The Oral Health Status of Utah's Children

Results from the 2010 Oral Health Survey

UTAH DEPARTMENT OF HEALTH

Utah Department of Health
Division of Family Health and Preparedness
Oral Health Program

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Executive Summary

Tooth decay remains the single most common chronic disease of U.S. children. It is five times more common than asthma and seven times more common than hay fever. In order to assess the oral health status of Utah school-aged children (6 to 9 years), the Utah Department of Health's (UDOH) Oral Health Program (OHP) conducted a statewide oral health survey in fall 2010. The survey collected information on caries experience, untreated decay, need for urgent dental care, sealants, and access to care (e.g. insurance status, frequency of dental visit, and unmet dental needs). The survey consisted of two separate data collection methods: a parent questionnaire and a dental screening. More than three thousand children in first, second, and third grades received a dental screening.

Key findings from the survey:

More than one-fifth (22%) of parents indicated that their child lacked dental insurance.

Thirteen percent of parents indicated that there was a time during the past year when their child needed dental care but were unable to get it. The reasons most frequently cited for not getting care were "could not afford it" and "no insurance". Unmet dental needs were five times higher among children without dental insurance compared to children who were covered by private dental insurance (6% vs. 31%).

Overall, among 6 to 9 year-old children who received dental screening, more than half (52%) had caries experience. Close to one-fifth (17%) of children had untreated dental decay. Only about

a quarter (26%) of children had sealants present on at least one permanent molar tooth. Of all children screened, 2% had a need for urgent dental care.

Children with private dental insurance were less likely to have caries experience compared to children without insurance (45% vs. 55%). Untreated decay was highest among children without dental insurance at 27% compared to 13% among children with private dental insurance.

Eighty-two percent of parents reported that their child had visited a dentist within the previous year. Children who visited a dentist during the past 6 months were less likely to have untreated dental decay compared to children who visited the dentist more than 1 year ago (11% vs. 32%). Almost four percent of parents indicated that their children had never been to a dentist. The prevalence of untreated decay was much higher among children who had never visited a dentist (46%).

Children of Hispanic origin (25%) and racial minorities (24%) were more likely to have unmet dental needs compared to the overall population surveyed (13%). One-third of Hispanic children did not have dental insurance. More than a quarter (28%) of non-white children lacked dental insurance.

Children who met the criteria of long-term optimal levels of fluoride, either from fluoridated water or fluoride supplements, had substantially fewer decayed, missing and filled tooth surfaces compared to children without optimal fluoride levels.

Comparison of the results of the 2010 survey with previous state surveys (2000, 2005) indicates improvement in oral health among Utah children. The caries prevalence rate decreased from 55% in 2005 to 51% in 2010 for children ages 6- to 8-years. Untreated decay has decreased as well from 21% in 2005 to 17% in 2010; a level that is substantially better than the Healthy People 2010 goal of 21%. However, the sealant placement rate decreased from 50% in 2000 to 36% in 2010 among 8 year-old children.

The results of the survey underscore the fact that, while the rate of dental caries is decreasing as a whole, there are still child population groups where this is not the case. 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.
- Expand access to community water fluoridation.
- Expand school-based caries prevention activities such as fluoride varnish or mouth rinse programs and sealants in elementary schools.
- Provide better incentives and reimbursements to dental practitioners who see low-income or uninsured individuals.

Introduction

More than 51 million school hours are lost each year to dental-related illness in the U.S.

Oral Health in America: A Report of the Surgeon General

Oral Health in America: A Report of the Surgeon General established that minority and low-income children in the United States experience poor oral health and reduced access to dental services when compared to their majority and higher-income peers. It was predicted that this situation would worsen as the percentage of U.S. children who are poor and of a minority population increases. Tooth decay remains the single most common chronic disease of U.S. children; it is five times more common than asthma and seven times more common than hay fever.[1]

Children from low-income families have about double the number of dental caries compared to their counterparts with higher incomes. They are less likely to get care and more likely to have severe dental decay. In addition, uninsured children are 2.5 times less likely than insured children to receive dental care. More than 51 million school hours are lost each year to dental-related illness in the U.S. Good oral health is integral to overall health and lowers the risk of chronic disease, such as heart and lung disease and stroke. Favorable oral health in childhood can lead to better health later in life.[1]

In spite of the fact that dental caries are for the most part preventable, they continue to affect a large proportion of children. Some common consequences of untreated decay include chronic pain, problems with eating, infection, and difficulty learning. In rare cases, death has been reported from an abscessed tooth with spread of infection to the brain.[2]

It is therefore of utmost importance that a survey of oral health and treatment needs is conducted regularly to track current status and monitor trends over time. In order to assess the oral health status of Utah school-aged children, the Utah Department of Health's (UDOH) Oral Health Program (OHP) conducted a statewide oral health survey in fall 2010. Oral health data were collected on 6- to 9-year-old children in grades 1 through 3 in public schools throughout Utah. The survey collected information on caries experience, untreated decay, need for urgent dental care, 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. The results of this survey will be shared with appropriate policy makers, Oral Health Program partners, and the public. It will assist with planning strategies for addressing the identified needs.

...oral health is essential to the general health and well-being of all...

Oral Health in America: A Report of the Surgeon General

Methods

The Utah Oral Health Survey employed a stratified, multi-stage sample design. All public elementary schools with 20 or more students enrolled in grades 1 through 3 were eligible to participate in this survey. A total of 5,646 first, second, and third graders in 25 elementary schools were selected to participate in the survey.

The Utah Oral Health survey was based on the methodology outlined in the Association of State and Territorial Dental Directors (ASTDD) "Basic Screening Survey: An Approach to Monitoring Community Oral Health" protocol (2008 revision).[3] Based on the ASTDD protocol, the survey consisted of two separate data collection methods:

1. A parent questionnaire
2. A dental screening

Parents were asked to complete a brief questionnaire designed to obtain the following information:

- Dental insurance coverage
- Time since the child had seen a dentist
- Unmet dental needs and problems accessing dental care
- Source of drinking water
- History of fluoride supplementation
- History of where the child lived from birth to present
- Demographic information for the child
- Permission or consent to conduct a dental screening

New research is pointing to associations between chronic oral infections and heart and lung diseases, stroke, and low-birth-weight, premature births.

Oral Health in America: A Report of the Surgeon General

Only those 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:

- Number of surfaces filled
- Number of surfaces decayed
- Presence of sealants on permanent molars
- Urgent dental treatment need
- Level of dental fluorosis

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

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.

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 classification of **treatment urgency** was 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.

Dental fluorosis refers to changes in the appearance of tooth enamel caused by long-term ingestion of excessive fluoride and was measured according to Dean's Index.[4]

...safe and effective disease prevention measures exist that everyone can adopt to improve oral health and prevent disease.

Oral Health in America: A Report of the Surgeon General

A detailed description of the permission process, dental team, screening criteria, sampling, and weighting is presented in the Detailed Methodology in Appendix A. The data were adjusted to take into account sampling design and non-response. All analyses were completed using SAS statistical software version 9.2.

...caries experience increases in communities that no longer fluoridate the water supply (and where there are few other exposures to fluorides).

Oral Health in America: A Report of the Surgeon General

Measures of Fluoride Exposure

Based on the data from the parent questionnaire, the level of fluoride exposure in the children surveyed was calculated using the child's county of residence, residential history, fluoride supplementation history, age of child when supplements were taken, primary source of drinking water, and level of fluoride concentration in city/community water supplies. The fluoride concentration levels of cities and communities were determined using the Centers for Disease Control and Prevention (CDC) fluoridation website.[5] The level of fluoride exposure was categorized into 4 groups:

- Long-term exposure to optimal fluoride
- Some/mixed exposure to optimal fluoride
- No exposure to optimal fluoride
- Unknown exposure to optimal fluoride

Long-term exposure category included those children who had lived in cities with optimal fluoridated water and/or received fluoride supplements for 4 to 6 years. For example, an 8-year-old child who had received fluoride (either from water fluoridation or supplementation) for 6 years, or a 6-year-old child who had received fluoride for 4 years, was considered long-term.

Some/mixed exposure category included children who received fluoride supplements for less than 4 years and had lived in cities with non-fluoridated water. This category also included children with no reported history of fluoride supplements and had lived in cities with fluoridated water for less than 4 years.

No exposure category included children with no history of fluoride supplementation and who had lived in cities with non-fluoridated water.

Unknown exposure category included children with unknown history of fluoride supplementation and had lived in a city or foreign country where the fluoridation status was unknown.

