic characteristics of children screened are presented in Table 1. More than half (54%) of the children were female and 12% were Hispanic. A majority of the children were white (92%). State population averages are presented for a comparison of the survey sample population to the demographic characteristics of the state.

Table 1. Demographic Characteristics of Children Who Received Dental Screening, Utah Oral Health Survey, 2015-2016

	Survey Sample Weighted Percent (%)	State Percent (%)
Age (years)		
6	19.9	24.8
7	25.9	25.3
8	30.5	25.2
9	23.7	24.7
Gender		
Male	46.1	51.5
Female	53.9	48.5
Race		
White	91.7	91.2
Black	0.5	1.3
Asian	0.6	2.5
Hawaiian/Pacific Islander	0.6	1.0
American Indian/Alaskan Native	4.0	1.5
Other/Mutiracial	2.6	2.4
Ethnicity		
Hispanic	12.2	13.7
Non-Hispanic	87.8	86.3
Grade		
1st	27.8	24.5
2nd	25.2	25.3
3rd	35.2	25.4
4th	11.8	24.8

*Data Sources:
Age, Gender, Race, Ethnicity: Office of Public Health Data, Utah Department of Health.
Utah's Indicator-Based Information System for Public Health, Population Estimate Module.
http://Ibis.health.utah.gov
Grade: Utah State Board of Education, Average Daily Membership, 2016
http://schools.utah.gov/data/Reports/Enrollment-Demographics.aspx

Figure 2. Distribution of screened children by age (%)
Utah Oral Health Survey, 2015-2016



Parent Questionnaire

Preventive Dental Visits

Parents were asked how frequently their child sees the dentist. Visiting a dental professional is generally used as an indicator to measure access to services. A high proportion (83%) of parents reported that their child had visited a dentist during the past year. Fourteen percent of parents mentioned that their child had been to the dentist within the last 1 – 3 years.

Two percent of the children had never been to a dentist. Routine visits to a dentist are important for early identification and prevention of dental problems. The American Academy of Pediatric Dentistry recommends a dental check-up at least twice a year for most children. Nearly one in ten parents (9%) reported their child having a toothache more than once when biting or chewing during the past 6 months.

Table 2. Length of time since child's last dental visit, Utah Oral Health Survey, 2015-2016

Time Since Last Dental Visit	Weighted (%)	95% CI
< 6 months	66.2	61.9-70.6
6-11 months	16.5	13.2-19.8
1-3 years	14.0	10.5-17.4
> 3 years	0.6	0.1-1.0
Never visited	2.2	1.0-3.3
Do not know/Unsure	0.6	0.0-1.3

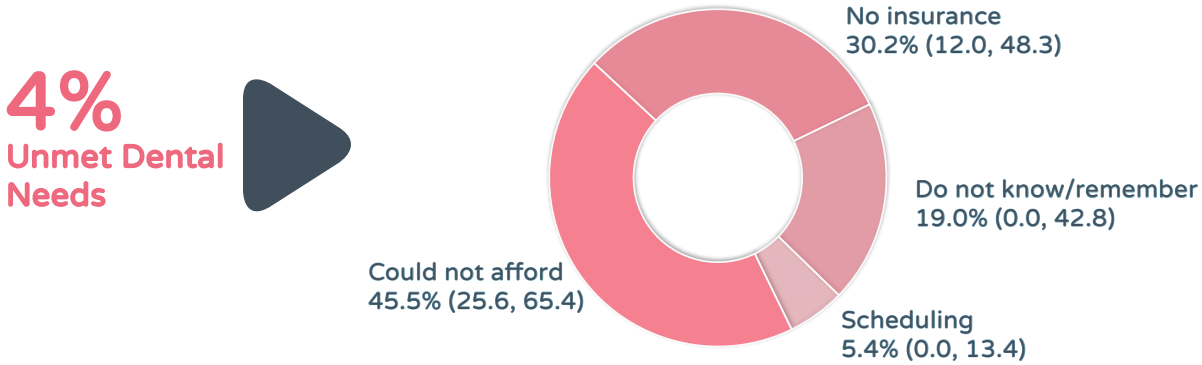
Tooth decay is not the only reason for a dental visit. A pediatric dentist provides an ongoing assessment of changes in a child's oral health.

American Academy of Pediatric Dentistry

Unmet Dental Needs

The parent questionnaire included questions to measure the extent of dental care that families needed during the past 12 months but could not obtain. Four percent of parents indicated that there was a time during the past year when their child needed dental care but was unable to obtain it. The most common reason for not receiving needed dental care was that the family could not afford a visit to a dental professional or the family did not have dental insurance (75%). Unmet dental needs were much higher for Hispanic children (15%) compared with the overall statewide average rate (4%) (See Table 12 in Appendix II).

Figure 3. Primary reasons for not obtaining care (%), Utah Oral Health Survey 2015-2016



KEY FINDINGS

1 in 6
Number of children who lacked dental insurance (18.2%).

1 in 7
Number of children who had not been to the dentist for more than one year (14.0%).

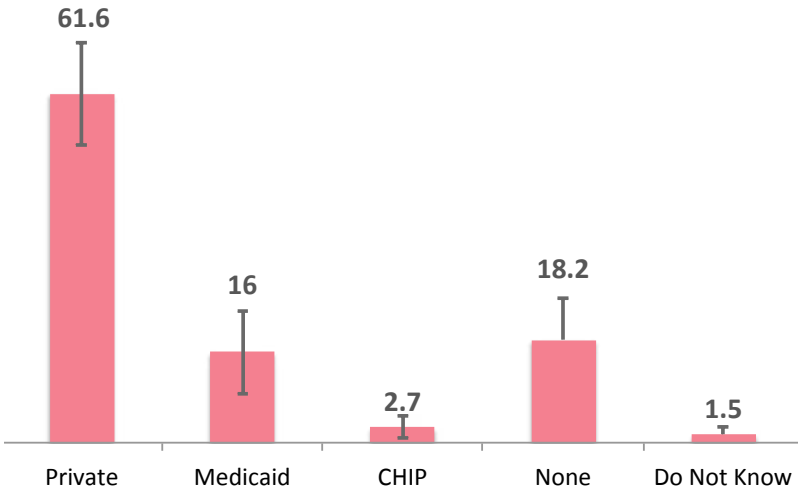
1 in 25
Number of parents who indicated a time in the past 12 months when their child needed dental care but could not obtain it (4.4%).

46%
Number of parents stated the reason they could not obtain care was because they could not afford it.

Dental Insurance Coverage

Overall, 80% of the parents reported that their child had dental insurance. However, close to one in six (18%) parents indicated that their child lacked dental insurance. This percentage was much higher for Hispanic children and non-White children as more than a quarter (26%) reported not having dental insurance (See Table 12, Appendix II). A lower percentage of Hispanic children had private dental insurance compared with non-Hispanic children (33% vs. 63%).

Figure 4. Dental Insurance Coverage of All Screened Children (%) Utah Oral Health Survey 2015-2016



Sources of Drinking Water

Parents were asked to identify the primary source of drinking water for their child. Overall, 80% of the parents identified tap water as the main source of drinking water for their child (Table 3). However, approximately 1 in 6 (16%) parents reported to use primarily using bottled water. Data broken down by ethnicity showed that less than half (48%) of Hispanic children drink tap water in comparison to 84% of non-Hispanic children. Use of bottled water as the main source of drinking water was much higher among Hispanic children compared with non-Hispanic children (48% vs. 13%).

Table 3. Primary source of drinking water for child, Utah Oral Health Survey, 2015-2016

	Bottled Water		Tap Water		Both	
	Weighted (%)	95% CI	Weighted (%)	95% CI	Weighted (%)	95% CI
Race						
White	11.8	9.1-14.6	85.8	82.8-88.7	2.4	1.4-3.4
Non-White	32.9	19.7-46.2	48.7	34.3-63.0	18.4	6.4-30.4
Ethnicity						
Hispanic	47.5	36.0-59.0	48.4	37.0-59.8	4.2	0.6-7.7
Non-Hispanic	13.2	9.9-16.4	84.0	80.6-87.5	2.8	1.5-4.1
All	16.1	13.2-19.0	80.2	77.0-83.3	3.8	2.4-5.2

...the topical benefits of fluoride have been shown to be highly effective and daily exposure to small amounts of fluoride can reduce the risk of dental caries in all age groups

Oral Health in America: A Surgeon's General Report

Flouride Supplements

More than a quarter (26%) of parents indicated giving fluoride supplements to their children. The usage of fluoride tablets or drops was lower among Hispanic and non-white children (17%, 20% respectively). Fluoride supplements are generally prescribed for children living in areas where water is not adequately fluoridated.

Table 4. Parent indicated providing oral flouride supplementation to child, Utah Oral Health Survey, 2015-2016

	Yes		No		Do Not Know	
	Weighted (%)	95% CI	Weighted (%)	95% CI	Weighted (%)	95% CI
Race						
White	27.7	23.3-32.0	71.0	65.9-74.8	2.0	0.5-3.5
Non-White	19.6	7.6-13.6	78.6	66.5-90.7	1.8	0.0-3.7
Ethnicity						
Hispanic	17.3	9.8-24.8	76.5	68.0-85.1	6.2	1.8-10.6
Non-Hispanic	27.6	23.1-32.0	70.5	65.9-75.1	1.9	0.3-3.6
All	26.3	22.5-30.1	71.5	67.5-75.4	2.2	0.9-3.6

Dental Screening Results

Caries (Decay) Experience

The 2015-2016 Oral Health Survey demonstrated that a substantial portion of Utah children have cavities. Close to two-thirds (65%) of children ages 6 - 9 have experienced dental caries. Caries experience is identified as past (fillings, crowns, or teeth that were extracted) or present (untreated tooth decay or cavities). The prevalence of caries experience increased with age (Table 5). Non-white children experienced more cavities compared with white children (77% vs. 64%). The third graders had the largest proportion of caries experience (75%). Compared with the 2010 survey results, the prevalence of caries experience has increased significantly from 52% to 66%.

Untreated Decay

Nearly one-fifth (19%) of Utah children had untreated dental decay. The pattern of untreated decay was similar to that of caries experience for age groups. The prevalence of untreated decay was similar across gender. Hispanic children had a higher proportion of untreated decay compared with non-Hispanic children (25% vs. 18%). The prevalence of untreated decay rate has not improved compared with the 2010 survey (17%).