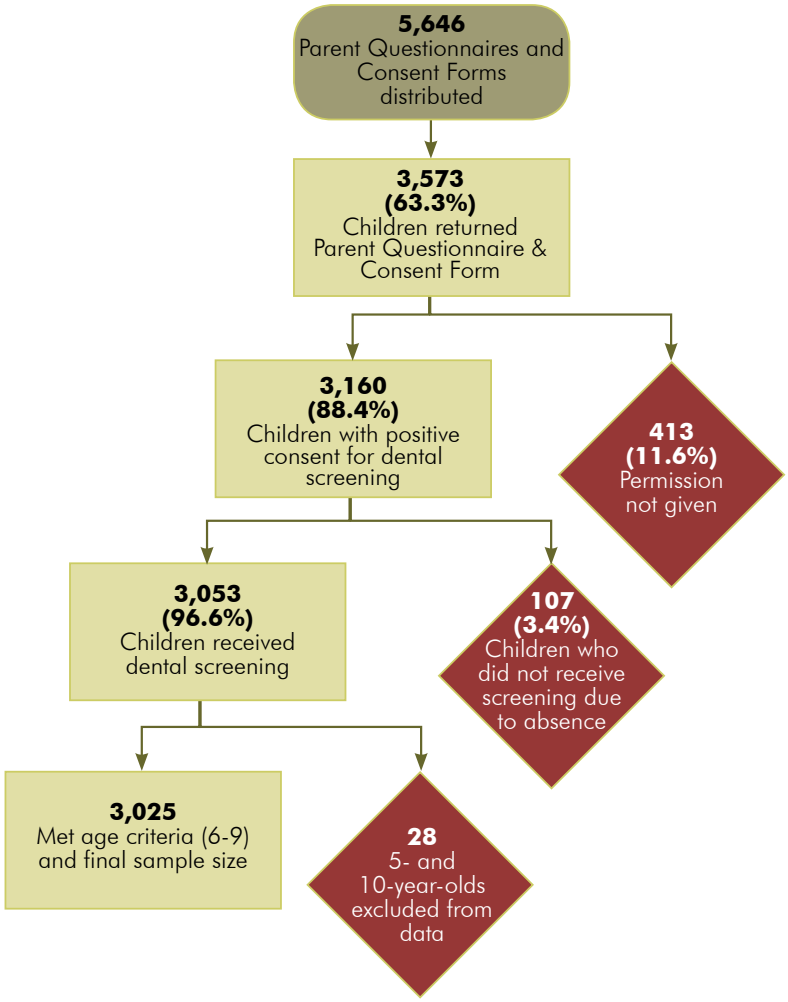
Results

During the fall of 2010, 25 randomly selected elementary schools across the state participated in the Utah Oral Health survey. There were 5,646 children enrolled in first, second, and third grades in the participating schools. A total of 3,573 parent questionnaires were returned, for a 63% response rate. More than three thousand (3,053) children received a dental screening. The remainder of the children were either absent (107) or their parents declined permission for the dental screening (413). Results in this report are based on the 3,025 screened children who met the age criteria of 6 to 9 years of age. Weighted prevalence estimates with 95% confidence intervals are presented in this report.

Over the past five decades, major improvements in oral health have been seen nationally for most Americans.

Oral Health in America: A Report of the Surgeon General

Diagram 1. Survey Sampling Methodology



Sample Characteristics

Demographic characteristics of the children who were screened are presented in Table 1. The average age was 7 years. The majority (91%) of the children were white. Approximately half of the children (51%) were male and 21% were Hispanic. State population averages are also provided to compare with the survey sample population.

Poor children suffer twice as much dental caries as their more affluent peers, and their disease is more likely to be untreated.

Oral Health in America: A Report of the Surgeon General

Table 1. Demographics of Children Who Received Dental Screening

	Survey Sample Weighted Percent (%)	*State Percent (%)*
Age (years)		
6	27.5	25.7*
7	29.8	25.1*
8	33.6	25.0*
9	9.2	24.3*
Gender		
Male	50.5	51.3*
Female	49.5	48.7*
Grade		
1st	35.1	34.0†
2nd	29.6	33.5†
3rd	35.4	32.5†
Race		
White	90.6	90.2‡
Black / African American	2.7	2.1‡
Asian	2.4	1.9‡
Hawaiian / Pacific Islander	2.0	1.0‡
American Indian / Alaskan Native	1.4	1.6‡
Other	1.0	3.2‡
Ethnicity		
Hispanic	20.5	17.1‡
Non–Hispanic	79.5	82.9‡

Data Sources:

* *Age and Gender*: Office of Public Health Data, Utah Department of Health. Utah's Indicator-Based Information System for Public Health, Population Estimate Module. ibis.health.utah.gov. The Utah Governor's Office of Planning and Budget. www.governor.utah.gov/dea/demographics.html.

† *Grade*: Office of Public Health Data, Utah Department of Health. Utah State Office of Education, Student Enrollment and Membership FY 2010 data. www.schools.utah.gov/data/Educational-Data/Student-Enrollment-and-Membership.aspx.

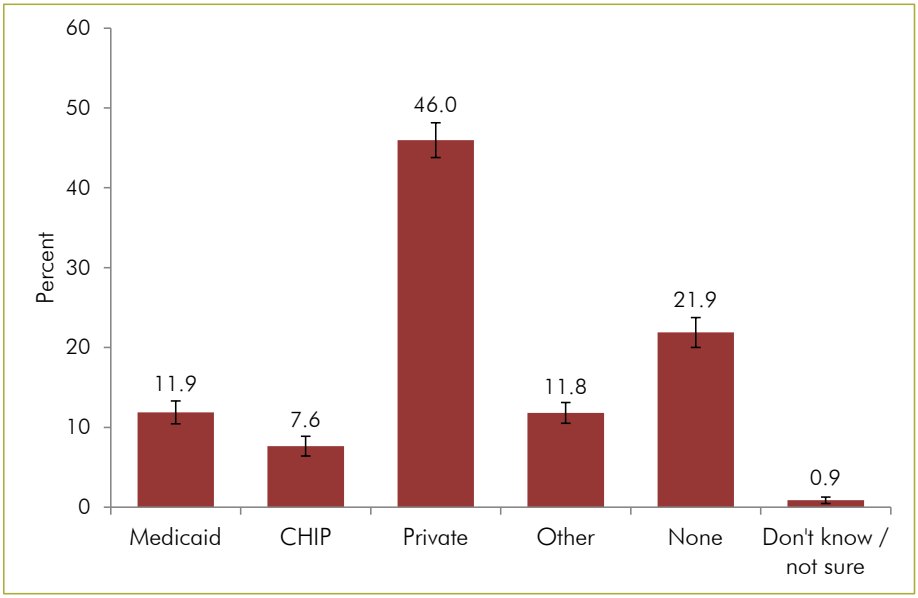
‡ *Race and Ethnicity:* Office of Public Health Data, Utah Department of Health. Utah's Indicator-Based Information System for Public Health, Population Estimate Module. ibis.health.utah.gov. United States Population Estimates Program, U.S. Bureau of the Census. www.health.utah.gov/opha.

Parent Questionnaire Results

Dental Insurance Coverage

Overall, 77% of the parents reported that their child had dental insurance. Nearly half (46%) reported having private insurance. Thirty-one percent reported having either Medicaid or Utah's CHIP (Children's Health Insurance Program) or other form of dental insurance. However, more than one-fifth (22%) of parents indicated that their child lacked dental insurance (Figure 1).

Figure 1. Dental Insurance Status



...lack of dental insurance, private or public, is one of several impediments to obtaining oral health care...

Oral Health in America: A Report of the Surgeon General

Key Findings: Utah Children Aged 6-9 Years Access to Dental Services

- 1 in 5 (22%) children lacked dental insurance.
- 1 in 10 (12%) children had not been to the dentist for more than 1 year.
- 1 in 25 (4%) children had NEVER been to a dentist.
- 1 in 8 (13%) children needed dental care during the past 12 months but were unable to get it.

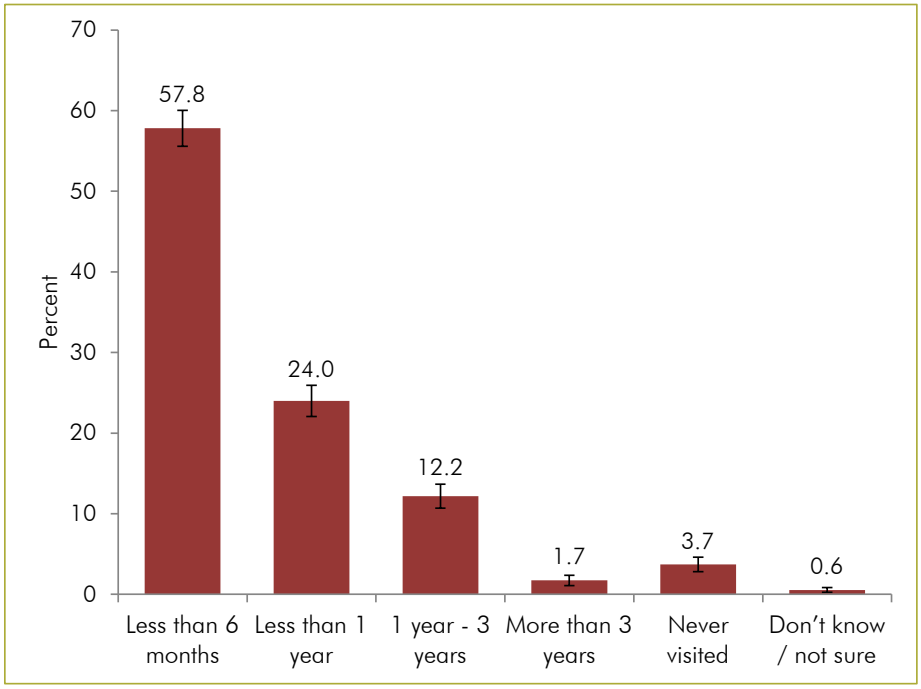
Preventive Dental Visits

Visiting a dental professional is generally used as an indicator to measure access to services. Parents were asked how frequently their child sees the dentist. A high proportion (82%) of parents reported that their child had visited a dentist during the past year (Figure 2). Twelve percent of parents mentioned that their child had not been to the dentist for more than 1 year. Nearly two percent of parents indicated that their child last visited a dentist more than 3 years ago. Almost four 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.

The American Academy of Pediatric Dentistry recommends that infants be scheduled for an initial oral evaluation visit within six months of the eruption of the first primary tooth but by no later than 12 months of age.

The American Academy of Pediatric Dentistry

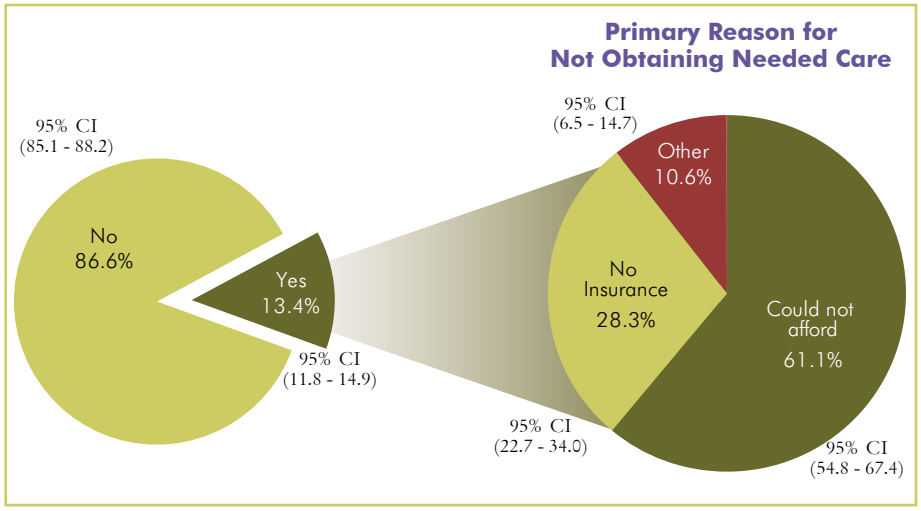
Figure 2. Time Since Last Dental Visit



Unmet Dental Needs

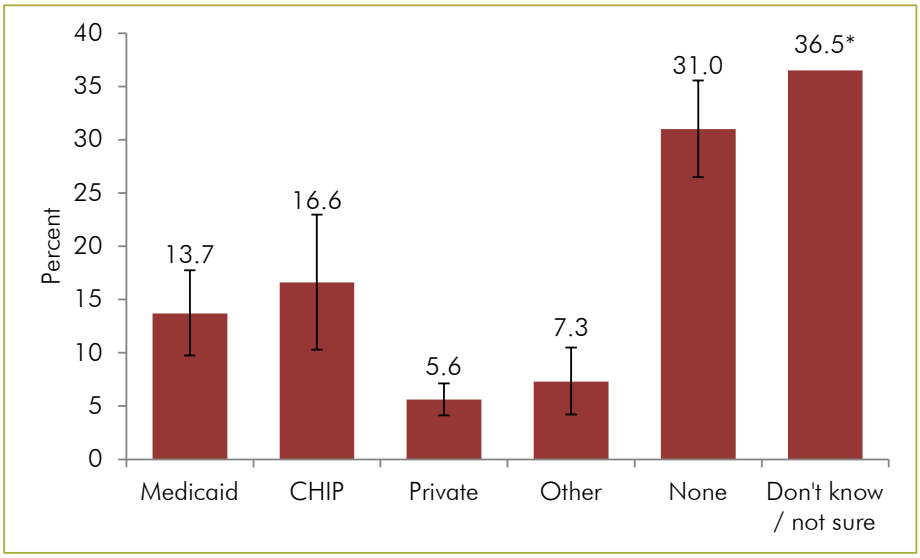
The parent questionnaire included questions to measure the extent of dental care that families needed during the past 12 months but could not obtain. Thirteen percent of parents indicated that there was a time during the past year when their child needed dental care but was unable to get it (Figure 3). 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.

Figure 3. Unmet Dental Needs



Unmet dental needs were five times higher among children without dental insurance compared to children who were covered by private dental insurance (31% vs. 6%, Figure 4).

Figure 4. Unmet Dental Needs by Dental Insurance



* *Unreliable rate due to small numbers. Confidence intervals are not shown.*

Tooth decay isn't 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

Access to Care by Race and Ethnicity

The parent questionnaire results demonstrated the disparities in access to care for different racial and ethnic groups. Data were examined by the standard categories of ethnicity: Hispanic and non-Hispanic. Due to small numbers, only two categories of race were used: "white" and "non-white". Non-white includes children of all racial minority groups. Tables highlighting differences in oral health status by race and ethnicity are presented in Appendix B.

Hispanics will make up 29% of the U.S. population in 2050, compared with 14% in 2005.

www.pewhispanic.org

In Utah, more than a quarter (28%) of non-white children did not have dental insurance. Only 65% of Hispanic children had any form of dental insurance compared to 77% of all children screened. A lower percentage of Hispanic children had private dental insurance compared to non-Hispanic children (19% vs. 52%).

Even though a majority of Hispanic children (72%) and non-white children (70%) had visited a dental professional during the past year, almost 8% of non-white children had never visited a dentist. A similar percentage (7%) was also reported for Hispanic children.

Unmet dental needs were much higher for Hispanic children (25%) and non-white children (24%) compared to the overall statewide rate (13%). One in 4 Hispanic and children of other races needed care in the preceding year but were unable to get it.

Key Findings: Access to Dental Services by Race and Ethnicity

- 1 in 3 (33%) Hispanic children lacked dental insurance.
- 1 in 25 (4%) non-white children as well as Hispanic children had not been to the dentist for more than 3 years.
- 1 in 13 (8%) non-white children have never visited a dentist.
- 1 in 14 (7%) Hispanic children had never been to a dentist.
- 1 in 4 Hispanic (25%) and non-white (24%) children had unmet dental needs.

Sources of Drinking Water

Parents were asked to identify the primary source of drinking water for their child. Overall, 70% of the parents identified tap water as the main source of drinking water for their child (Table 2). More than one-fifth (23%) reported that they primarily use bottled water. Data broken down by ethnicity showed that only 40% of Hispanic children drink tap water in comparison to 78% of non-Hispanic children. About half (51%) of the Hispanic children drink bottled water as the main source of drinking water.

Fluoridated drinking water contains a fluoride concentration effective for preventing dental caries. Many families drink bottled water, replacing tap water as a main source of drinking water. By substituting bottled water for fluoridated tap water, they may not receive the full benefits of community water fluoridation. Bottled waters are historically known to be non-fluoridated or have a very low fluoride concentration. Current U.S. FDA regulations require that fluoride be listed on the label only if the bottler adds fluoride during processing.[1]

Photo source: www.sxc.hu/profile/bjarwicke

...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 Report of the Surgeon General

Table 2. Sources of Fluoride

	All		Hispanic		Non–Hispanic	
	Weighted Percent	95% Confidence Interval	Weighted Percent	95% Confidence Interval	Weighted Percent	95% Confidence Interval
Main Source of Drinking Water						
Bottled water	22.5	20.7–24.2	51.0	45.8–56.2	14.6	12.7–16.4
Tap water	69.7	67.7–71.7	39.7	34.8–44.7	78.0	75.8–80.2
Both	7.8	6.6– 9.1	9.3	6.2–12.4	7.4	5.9– 8.9
Fluoride Supplements						
Yes	44.9	42.8–47.1	28.0	23.6–32.5	49.7	47.1–52.3
No	50.3	48.2–52.5	62.0	57.0–67.0	47.1	44.5–49.6
Don't know / not sure	4.8	3.8– 5.8	10.0	6.8–13.2	3.2	2.2– 4.3

Fluoride Supplements

Forty-five percent of parents indicated giving fluoride supplements to their children. Slightly more than a quarter (28%) of parents of Hispanic children indicated that they have provided fluoride tablets or drops to their children. Fluoride supplements are generally prescribed for children living in areas where water is not adequately fluoridated.

Oral health means more than healthy teeth and the absence of disease. It involves the ability of individuals to carry out essential functions such as eating and speaking as well as to contribute fully to society.

Oral Health in America: A Report of the Surgeon General

Dietary Fluoride Supplement Dosage Schedule

	Fluoride Dosage (milligrams per day) Based on Fluoride Concentration in Water		
Age of Child	**<0.3 ppm**	**0.3 to 0.6 ppm**	**>0.6 ppm**
Birth to 6 months	None	None	None
6 months to 3 years	0.25	None	None
3 years to 6 years	0.50	0.25	None
6 years to 16 years	1.00	0.50	None

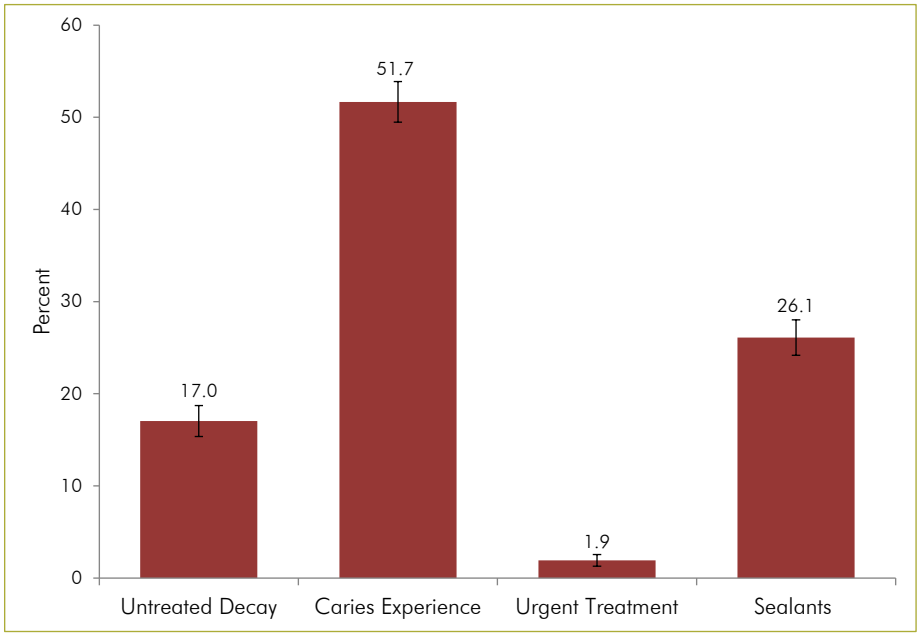
Source: ADA 1995.