Sealants

Less than half (45%) of children had sealants. No differences in the presence of sealants were observed by gender. Non-Hispanic children had a much higher proportion of sealants than Hispanic children (45% and 37%, respectively). Third graders had the highest proportion of sealants (68%) compared with other grade levels. A dramatic increase was observed in the number of children with sealants compared with findings from the 2010 Oral Health Survey (45% vs 26%). The increased utilization of sealants as a preventive measure can be attributed to the large contribution of the Sealants for Smiles program to Utah's children.

Figure 5. Dental Screening Status (%), Utah Oral Health Survey, 2015-2016

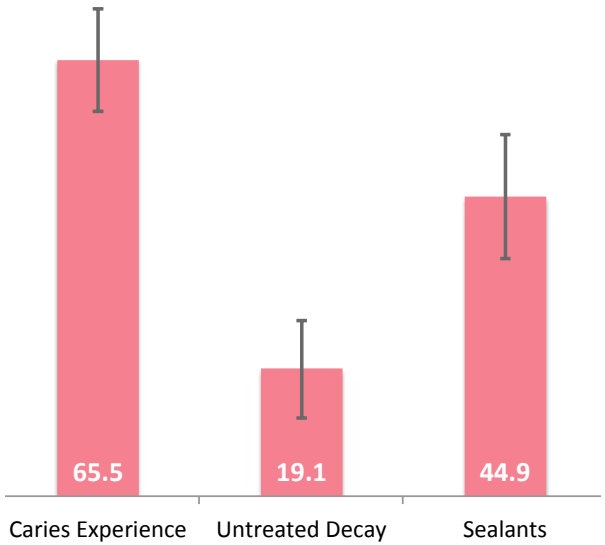


Table 5. Dental Screening Results by Selected Demographic Characteristics, Utah Oral Health Survey, 2015-2016

	Caries experience		Untreated decay		Sealants	
	Weighted (%)	95% CI	Weighted (%)	95% CI	Weighted (%)	95% CI
Age (years)						
6	53.5	44.1-63.0	9.5	5.7-13.3	19.9	10.4-29.4
7	60.8	53.8-67.8	18.0	10.9-25.1	35.9	27.3-44.5
8	70.0	62.5-77.5	21.8	14.1-29.4	59.0	50.7-67.3
9	74.9	68.0-81.9	24.8	16.2-33.4	57.7	49.3-66.0
Gender						
Male	66.0	60.5-71.5	19.2	14.0-24.4	44.4	37.9-50.8
Female	65.5	60.1-70.9	19.1	13.8-24.4	45.5	38.8-52.1
Race						
White	64.3	59.9-68.6	18.0	14.0-22.0	47.0	41.9-52.1
Non-White	76.6	68.4-84.8	21.0	10.6-31.5	32.9	19.0-46.8
Ethnicity						
Hispanic	64.8	55.7-74.0	25.3	14.3-36.6	36.5	23.9-76.1
Non-Hispanic	64.3	59.9-68.4	17.9	13.8-22.0	45.4	40.0-50.8
Grade						
1st	58.1	51.0-65.3	10.9	7.5-14.4	22.0	14.1-29.8
2nd	55.4	49.2-62.6	24.4	16.3-33.0	40.3	31.7-49.0
3rd	74.6	67.3-81.9	21.0	13.5-28.5	67.9	60.4-75.4
4th	65.2	57.7-72.6	20.6	13.1-28.1	41.0	32.4-49.7
Overall	**65.5**	**61.6-69.3**	**19.1**	**15.4-22.8**	**44.9**	**40.3-49.6**

Dental Treatment Needs

One-fifth (19%) of children were found to need immediate (early and urgent) dental treatment. Eighteen percent of children were identified as needing "early dental care" and 1.5% of children as needing urgent treatment. Urgent treatment is defined as a screened child attending school with tooth pain or infection. Immediate dental needs were much higher among Hispanic (29%) and non-White children (31%) when compared with the overall state average (19%) (Table 7).

Table 6. Dental Treatment Needs, Utah Oral Health Survey, 2015-2016

	Weighted (%)	95% CI
Level of treatment urgency		
No obvious problem	80.6	76.9-84.3
Early dental care needed	17.9	14.3-21.5
Urgent care needed	1.5	0.2-2.7

Table 7. Immediate (Early and Urgent) Dental Treatment Needs, Utah Oral Health Survey, 2015-2016

	Weighted (%)	95% CI
Demographic Characteristics		
All	19.4	15.7-23.1
Non-White	30.8	18.7-42.9
Hispanic	28.6	14.7-42.6

Dental Screening Status by Insurance

Table 8 presents results of dental screening measures by insurance coverage. Children with private insurance had a lower proportion of caries experience, untreated decay, and urgent dental treatment need when compared with children without insurance. Additionally, children with private insurance tend to have the highest proportion of sealants (49%). Children enrolled in Medicaid were observed to have the highest proportion of caries experience (76%).