Dental Screening Results

Caries Experience

Caries experience refers to active tooth decay and fillings in primary or permanent teeth. The 2010 Oral Health Survey demonstrated that a substantial portion of Utah children still suffer from this preventable disease. Among 6- to 9-year-old children who received dental screening, more than half (52%) had caries experience (Figure 5). The prevalence of caries experience increased with age (Table 3). Forty-three percent of 6-year-olds had cavities or fillings in either a primary or permanent tooth. This percentage increased to 57% for 8-year-olds and 63% for 9-year-olds. Males were more likely to have caries experience compared to females (55% vs. 49%).

Figure 5. Oral Health Status



Non-white children were significantly more likely to have caries experience compared to white children (61% vs. 49%). When stratified by ethnicity, data show that Hispanic children experienced a higher proportion of dental caries compared to non-Hispanic children (69% vs. 47% , Table 3). Fifty-nine percent of 3rd graders had experienced caries (Figure 6).

Despite the advances in oral health that have been made over the last half century, there is still much work to be done.

Oral Health in America: A Report of the Surgeon General

Achieving and maintaining oral health require individual action, complemented by professional care as well as community-based activities.

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Table 3. Dental Screening Results by Selected Demographic Characteristics

	Caries Experience	Untreated Decay	Sealants	Urgent Treatment
	Weighted Percent	Weighted Percent	Weighted Percent	Weighted Percent
Age (years)				
6	42.6	15.2	9.0	1.6
95 CI	38.7 – 46.6	12.3 – 18.1	6.7 – 11.2	0.6 – 2.6
7	50.6	15.3	23.9	2.3
95 CI	46.8 – 54.3	12.6 – 18.0	20.6 – 27.2	0.9 – 3.6
8	57.0	19.0	36.1	2.1
95 CI	53.0 – 61.0	15.8 – 22.2	32.3 – 40.0	1.0 – 3.2
9	62.9	20.9	47.5	0.8
95 CI	54.9 – 71.0	13.9 – 27.8	39.0 – 55.9	0.0 – 2.4
Gender				
Male	54.5	16.8	25.3	1.9
95 CI	51.4 – 57.6	14.4 – 19.2	22.7 – 28.0	1.0 – 2.9
Female	48.8	17.3	26.9	1.9
95 CI	45.6 – 51.9	14.9 – 19.7	24.1 – 29.6	1.1 – 2.7
Race				
White	48.5	14.9	26.0	0.9
95 CI	46.1 – 51.0	13.2 – 16.7	23.9 – 28.1	0.5 – 1.4
Non-white*	61.4	17.8	18.1	2.5
95 CI	54.3 – 68.6	12.7 – 22.9	12.3 – 24.0	0.6 – 4.4
Ethnicity				
Hispanic	69.3	31.3	28.8	6.8
95 CI	64.5 – 74.0	26.4 – 36.3	24.2 – 33.5	3.9 – 9.6
Non-Hispanic	46.7	13.5	25.0	0.7
95 CI	44.1 – 49.4	11.7 – 15.4	22.7 – 27.3	0.2 – 1.1
Grade				
3rd grade only	59.3	19.8	41.9	1.2
95 CI	55.2 – 63.4	16.5 – 23.1	37.9 – 46.0	0.4 – 2.1
All children				
	51.7	17.0	26.1	1.9
95 CI	49.5 – 53.9	15.4 – 18.7	24.2 – 28.0	1.3 – 2.5

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

Untreated Dental Decay

Close to one-fifth (17%) of children had untreated dental decay. The prevalence of untreated decay was similar across gender. Hispanic children were twice as likely to have untreated decay compared to non-Hispanic children (31% vs. 14%, Table 3). One in five 3rd graders had untreated dental decay (Figure 6).

Urgent Treatment

Of all the children screened, 2% had a need for emergency or urgent dental care. Based on this finding and school enrollment of 1st-3rd graders in the state (132,738), approximately 2,655 six- to nine-year-old children were attending school with pain or infection. Urgent dental needs were significantly higher for Hispanic children than for non-Hispanic children (7% vs. 1%, Table 3).

Dental Sealants

Sealants are an effective means of reducing the prevalence of dental caries. However, sealants remain underutilized. Only a quarter (26%) of children had sealants present on at least one permanent molar tooth. Non-white children were less likely to have dental sealants compared to white children (18% vs. 26%). The rate of sealant placement was slightly higher among Hispanic children compared to the statewide rate (29% vs. 26%, Table 3).

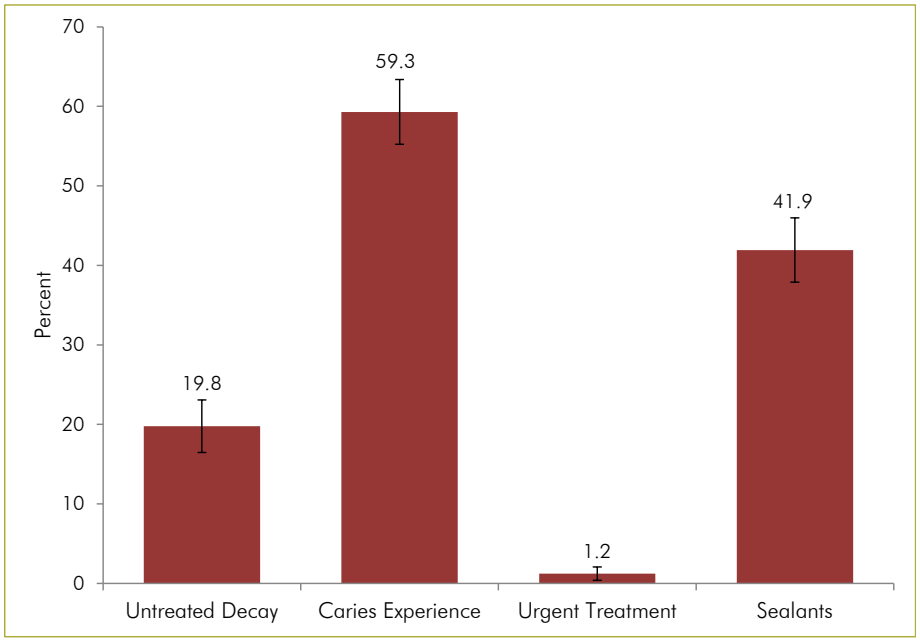
Those who suffer the worst oral health are found among the poor of all ages, with poor children and poor older Americans particularly vulnerable.

Oral Health in America: A Report of the Surgeon General

Key Findings: Utah Children Aged 6-9 Years Dental Screening

- 1 in 2 (52%) children had dental caries experience.
- 7 in 10 (69%) Hispanic children had dental caries experience.
- 3 in 5 (61%) non-white children had experienced caries.
- 1 in 5 (17%) children had untreated dental decay.
- 1 in 4 (26%) children had dental sealants.
- 1 in 50 (2%) children needed urgent dental treatment.
- 3 in 50 (7%) Hispanic children needed urgent dental treatment.

Figure 6. Oral Health Status of 3rd Graders



…Oral health is essential to the general health and well-being of all Americans and can be achieved by all Americans. However, not all Americans are achieving the same degree of oral health…

Oral Health in America: A Report of the Surgeon General

Key Findings: Utah 3rd Graders

- 59% of 3rd grade children had dental caries experience.
- 20% of 3rd grade children had untreated dental decay.
- 42% of 3rd grade children had dental sealants.
- 1% of 3rd grade children needed urgent dental treament.

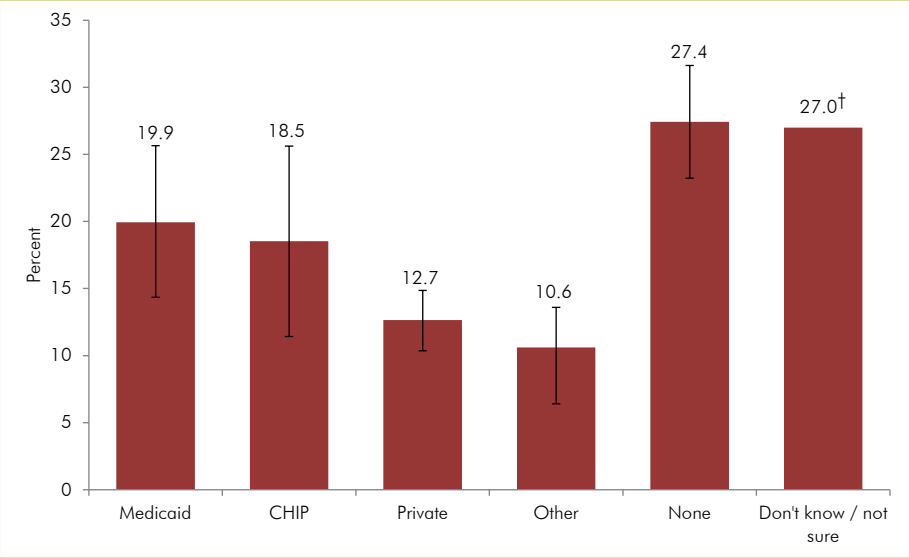
Dental Screening Status by Insurance

- Children with private dental insurance were less likely to have caries experience compared to children without insurance (45% vs. 55%, Table 4).
- Children who lacked dental insurance and children with unknown insurance status (Don't know/not sure) were more likely to have untreated dental decay than children with private or public dental insurance (Figure 7).
- Sealant utilization was much higher for children enrolled in CHIP compared to the statewide rate (35% vs. 26%, Table 4).
- Sealant placement rates were similar for children covered by Medicaid (27%) and private dental insurance (27%).

The barriers to oral health include lack of access to care, whether because of limited income or lack of insurance, transportation, or the flexibility to take time off from work.