Table 8. Dental Screening Status by Insurance, Utah Oral Health Survey, 2015-2016

	Caries experience		Untreated decay		Sealants	
	Weighted (%)	95% CI	Weighted (%)	95% CI	Weighted (%)	95% CI
Insurance Type						
Medicaid	75.6	66.9-84.4	25.1	14.5-35.6	32.9	21.1-44.8
CHIP	63.6	43.6-83.6	17.8	4.2-31.3	20.9	7.3-34.4
Private	63.9	59.0-68.7	17.5	12.5-22.4	49.3	43.3-55.3
None	61.9	51.0-72.6	19.9	12.0-27.8	43.7	31.9-55.4
Do Not Know	60.6	38.4-82.8	28.7*	4.4-53.0	33.7	9.7-57.6
Overall	**65.5**	**61.6-69.3**	**19.1**	**15.4-22.8**	**44.9**	**40.3-49.6**

*Denotes numerator less than 10. Data is unreliable due to small numbers.

Dental Screening Status by Time Since Last Dental Visit

Table 9 presents the dental screening status by time since last dental visit. Children who saw the dentist within the last six months had the lowest proportion of untreated decay (15%) and the highest propotion of sealants (51%). Untreated decay was two times higher in children who had not visited a dentist in 1-3 years than those who visited the dentist in the last six months (34% vs. 15%).

Table 9. Dental Screening Status by Time Since Last Dental Visit, Utah Oral Health Survey, 2015-2016

	Caries experience		Untreated decay		Sealants	
	Weighted (%)	95% CI	Weighted (%)	95% CI	Weighted (%)	95% CI
Time Since Last Dental Visit						
< 6 months	67.7	60.9-70.6	15.4	10.9-19.9	51.4	45.9-57.0
6-11 months	66.3	57.9-74.8	21.2	11.8-30.6	33.6	24.5-46.6
1-3 years	63.8	51.3-76.3	34.2	22.5-45.8	29.9	15.7-44.1
> 3 years	19.2*	1.9-36.5	2.5*	0.0-23.0	2.5*	0.0-6.2
Never Visited	51.8	35.6-60.9	22.6	10.8-34.3	0.7*	0.0-1.5
Overall	**65.5**	**61.6-69.3**	**19.1**	**15.4-22.8**	**44.9**	**40.3-49.6**

*Denotes numerator less than 10. Data is unreliable due to small numbers.

KEY FINDINGS

The proportion of children with sealant placement was **10 times greater** for those who visited the dentist in the last year than children who visited the dentist more than 3 years ago.

Dental Screening Status by Free or Reduced Lunch (FRL) Program

Across Utah, 53% of school lunches served were free or served at a reduced price. Cost reduction is determined by income level and household size. For this survey, the participation in the free or reduced lunch (FRL) program was used as a proxy for lower household income. More than 30% of parents surveyed responded that their children participated in the FRL program at school. Table 10 presents the dental screening status by free or reduced lunch. Children who participated in their school's free lunch program had a higher percentage of untreated decay (22%) and a higher prevalence of caries experience compared with children who were not eligible for this program (73% vs 60%).

Table 10. Dental Screening Status by Free or Reduced Lunch, Utah Oral Health Survey, 2015-2016

	Caries experience		Untreated decay		Sealants	
	Weighted (%)	95% CI	Weighted (%)	95% CI	Weighted (%)	95% CI
Free or Reduced Lunch						
Yes, Free	73.3	65.7-80.8	21.7	14.3-29.0	39.4	29.6-49.2
Yes, Reduced	62.1	50.6-73.7	19.0	9.7-28.2	36.9	23.8-50.0
No	60.1	54.8-65.3	17.1	12.3-21.9	47.8	41.9-53.7
Do Not Know	86.8	75.7-97.9	29.6	5.8-53.4	46.3	13.9-78,7
Overall	**65.5**	**61.6-69.3**	**19.1**	**15.4-22.8**	**44.9**	**40.3-49.6**

Tooth Surfaces with a History of Decay

The dmfs/DMFS index has been widely used in the dental epidemiology field as a measure of caries experience. The index is the number of decayed, missing, and filled tooth surfaces in a primary or permanent tooth. The average scores of surfaces by primary (dmfs) and permanent (DMFS) teeth for all children screened by demographic characteristics are presented in Table 11. The average combined number of decayed, missing, and filled surfaces for all children in Utah was 9.1. Males had higher average dmfs/DMFS score than females (10.1 vs. 8.3). Non-white children had more than twice the average dmfs/DMFS score compared with white children (18.1 vs. 8.1).

Table 11. Tooth Surfaces with Decay, Utah Oral Health Survey, 2015-2016

All Children	Average (SE)*		
	dmfs	DMFS	Combined
Age (years)			
6	0.1 (0.1)	6.8 (1.2)	6.8 (1.2)
7	0.2 (0.1)	7.3 (0.8)	7.4 (0.8)
8	0.7 (0.2)	11.0 (1.1)	11.7 (1.2)
9	0.7 (0.2)	8.9 (0.7)	9.6 (0.8)
Gender			
Male	0.3 (0.1)	9.8 (0.8)	10.1 (0.8)
Female	0.6 (0.3)	7.8 (0.6)	8.3 (0.7)
Race			
White	0.3 (0.7)	7.8 (0.5)	8.1 (0.5)
Non-White	1.7 (0.9)	16.4 (2.1)	18.1 (2.1)
Ethnicity			
Hispanic	0.3 (0.1)	9.5 (1.0)	9.8 (1.0)
Non-Hispanic	0.4 (1.1)	8.3 (0.6)	8.7 (0.6)
Overall	**0.4 (0.1)**	**8.7 (0.5)**	**9.1 (0.5)**

*SE = Standard errors of weighted average

Comparing Utah's Health Status to National Goals

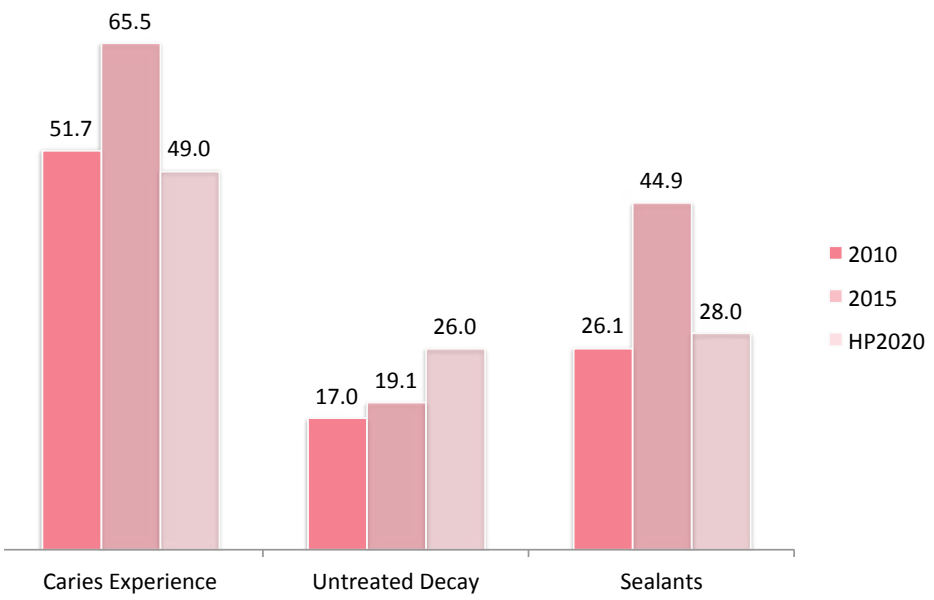
The 2015-2016 Oral Health Survey has identified that a substantial portion of Utah's children aged 6-9 years had untreated decay. About one in five (19%) children had untreated cavities. The rate has not improved compared with the 2010 survey (17%). However, Utah has met the national target for the HP2020 Objective of 26%.*

Nearly two-thirds (66%) of children experienced dental caries. This rate has increased significantly from the last 2010 survey (52%) and has unfortunately surpassed the HP2020 target of 49%.*

Approximately half (45%) of children had sealants present on at least one permanent molar tooth. There has been a significant increase in the usage of sealants compared with the 2010 Oral Health Survey (26%). Utah has met the HP2020 target of dental sealants (28%)*.

** HP2020 Targets*

Figure 6. Utah's Oral Health Status compared to Healthy People 2020 Goals, Utah Oral Health Survey, 2015-2016



HEALTHY PEOPLE 2020 Objectives

Objective OH 1.2
Reduce the proportion of children aged 6 to 9 years old with dental caries experience in their primary and permanent teeth.
Target: 49%

Objective OH 2.2
Reduce the proportion of children aged 6 to 9 years old with untreated dental decay in their primary and permanent teeth.
Target: 26%

Objective OH 12.2
Increase the proportion of children aged 6 to 9 years old who have received dental sealants on one or more of their permanent first molar teeth.
Target: 28%

Conclusions

Oral health is an integral component of overall health. The 2015-2016 Utah Oral Health Survey results highlight the concerning levels of oral disease among Utah elementary school children. Close to two-thirds (66%) of Utah children aged 6-9 have experienced cavities and nearly one-fifth (19%) have untreated dental decay.

Compared with national goals, Utah has successfully met two of the three Healthy People 2020 goals. Utah met HP2020 objectives for reducing the proportion of children aged 6-9 with untreated dental decay and increasing the prevalence of dental sealants but did not meet the objective of reducing the prevalence of cavities among children.

Significant improvement was observed in the utilization of dental sealants. This noted progress provides assurance that our public health sealant programs are effective and improving access to essential oral health services for children in Utah.

While improvements have been made since 2010, results of the survey demonstrate that substantial disparities exist in oral health for children in Utah based on race, ethnicity, and income. Children of Hispanic ethnicity and racial minorities were more likely to lack dental insurance and have higher unmet dental needs. Children who qualified for the free and reduced lunch program (which was used as proxy for lower-income households) have substantially higher rates of cavities and untreated decay.

Given the extent of the problem and the large number of children being affected, oral diseases are major public health problems. Their impact on individuals and communities is considerable due to pain, suffering, impairment in function, and reduced quality of life. This, together with insufficient emphasis on primary prevention of oral diseases, poses considerable challenges.