Oral Health in America: A Report of the Surgeon General

Figure 7. Untreated Decay by Insurance Type



† *Unreliable rate due to small numbers. Confidence intervals are not shown in chart.*

Table 4. Dental Screening Status by Insurance

	Medicaid	CHIP	Private	Other	None	Don't know / not sure
	Weighted Percent	*Weighted Percent*	*Weighted Percent*	*Weighted Percent*	*Weighted Percent*	*Weighted Percent*
Caries experience	71.0	66.0	45.3	41.3	54.7	60.5*
95 CI	65.3 – 76.6	57.9 – 74.2	42.0 – 48.7	35.4 – 47.2	49.9 – 59.4	47.1 – 74.0
Untreated decay	19.9	18.5	12.7	10.6	27.4	27.0*
95 CI	14.3 – 25.6	11.4 – 25.6	10.4 – 14.9	7.0 – 14.2	23.2 – 31.6	27.0 – 27.0
Sealants	27.3	35.3	27.0	19.8	23.0	32.0*
95 CI	21.3 – 33.4	27.2 – 43.5	24.1 – 30.0	15.0 – 24.5	19.0 – 27.0	1.6 – 62.4

* *Unreliable rate due to small numbers.*

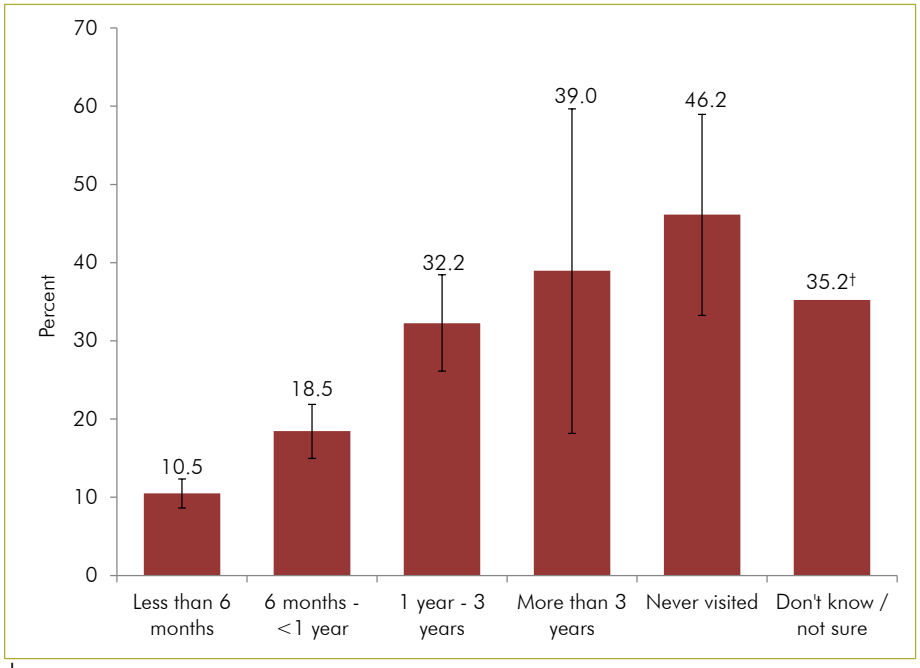
Dental Screening Status by Time Since Last Dental Visit

- Children who visited a dentist within the previous 6 months were less likely to experience caries than children who visited a dentist more than 1 year ago (49% vs. 58%, Table 5).
- Children who visited a dentist during the past 6 months were less likely to have untreated dental decay compared to children who visited the dentist more than 1 year ago (11% vs. 32%, Figure 8).
- The prevalence of untreated decay was much higher among children who had never visited a dentist (46%).
- Sealant placement rates were two times higher for children who visited a dentist during the last 6 months than children who visited a dentist more than 3 years ago (30% vs. 15%).

Good self-care, such as brushing with fluoride toothpaste, daily flossing, and professional treatment, is key to good oral health.

www.HealthyPeople.gov

Figure 8. Untreated Decay by Last Dental Visit



† *Unreliable rate due to small numbers. Confidence intervals are not shown in chart.*

Table 5. Dental Screening Status by Time Since Last Dental Visit

	6 months	6 months to < 1 year	1 year – 3 years	More than 3 years	Never visited	Don't know / not sure
	Weighted Percent	Weighted Percent	Weighted Percent	Weighted Percent	Weighted Percent	Weighted Percent
Caries experience	48.8	55.9	58.1	51.7	47.5	47.3*
95 CI	45.9 – 51.7	51.4 – 60.4	51.8 – 64.4	31.6 – 71.9	34.6 – 60.4	3.3 – 91.3
Untreated decay	10.5	18.5	32.2	39.0	46.2	35.2*
95 CI	8.6 – 12.4	15.0 – 21.9	26.1 – 38.4	18.2 – 59.7	33.3 – 59.0	0.0 – 79.3
Sealants	29.6	22.7	20.4	15.3	16.1	24.9*
95 CI	27.0 – 32.2	19.1 – 26.2	14.8 – 26.0	4.9 – 25.8	5.5 – 26.7	0.0 – 67.3

* *Unreliable rate due to small numbers.*

Tooth Surfaces with a History of Decay

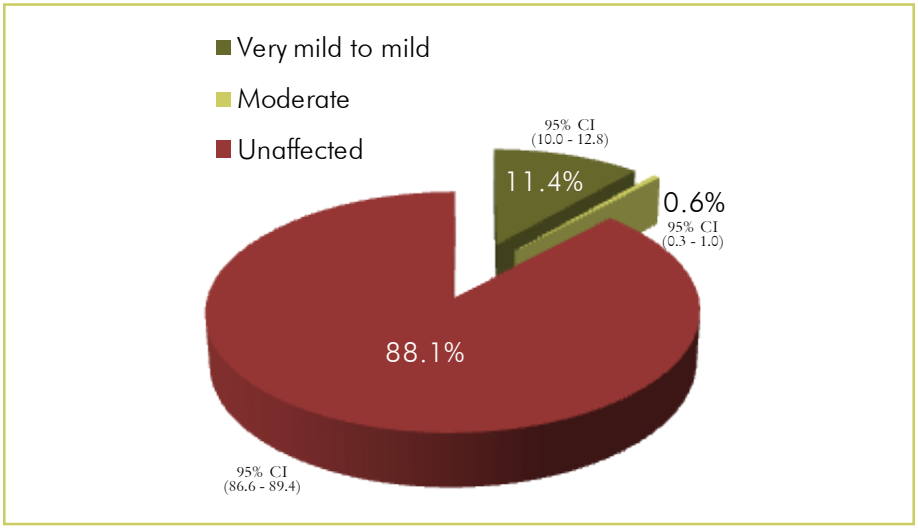
The dmfs/DMFS index has been widely used in the dental epidemiology field as a measure of caries experience. The index is the number of decayed, missing, and filled tooth surfaces in a primary or permanent tooth. The average scores for all children screened by demographic characteristics are presented in Table 6. The average number of decayed, missing, and filled surfaces for all children in Utah was 6.5. Males had higher average dmfs/DMFS score than females (7.4 vs. 5.6). Children of "other" racial groups had a much higher average dmfs/DMFS score compared to white children (9.8 vs. 5.9). Hispanic children had nearly twice the average number of dmfs/DMFS than non-Hispanic children (9.5 vs. 5.5).

Dental Fluorosis

Dental fluorosis refers to changes in the appearance of tooth enamel caused by long-term ingestion of excessive fluoride during the time teeth are forming.[6] Young children whose teeth are still developing are most at risk for fluorosis. Many dental professionals think that the risk is especially high for children under the age of six because their swallowing reflex is not fully developed and they are more likely to swallow fluoride toothpaste and mouthwash.[7]

It was found during the dental screening that the majority of the children (88%) were unaffected by fluorosis. However, very mild, mild and moderate fluorosis was noted in 12% of the children. No form of severe fluorosis was observed among the children screened.

Figure 9. Dental Fluorosis



A person's ability to access oral health care is associated with factors such as education level, income, race, and ethnicity.

www.HealthyPeople.gov

Table 6. Average Number of Decayed, Missing, and Filled Tooth Surfaces (dmfs/DMFS)

	Average (SE*)
All children	**6.5 (0.2)**
Age (years)	
6	5.2 (0.4)
7	6.8 (0.4)
8	7.0 (0.4)
9	7.9 (0.8)
Gender	
Male	7.4 (0.3)
Female	5.6 (0.3)
Race	
White	5.9 (0.2)
Other	9.8 (0.9)
Ethnicity	
Hispanic	9.5 (0.6)
Non-Hispanic	5.5 (0.3)

* *SE = Standard error of weighted average.*

Fluoride Exposure

The level of optimal fluoride exposure was categorized into 4 groups: long-term exposure, some/mixed exposure, no exposure, and unknown. The criteria of categorization have been provided in the detailed methodology in Appendix A. The levels of fluoride exposure for children surveyed are presented in Table 7. Close to one-third (30%) of children had met the criteria of long-term systemic fluoride exposure. Less than half (42%) were exposed to some/mixed fluoride. However, 16%, or close to 1 in 6, children were not exposed to optimal fluoride levels.

...in most communities, every $1 invested in fluoridation saves $38 or more in treatment costs.