Several key strategies are identified to improve the oral health of children in Utah:

- Increase access to dental insurance and care.
- Enhance the public's understanding of the importance of oral health and its benefits to overall health and quality of life
- Improve coverage by educating families about CHIP, Medicaid, and other dental insurance.
- Expand access to community water fluoridation.

- Expand school-based caries prevention activities such as fluoride varnish programs and sealants in elementary schools.
- Provide better incentives and reimbursements to dental practitioners who see low-income individuals.
- Focus on closing the dental care access gap by increasing awareness of existing community resources.

The results of the survey will be used as a guide for the Utah Department of Health, Oral Health Program in determining future activities, to monitor trends over time, and to improve the oral health status of Utah children. Additional resources to improving access to care can be found in Appendix III. The program encourages all those involved with children's dental care in Utah to utilize this report to identify solutions to prevent caries and manage caries left untreated. As Benjamin Franklin said, "An ounce of prevention is worth a pound of cure."

Limitations

The data in this report are subject to a few limitations. The parent questionnaire is based on self-reporting and therefore may be subject to recall bias and may reflect under-reporting or over-reporting. Additionally, the overall survey response rate was below fifty percent. Furthermore, we were unable to report dental screening results for each racial minority group due to small numbers.

If we are to increase the nation's capacity to improve oral health and reduce health disparities, we need to enhance the public's understanding of the meaning of oral health and the relationship of the mouth to the rest of the body.

Oral Health in America: A Report of the Surgeon General

Appendix I

Detailed Study Methodology

Sampling

The Utah 2015-2016 Oral Health Survey employed a multi-stage probability sample design. The sampling frame consisted of all public elementary schools with students enrolled in grades 1 through 4. More than five thousand students in 47 randomly selected elementary schools throughout the state were invited to participate in the survey. Nearly two thousand students (1,901) aged 6 to 9 years received dental screening.

Weighting

The data were adjusted by applying sample weights to make the results representative of the state. Calculation of weights was based on a nested sampling design and non-response. Weighting of the data from participating schools took into consideration the probability that the school was selected, the probability that a class was selected given that a particular school was selected, and the probability that a certain child was selected given that the class was selected. The formula used to determine the weight for each child was as follows:

$$\Pr(\text{School Selected}) * \Pr(\text{Class Selected} \mid \text{School Selected}) * \Pr(\text{Child Selected} \mid \text{Class Selected})$$

$$\text{Weight} = 1/\text{NumberofSchools} * \frac{\text{NumberofClassesSelected}}{\text{NumberofClassesperSchool}} * \frac{\text{NumberofChildrenSelected}}{\text{NumberofChildreninClasses}}$$

Pre-Screening

The Association of State and Territorial Dental Directors (ASTDD) “Basic Screening Survey: An Approach to Monitoring Community Oral Health” protocol was selected for the screening and survey methodology. This protocol provides guidance on gathering data about access to dental care, untreated decay, caries experience, sealants, and treatment urgency. The survey consisted of two components:

1. A parent questionnaire
2. A basic dental screening

Permission Process

Permission to conduct the screening was requested from the school district superintendents and the school principal of the selected schools. After permission was granted, a packet containing a letter confirming involvement in the screening and parent questionnaires with consent forms for the parents of children in the 1st through 4th grades were sent to the school principal. A copy of the principal’s letter was also sent to local health department directors and nursing directors informing them of the scheduled screening.

Appendix I

Detailed Study Methodology, Continued

Parent questionnaires included access to care questions and parental permission for the child to participate. Parents were requested to provide the following information:

- Dental insurance coverage
- Toothache history and time since the child had seen a dentist
- Unmet dental needs and problems accessing dental care
- Source of drinking water
- Fluoride supplements
- Demographic information for the child
- Child's participation in free/reduced lunch program

Parents had the option to grant permission for the child to participate in the screening without needing to respond to the access to care questions. On the reverse side of the consent form or permission slip was a letter to the parents explaining the purpose of the screening, the procedure to be done, a guarantee of the child's anonymity, and that the screening did not take the place of a regular dental check-up.

The survey materials were printed in English and Spanish.

Dental Screening

The dental team consisted of two dental screeners and two recorders. The dental screeners were dental hygienists trained via the ASTDD video and manual on screening protocol. The recorders were responsible for obtaining completed consent forms, recording information from the parent questionnaire and the screening results into the database, and giving the screening report for each child to take home. Disposable mirrors were used for retraction and visualization. The dental hygienists used dental LED headlights in place of dimmer, portable dental overhead lights, which were used in the 2005 and 2010 surveys. The dimmer, portable dental overhead lights present challenges identifying tooth-colored restorations and tooth-colored or clear sealants. Cavitated carious lesions are easy to identify with both types of lighting equipment. This screening survey does not replace an examination with X-ray performed by a dentist and does not identify disease found by in-depth examination. No explorers were used and no X-rays were taken. The dental screener noted the following information on each child screened and reported them to the recorder:

- Presence of cavitated untreated caries
- Presence of treated cavities
- Number of surfaces decayed, missing, or filled (primary and permanent)
- Presence of sealants on permanent molars
- Dental treatment needs (early & urgent)

Appendix II

Access to Care by Race and Ethnicity

Table 12. Access to Care by Race and Ethnicity, Utah Oral Health Survey, 2015-2016