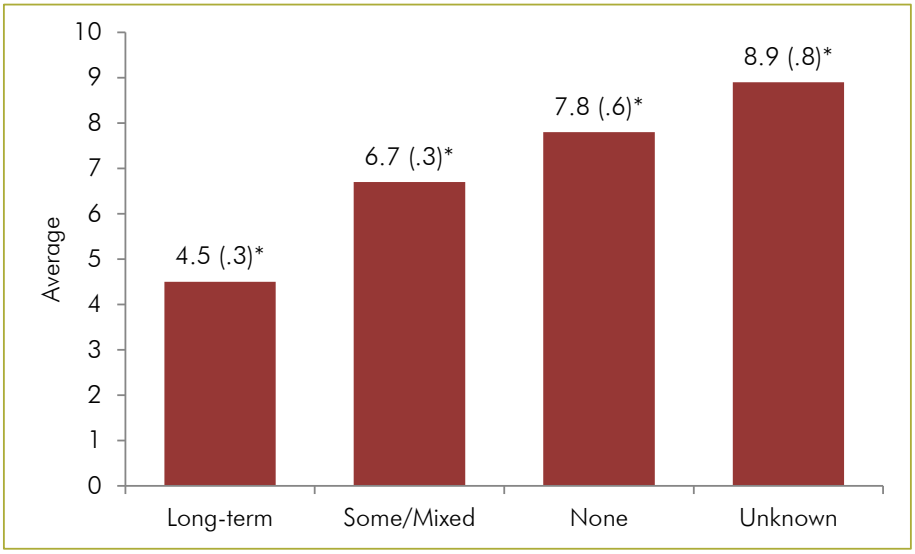
www.cdc.gov/fluoridation/fact_sheets/sg04.htm

Table 7. Proportion of Children by Levels of Fluoride Exposure

	Weighted Percent	95 Confidence Interval
Long-term	29.7	27.7 – 31.7
Some/mixed	42.0	39.8 – 44.3
None	16.2	14.6 – 17.9
Unknown	12.1	10.6 – 13.6

The average number of decayed, filled, and missing tooth surfaces by level of fluoride exposure is shown in Figure 10.

Figure 10. Average Number of Decayed, Filled, and Missing Tooth Surfaces by Level of Fluoride Exposure



* *Standard error of weighted average.*

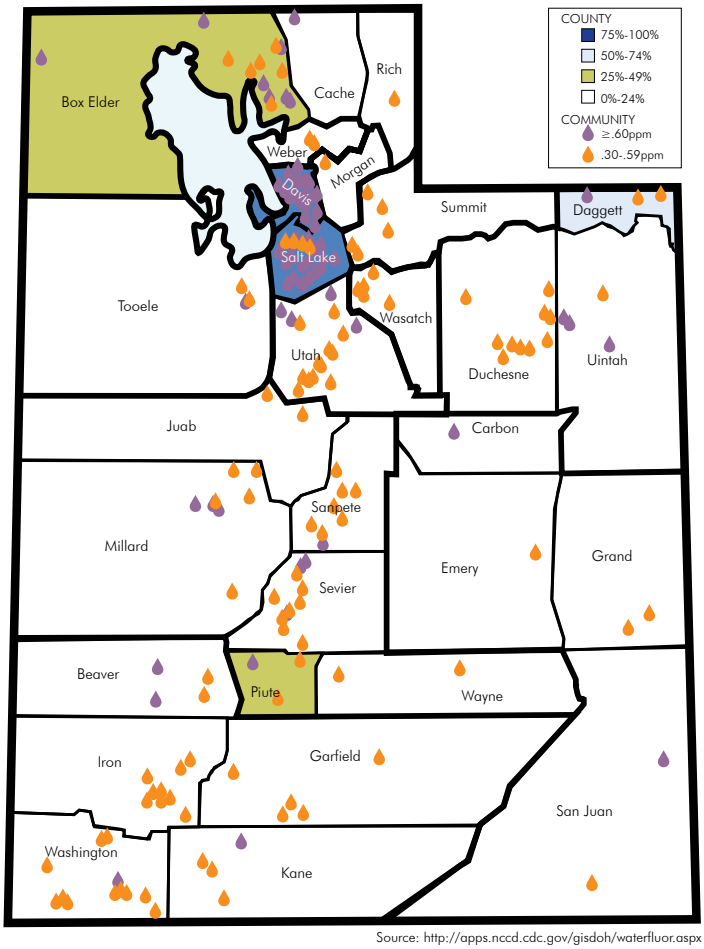
Children who were exposed to long-term fluoride, either from fluoridated water or fluoride supplements, have substantially fewer decayed, missing, and filled tooth surfaces compared to children who had no history of fluoride exposure (4.5 vs. 7.8). Data show that children with long-term systemic fluoride have an average of three fewer tooth surfaces affected by caries compared to children with no fluoride exposure.

Comparison of average number of tooth surfaces with a history of decay among children with long-term fluoride and children with no fluoride shows a reduction of 42% in dmfs/DMFS scores.

Children with a reported history of some or mixed fluoride exposure appear to have fewer tooth surfaces affected compared to children with no exposure to either water fluoridation or fluoride supplementation (6.7 vs. 7.8, 14% reduction).

In the U.S., community water fluoridation has been considered the cornerstone of caries prevention for more than half a century.[7] Community water fluoridation is the most economical way to deliver the benefit of fluoride to all residents of a community. Community water fluoridation is the process of adjustment of fluoride concentration in the water to the level recommended for prevention of tooth decay. The recommended level for the U.S. and Utah is 0.7 parts per million (ppm) as determined by the U.S. Public Health Service. However, many counties in Utah still do not supply optimum fluoridated water to residents (Figure 11).

Figure 11. Levels of Fluoridation in Utah: Natural and Adjusted



Source: http://apps.nccd.cdc.gov/gisdoh/waterfluor.aspx

Oral health is a critical component of health and must be included in the provision of health care and the design of community programs.

Oral Health in America: A Report of the Surgeon General

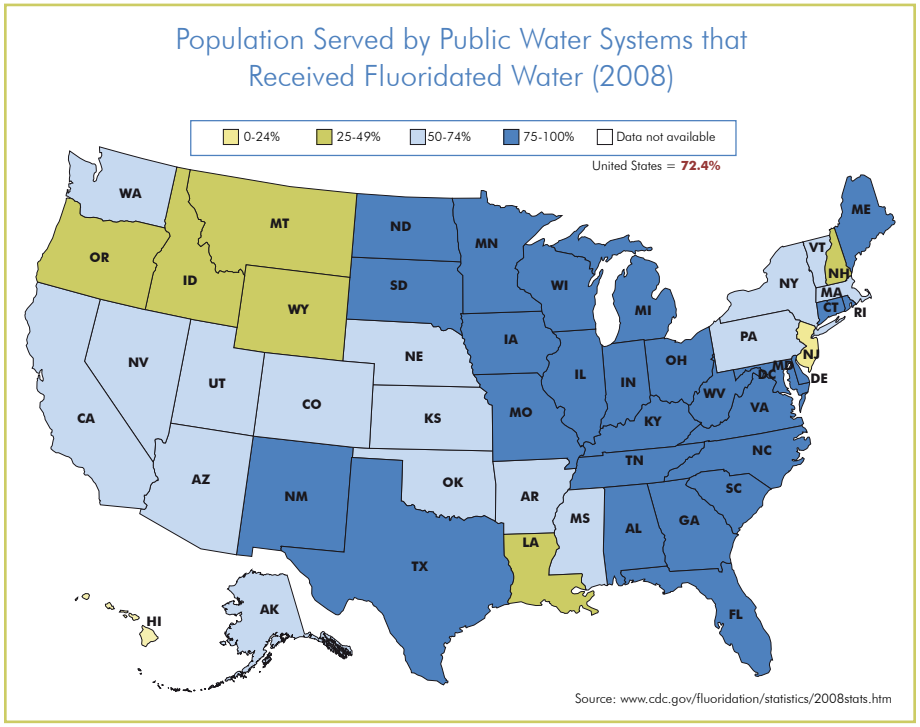
Water fluoridation is currently available in two major counties in Utah: Salt Lake and Davis. Davis County began implementing community water fluoridation in 2002 and Salt Lake County in 2003. Several other Utah communities have natural or adjusted water supplies with optimal levels of fluoride.

Access to fluoridated water has increased since 2000 when less than two percent of the state was receiving fluoridated water. Even with the increase in fluoridated water supplies, only 54% of Utahns currently live in communities with fluoridated water compared to 72% nationally (Figure 12).

Insurance coverage for dental care is increasing but still lags behind medical insurance.

Oral Health in America: A Report of the Surgeon General

Figure 12. Water Fluoridation in the U.S.



Comparison with National Goals

Comparison of Utah's Oral Health Status with National Goals

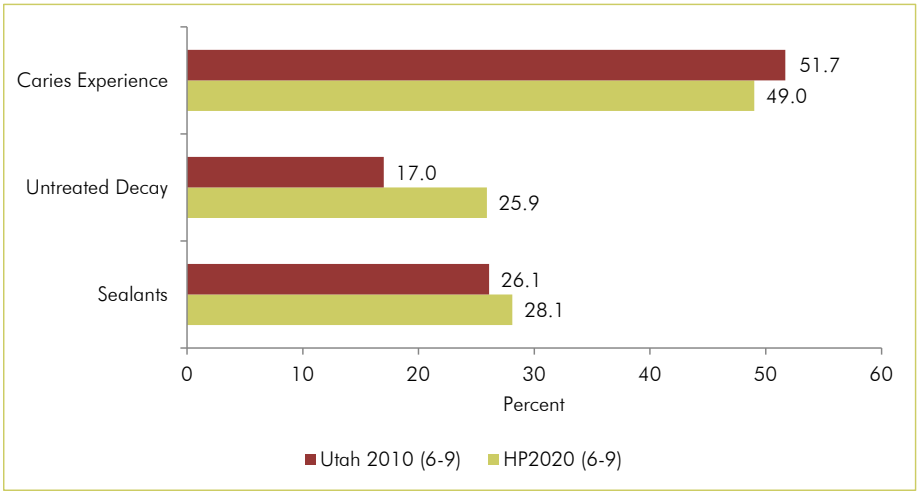
The Oral Health Program focuses on three Healthy People 2020 (HP2020) indicators for oral health for children. HP2020 objectives for oral health have been slightly revised from HP2010 objectives and now include children 6-9 years of age (expanded from the HP2010 objectives which focused on children aged 6-8). In order to facilitate comparability between the two sets of objectives, this report includes data for both age categories of children.

Healthy People 2020

- HP2020 Objective sets a target of 49% for the percentage of children aged 6-9 years with dental caries. Utah is close to meeting this objective, but more than half (52%) of Utah's children aged 6-9 years have experienced dental caries (Figure 13).

Figure 13. Utah Compared to Healthy People 2020 Objectives

Children Aged 6-9 Years



- Utah has met the target for the HP2020 Objective to reduce the proportion of children aged 6-9 years with untreated dental decay in their primary and permanent teeth to no more than 26%. Utah's prevalence of untreated dental decay among children aged 6-9 years is 17%.

Healthy People 2020 Objectives:

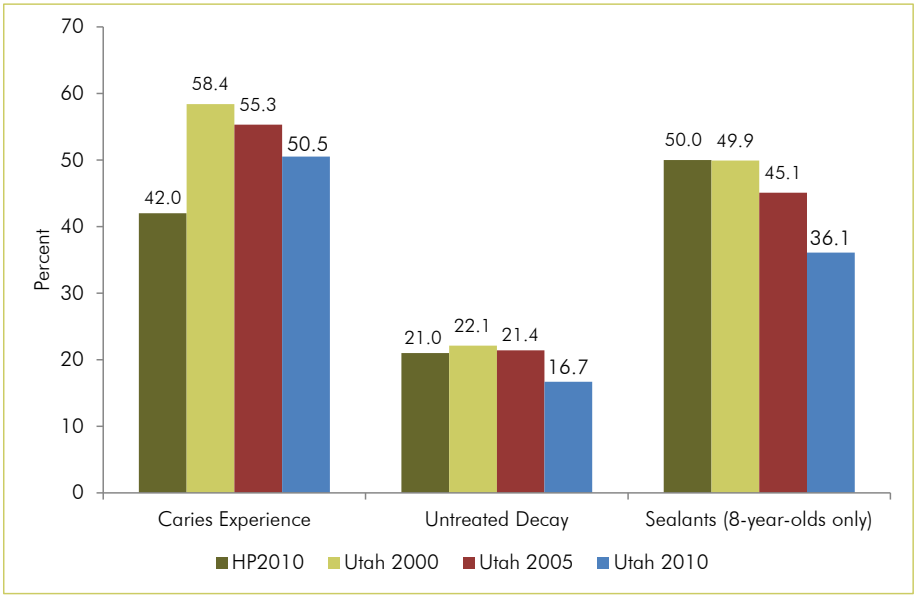
- Objective OH - 1.2: Reduce the proportion of children aged 6 to 9 years with dental caries experience in their primary and permanent teeth. **Target: 49.0%**.
- Objective OH - 2.2: Reduce the proportion of children aged 6 to 9 years with untreated dental decay in their primary and permanent teeth. **Target: 25.9%**.
- Objective OH - 12.2: Increase the proportion of children aged 6 to 9 years who have received dental sealants on one or more of their permanent first molar teeth. **Target: 28.1%**.

- Utah has not met the HP2020 Objective of dental sealants for children aged 6-9 years. However, Utah's sealant placement rate is very close to the HP2020 target (26% vs. 28%).

Healthy People 2010

- Utah has met the HP2010 Objective for untreated dental decay among children aged 6-8 years. Utah's prevalence of untreated decay is much lower than the HP2010 target (17% vs. 21%, Figure 14).
- Utah did not meet the HP2010 target of 42% for reducing caries among children aged 6-8 years nor the target of 50% for increasing the proportion of children aged 8 years with dental sealants.

Figure 14. Utah vs Healthy People 2010 Objectives
Children Aged 6-8 Years



Healthy People 2010 Objectives:

- Objective 21 - 1b: Reduce the proportion of children aged 6-8 years with dental caries experience in their primary and permanent teeth. **Target: 42.0%**.
- Objective 21 - 2b: Reduce the proportion of children aged 6-8 years with untreated dental decay in their primary and permanent teeth. **Target: 21.0%**.
- Objective 21 - 8a: Increase the proportion of children aged 8 years who have received dental sealants on their molar teeth. **Target: 50.0%**.

Trends from 2000 to 2010

It should be noted that the survey methodology of the previous two state surveys (2000, 2005) and the 2010 survey differed in terms of sample selection. The 2000 and 2005 survey included children aged 6-8 years in grades 1 through 3, whereas the 2010 survey included children aged 6-9 years in the same grades. Additional analyses were conducted for children 6-8 years old to compare the results of the 2010 survey with previous surveys (Table 8).

- Findings from the 2010 survey showed that fewer Utah children aged 6-8 years have dental caries experience compared to the 2000 and 2005 surveys. The caries prevalence rate decreased by almost 14% from 58.4% in 2000 to 50.5% in 2010. However, half of all children aged 6-8 years have experienced caries (decayed, filled, or missing).
- The prevalence of untreated decay also decreased compared to previous state surveys. The untreated decay rate declined 24% since the 2000 survey. The rate dropped from 22.1% to 16.7%.
- It was also found in the 2010 survey that a smaller percentage of Utah children have dental sealants than noted in previous surveys. The sealant placement rate decreased from 50% in 2000 to 36% in 2010 among 8-year-old children.

Fluoride varnish is a protective gel that is painted on teeth to help prevent early childhood cavities and reduce or reverse the progression of cavities that have already started. It is an inexpensive but important tool in improving children's dental health

pewcenteronthestates.org

Table 8. Comparison of Utah Surveys 2000, 2005, 2010 for Children Aged 6 – 8 Years

	Survey 2000		Survey 2005		Survey 2010	
	Weighted Percent	95% Confidence Interval	Weighted Percent	95% Confidence Interval	Weighted Percent	95% Confidence Interval
Caries Experience	58.4	55.5 – 61.3	55.3	52.3 – 58.4	50.5	48.2 – 52.8
Untreated Decay	22.1	19.9 – 24.3	21.4	18.9 – 23.9	16.7	14.9 – 18.4
Sealants (8-year- olds)	49.9	45.6 – 54.2	45.1	39.8 – 50.4	36.1	32.3 – 40.0

Conclusions

To live well into old age free of pain and infirmity, and with a high quality of life, is the American dream.

Oral Health in America: A Report of the Surgeon General

Given the extent of the problem and the large numbers of people 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.

The results of the survey underscore the fact that, while the rate of dental caries is decreasing as a whole, there are still child population groups where this is not the case. Past state and national surveys have documented that 25% of the children have 80% of the disease. These children may come from uninsured, highly mobile families, low income, and minority groups. 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 or mouth rinse 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.

Limitations

The data in this report are subject to limitations. The parent questionnaire is based on self-report and therefore may be subject to recall bias. It is important to note that the fluoride exposure variable was calculated based on the responses from the parent questionnaire and may include recall bias from the parents and/or guardians regarding child's fluoride supplementation history or the age of the child when supplements were taken. Additionally, we considered "bottled water" having less than optimal fluoride levels. However, it is possible that some commercially available bottled water may contain traces of fluoride. 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

Community, Provider, and Individual Strategies for Primary Prevention of Key Oral Health Diseases and Conditions

Community	Professional	Individual
Dental Caries		
Community-wide health promotion interventions.	Counseling to follow measures to reduce risk of disease	Being informed about strategies to prevent disease
Fluoride use Community water fluoridation School-based dietary fluoride tablets School-based fluoride mouthrinse	Fluoride use Prescriptions for fluorides (supplements or rinses) Gels and other high-fluoride topicals Topical mineralization solutions Fluoride-containing restorative agents	Fluoride use Dentifrice Mouthrinse, over-the-counter
School-based and school-linked sealant programs	Provision of sealants Prescription for antimicrobial agents	Ask about sealants Use of antimicrobial agents
School-linked screening and referral	Individualized recall schedule	Self-initiated use of dental services

Source: Oral Health In America: A Report of the Surgeon General.

Appendix A-1

Detailed Study Methodology

Sampling

The Utah Oral Health survey employed a multi-stage probability sample design. All public elementary schools with 20 or more students enrolled in grades 1 through 3 were eligible to participate in this survey. The initial stage involved selection of 25 elementary schools from 41 school districts and 12 local health department districts throughout the state. The subsequent stages involved the selection of classrooms and children in 1st, 2nd, and 3rd grades. A total of 5,646 first, second and third graders in 25 elementary schools were selected to participate in the survey.

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 (2008 revision) was selected for the screening and survey methodology.[5] 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

The Institutional Review Board of the Utah Department of Health approved the protocol and methodology. The screening supplies were purchased and forms were printed. A Microsoft Access database was developed for entry of parent questionnaire data and the dental screening results.

Permission Process

Permission to conduct the screening was requested from the school district superintendents (Appendix A-2). A copy of this letter was also mailed to the appropriate school principal (Appendix A-3). After the superintendents granted permission to do the screenings, 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 3rd grades was mailed to the school principal. A copy of the principal's letter was also mailed to local health district officers and nursing directors informing them of the scheduled screening. The parent questionnaires with consent forms were to be sent home with the child along with school registration materials. A letter requesting assistance on the day of the screening was mailed to the school nurses (Appendix A-4). The principal was notified one week prior to the screening to confirm details.

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
- Time since the child had seen a dentist
- Unmet dental needs and problems accessing dental care
- Source of drinking water
- Fluoride supplements
- Residential history
- Demographic information for the child

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 (Appendix A-5) 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 (Appendix C).