	All		White		Non-White*		Hispanic		Non-Hispanic	
	Weighted (%)	95% CI	Weighted (%)	95% CI	Weighted (%)	95% CI	Weighted (%)	95% CI	Weighted (%)	95% CI
Insurance										
Medicaid	16.0	12.6-19.3	12.7	9.3-16.1	33.4	18.9-47.9	34.1	22.6-45.6	14.9	10.9-18.9
CHIP	2.7	1.7-3.7	2.0	1.1-3.0	2.1	0.0-8.8	5.9	2.0-9.7	2.4	0.3-3.5
Private Insurance	61.6	57.1-66.1	66.9	62.0-71.7	33.7	22.7-44.7	33.2	20.6-45.9	62.8	57.5-68.1
None	18.2	14.5-21.9	17.0	12.9-21.0	25.6	12.8-38.4	25.7	16.7-34.8	18.7	14.2-23.2
Do Not Know	1.5	0.8-2.2	1.4	0.6-2.2	3.2	0.0-6.6	1.1	0.0-2.4	1.2	0.4-2.0
Dental Visits										
< 6 months	66.2	61.9-70.6	69.1	63.3-73.8	43.3	28.8-57.8	48.7	36.9-60.4	66.7	61.6-71.8
6-11 months	16.5	13.2-19.8	15.3	11.8-18.8	32.6	18.6-46.6	20.9	14.0-27.8	17.1	13.1-21.2
1-3 years	14.0	10.5-17.4	12.8	9.1-16.5	19.6	8.3-30.8	25.9	13.3-38.6	13.1	9.3-16.9
> 3 years	0.6	0.1-1.0	0.6	0.1-1.2	0.1	0.0-0.4	0.3	0.0-0.5	0.7	0.1-1.3
Not Visited	2.2	1.0-3.3	2.0	0.7-3.2	0.7	0.2-1.3	2.8	0.4-5.3	1.9	0.5-3.3
Do not know	0.6	0.0-1.3	0.2	0.5	3.6	0.0-10.5	1.4	0.0-3.9	0.5	0.0-1.3
Unmet Needs										
Yes	4.4	2.9-6.0	3.7	2.0-5.3	3.7	0.6-6.7	15.4	8.3-22.6	3.5	1.8-5.3
No	94.5	92.9-96.2	95.3	93.5-97.0	95.7	95.5-98.8	82.5	75.1-89.7	95.5	93.6-97.4
Do not know	1.0	0.4-1.6	1.1	0.4-1.8	0.7	0.1-1.2	2.1	0.0-4.7	0.9	0.3-1.6

*Non-white includes American Indian/Alaskan Native, Asian, Black/African American, Hawaiian/Pacific Islander and other races.

Appendix III

Utah's Oral Health Programs & Resources

The Utah Department of Health Oral Health Program implements and monitors statewide dental health programs to reduce the incidence of oral disease, reduce health disparities, promote healthy behaviors, and increase quality of life.

Donated Dental Services

Salt Lake Donated Dental Services (SLDDS) works with volunteer dental professionals to provide free comprehensive services for the homeless and indigent. Because of the tremendous demand for free dental care, SLDDS is open access. Those seeking care enter their name the day before the dentist volunteers and all patients are randomly selected. Since most patients are in pain, open access provides individuals seeking care equal opportunity to be seen when a dentist is volunteering. Appointments are available through the Donated Program for specialized services.

For those who have returned to work and are no longer eligible for SLDDS's Donated Program or those who require appointments, SLDDS established its Discounted Program. The Discounted Program offers services at a significantly reduced fee and operates much like a private office: all appointments are scheduled & patients consistently see the same provider.

Family Dental Plan

Family Dental Plan (FDP) provides cost-effective, dental services in a patient-friendly environment in two dental clinics located in Salt Lake City and Ogden. They also have a mobile operation that travels across the state of Utah to bring much needed dental services to under-served populations in rural areas. Through collaborative partnerships with other service organizations their mobile operation also provides on-site services in schools, senior facilities, and other public health facilities along the Wasatch Front. FDP accepts Medicaid, PCN, CHIP, PEHP and self-pay patients. Care is delivered by a professional staff of 6 dentists and a team of dental assistants.

To learn more about these and additional programs and resources available throughout the state, please contact the Utah Oral Health Program at (801) 273-2995 or visit www.health.utah.gov/oralhealth

Utah Dental Hygiene Schools

There are six dental hygiene schools throughout the state of Utah. They provide oral health education, low-priced dental prophylaxis, x-rays, exams, sealants and some offer restorative services, as well. They also offer a wide range of volunteer activities in their communities.

Utah Dental Schools

Utah has two new dental schools. They provide oral health education, low-priced dental prophylaxis, x-rays, exams, sealants and restorative services, as well. They also offer a wide range of volunteer activities in their communities.

Utah's Oral Health Coalition

The Coalition's mission is to assure the oral health of Utah residents through:

- Increasing awareness of the oral health needs in the state by communicating with policymakers and the public.
- Promoting oral health education and prevention by implementing interventions such as community water fluoridation, dental sealant and fluoride varnish projects, early dental visits, and by targeting vulnerable populations such as low-income children and adults and people with special health care needs.
- Improving access to oral health care services by building public and private linkages and partnerships.

Appendix IV

Participating Schools

Table 13. Participating Schools in Oral Health Screening, Utah Oral Health Survey, 2015-2016

Local Health Department	District	School
Bear River		
	Box Elder	McKinely Lake View
	Cache	Park Lincoln
Central		
	North Sanpete	Fairview
	Sevier	Monroe
Davis		
	Davis	Lincon Snow Horse Woodscross Clinton School Sunset
Salt Lake		
	Canyons	Crescent Alta View
	Granite	Redwood Valley Crest Jackling School Cottonwood
	Jordan	South Jordan Jordan Ridge
	Salt Lake	Park View Mountain View Beacon Heights
SELHD/San Juan		
	San Juan	Blanding

Appendix IV

Participating Schools, Continued

Table 13. Participating Schools in Oral Health Screening, Utah Oral Health Survey, 2015-2016

Local Health District	School District	School
Southeastern		
	Carbon	Creekview
Southwestern		
	Beaver	Minersville
	Iron	Fiddlers Canyon
	Washington	Sandstone
Summit		
	Park City	Parleys Park
	South Summit	South Summit
Tooele		
	Tooele	West Middle Canyon
Tri-County		
	Uintah	Lapoint Elementary Discovery
Utah		
	Alpine	Bonneville Meadow Suncrest School River View Sharon School Pony Express School Cascade
Wasatch		
	Wasatch	Old Mill J.R. Smith
Weber		
	Morgan	Morgan
	Ogden	Wasatch
	Weber	Roosevelt Green Acres

Appendix V

Parent Questionnaire

UTAH DEPARTMENT OF HEALTH
Oral Health Program

Dental Screening Consent Form 2015

Screening Number

Please complete this form and return it to your child's teacher tomorrow. Thank you.

Child's Name: _____ Date of Birth: _____
Last First (Month/Day/Year)

School Name: _____ Teacher: _____ Grade: _____

Ethnicity: ☐ Hispanic/Latino ☐ Non Hispanic/Latino (check one)

Race: ☐ White ☐ Black/African American ☐ American Indian/Alaskan Native (Check one)
☐ Asian ☐ Hawaiian/Pacific Islander ☐ Two or more races (multiracial) ☐ Other_____

Please answer the next questions to help us learn more about dental care experiences for children.

1. During the past 6 months, did your child have a toothache more than once when biting or chewing?
   ☐ Yes ☐ No ☐ Don't know/don't remember

2. About how long has it been since your child last visited a dentist? Include all types of dentists, such as orthodontists, oral surgeons, and dental hygienists. (Check one)
   ☐ Less than 6 months ☐ 1 year - 3 years ☐ Never visited
   ☐ 6 -11 months ☐ More than 3 years ☐ Don't know/not sure

3. What was the *main* reason that your child last visited a dentist? (Check one)
   ☐ Didn't see a dentist
   ☐ Took my child in for check-up, examination or cleaning.
   ☐ Something was wrong, bothering or hurting my child.
   ☐ Went for treatment of a condition that dentist found at earlier visit.
   ☐ Don't know/don't remember

4. During the past 12 months, was there a time when your child needed dental care but could not get it?
   ☐ Yes (Go to Question 5) ☐ No (Go to Question 6) ☐ Don't know/don't remember (Go to Question 6)

5. The last time your child could not get the dental care he/she needed, what was the main reason he/she couldn't get care? (Check one)
   ☐ Speak a different language ☐ Dentist did not take Medicaid
   ☐ Could not afford it ☐ Transportation problems ☐ Could not find a dentist
   ☐ No insurance ☐ Scheduling conflicts ☐ Don't know/don't remember

6. Do you have any insurance that pays for some or all of your child's DENTAL CARE? (Check one)
   ☐ Medicaid ☐ Private insurance ☐ Don't know/not sure ☐ CHIP ☐ None

7. Is your child enrolled in the free or reduced price lunch program at school? (Check one)
   ☐ Yes, free lunch ☐ Yes, reduced price lunch ☐ No ☐ Don't know

8. What source of water does your child usually drink at home? (Check one)
   ☐ Tap water (faucet water) ☐ Bottled water

9. Has your child taken fluoride tablets or drops prescribed by your child's doctor or dentist? (Do not include toothpaste, mouth rinse, gels or varnish)
   ☐ Yes, If yes, how many years (#)? _____ ☐ No ☐ Don't know

10. Does your child currently, or has your child ever lived in Salt Lake County, Davis County, Brigham City, or Helper?
    ☐ Yes, If yes, how many years (#)? _____ ☐ No ☐ Don't know

11. What is the highest level of education you have completed? (Check one)
    ☐ Less than high school ☐ High school graduate ☐ Some college ☐ College graduate
    ☐ Don't know/not sure

Please complete this form and return it to your child's teacher tomorrow. Thank you.

____ **Yes, I give permission** for my child to have his/her teeth checked.

____ **No, I do not give permission** for my child to have his/her teeth checked. Home zip code: __ __ __ __ __

_____ _____
Signature of Parent or Guardian: Date:

Appendix VI

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