Dental Screening

The dental team consisted of a dental screener and a recorder. The dental screener, a dental hygienist from the Oral Health Program, was trained via the ASSTD video and manual on screening protocol. This hygienist had previously conducted the screenings in 2000 and 2005. The recorder, a dental professional, was responsible for collecting the permission slip from each child and entering the information from the parent questionnaire and the screening results into a laptop computer containing the database, and then giving the report of the screening to each child.

Disposable mirrors were used for retraction and visualization. Gauze squares and cotton tip applicators were available to dry the teeth or remove food if needed. Children screened directly after eating were requested to rinse their mouths before coming into the screening. No explorers, toothpicks, or forced air was used to determine the presence of sealants and no X-rays were taken. Each child who returned a parent questionnaire was given toothpaste and a toothbrush.

The dental screener noted the following information on each child screened and reported them to the recorder:

- Number of surfaces filled
- Number of surfaces decayed
- Presence of sealants on permanent molars
- Urgent dental treatment need
- Level of dental fluorosis

All children screened were sent home with dental screening results and recommendations.

Dental Screening Measures

Untreated dental decay refers to cavities that have not been filled or treated. Untreated decay was assigned when a loss of at least ½ mm of tooth structure and dark discoloration was noted. Also, if a filling and decay were present on the same tooth surface, the designation of untreated decay was recorded. A broken or chipped tooth was not considered caries. If it was unclear if there was a cavity, it was designated as not carious in the database, but the report of dental screening sent home with the child indicated that the child should go to the dentist at the earliest convenience.

Caries experience was indicated if a child was experiencing active decay or had evidence of caries in the past. In other

words, dental caries experience refers to both decayed and filled teeth. Evidence of past caries included restorations, temporary restorations, or crowns. Teeth that had been extracted for caries were counted as five filled surfaces; however, teeth extracted for other reasons such as trauma or orthodontics were not included as caries experience.

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. Posterior teeth have five surfaces, and anterior teeth have four. If the overall dmfs/DMFS score is 3, it means that for all children screened, the average number of surfaces that were decayed, missing, or filled is 3.

The classification of **treatment urgency** was based on the need for urgent care for a child with pain, abscess, or extensive decay.

A **dental sealant** is a plastic material that is bonded onto the chewing surface of a tooth to protect it from cavities. Sealants were counted only if a sealant was visible on a permanent molar. If the sealant was at least partially retained it was counted as present.

Dental fluorosis refers to changes in the appearance of tooth enamel caused by long-term ingestion of excessive fluoride. The level of dental fluorosis was measured according to Dean's Fluorosis Index (unaffected, very mild, mild, moderate and severe).[4]

Measures of Fluoride Exposure

Based on the data from the parent questionnaire, the level of fluoride exposure in the children surveyed was calculated using the child's county of residence, residential history, fluoride supplementation history, age of child when supplements were taken, primary source of drinking water, and level of fluoride concentration in city/community water supplies. The fluoride concentration levels of cities and communities were determined using the Centers for Disease Control and Prevention (CDC) fluoridation website.[5] The level of fluoride exposure was categorized into 4 groups:

- Long-term exposure to optimal fluoride
- Some/mixed exposure to optimal fluoride
- No exposure to optimal fluoride
- Unknown exposure to optimal fluoride

Long-term exposure category included those children who had lived in cities with optimal fluoridated water (.7ppm) and/or received fluoride supplements for 4 to 6 years. For example, an 8-year-old child who had received fluoride (either from water fluoridation or supplementation) for 6 years or a 6-year-old child who had received fluoride for 4 years was considered long-term.

Some/mixed exposure category included children who received fluoride supplements for less than 4 years and had lived in cities with non-fluoridated water. This category also included children with no reported history of fluoride supplements who had lived in cities with optimal fluoridated water (.7ppm) for less than 4 years.

No exposure category included children with no history of fluoride supplementation and who had lived in cities with non-fluoridated water.

Unknown exposure category included children with unknown history of fluoride supplementation and had lived in a city or foreign country where the fluoridation status was unknown.

Appendix A-2

Superintendent Statewide Survey Letter

Draft - Superintendent Statewide Survey Letter

April 12, 2010

Superintendent
District
Address
City, Utah 84000

Dear Superintendent _____ ,

In recognition of the need for current community level oral health status and dental care access data, the Utah Department of Health (UDOH) Oral Health Program will be conducting a statewide oral health survey in the fall of 2010. The purpose is to measure and document statewide oral health indicators, utilizing the guidelines set up in the Healthy People 2010 oral health objectives. The results of this survey will affect future oral health programs in Utah.

We are asking twenty-two school districts, including yours, to assist in this activity by allowing us to survey children in the first, second, and third grades from elementary schools which have been randomly selected for the survey. On the scheduled day, the children with permission slips will be surveyed in small groups, in a separate room designated by the school. The process should take no more than forty minutes for each classroom, so we anticipate minimal disruption to the school routine.

The selected schools will be provided with information letters to be sent home to parents. The letter will include pertinent information about the survey, a permission slip, and a few survey questions including the ability to access needed dental care. A report of any dental needs found during the survey process will be sent home with the child. Our sample includes the following schools from your district: *school one, school two, school three*. Principals of these schools will receive information early in August regarding the selected classes and date of the survey.

In order to proceed with these plans, we would appreciate your written or verbal permission by Monday, May 17, 2010. With your approval, we will work directly with the principals to accomplish this important activity.

Please feel free to contact me with any questions or comments regarding the survey. Permission to survey may be addressed to Dr. Steven J. Steed at the address above, by phone, (801) 538-9177, fax 538-9440, or by e-mail, stevensteed@utah.gov. Thank you very much.

Sincerely,

Steven J. Steed, D.D.S.
Utah State Dental Director

cc *to schools noted*

Appendix A-3

Letter to Principal

#Principal#
#School#
#Address#
#City UT 84#

August 1, 2010

Dear Principal ###:

Recently you received a copy of the notification letter sent to Superintendent ########### concerning the statewide dental survey being conducted this fall by the Oral Health Program, Utah Department of Health. Your school is one of 27 selected for screening. All of the first, second and third grade classes will be screened.

This is a reminder that we will be visiting your school on:

######## ##, 2010 #### a.m.

Enclosed are # permission forms with information for the parents. The forms are in English and in Spanish. The permission form should go home with registration materials for each child from the selected class. The permission slip needs to be returned with the parent's signature as soon as possible.

To facilitate the examinations, we ask that prior to the examination date you identify a room, other than the regular classroom, which has several chairs, one large or two small table(s), and two electrical outlets that can be used for the dental exams. Space is needed to set up the portable dental chair and light. The screening process will take approximately 40 minutes per classroom. A report of any dental needs found is sent home with each child.

A member of the examining team will be in contact with you the week prior to the scheduled examination to answer any questions. If you have questions prior to then, please feel free to contact me, at 801 538-9177 or stevensteed@utah.gov .

Thank you for you cooperation.

Sincerely,

Steven J. Steed, DDS
State Dental Director

cc: #LHD director#
LHD nursing director#

Appendix A-4

School Nurse Letter

##, RN #

August 1, 2010

#School District or #Local Health Dept
#Address#
#City UT 84###

Dear ##,

In recognition of the need for current community level oral health status and dental care access data, the Utah Department of Health (UDOH) Oral Health Program will be conducting a statewide oral health survey in the fall of 2010. The purpose is to measure and document statewide oral health indicators, utilizing the guidelines set up in the Healthy People 2010 oral health objectives. The results of this survey will affect future oral health programs for Utah.

The superintendent of the school district and the principal of randomly selected schools have received detailed letters concerning the screening. Any assistance the school nurses could give in this endeavor would be appreciated: responding to questions concerning the importance of oral health to the overall health of the child; encouraging principals in sending home consent forms and having parents returning them in a timely fashion; helping move children from the classrooms to the screening room the day of the screening.

The school selected in your district is #Elementary (#Date time#). The principal is receiving a letter of notification, with the screening date and consent forms.

We believe the data collected in this survey will be of benefit to your community in determining future plans regarding specific oral health needs. Thank you for your dedication. We look forward to working with you. If you have questions, please feel free to contact me at (801) 538-9177.

Sincerely,

Steven J Steed, DDS
Utah State Dental Director

Appendix A-5

Parent Consent Letter

Dear Parent:

Your child's school has been chosen to take part in the state health department's "Make Your Smile Count!" survey this fall to learn about the health of children's teeth in your area and across the state. This will help us plan future dental health programs. As you know, a healthy mouth is part of total health and wellness and makes a child more ready to learn when they are not in pain or discomfort.

With your consent, a dentist or dental hygienist will screen your child's teeth to check for tooth decay and other dental problems. After the screening your child will receive a letter to take home that tells you about the health of your child's teeth. This screening does not take the place of regular dental check-ups, so continue to see your dentist regularly.

Please be assured that the dental screening will be carried out in a healthy manner. Dental gloves will be worn, and we will use a new disposable mirror and tongue depressor for each child, which will be thrown away after one use. The dentist or dental hygienist will follow the appropriate Centers for Disease Control and Prevention (CDC) guidelines. The screening is painless and takes only one to two minutes.

Attached to this letter is the Dental Survey Consent Form. Your answers to the survey will remain private and will not be shared. Results of your child's screening will be added to those of other children, and your child will not be named in any report. If you do not want to answer the survey questions, you may still give permission for your child to have his or her teeth checked.

As only 25 randomly selected elementary schools across the state have been chosen, it is extremely important that we have all the children in the selected classes participate.

Please complete and sign the attached consent form. This will allow your child to be included as part of this statewide survey. Return the form to your child's teacher. All children who return the form will receive a free toothbrush.

Thank you for working with us to learn how to improve the dental health of the children of our state. If you have any questions about this dental survey, please contact Dr. Steven J. Steed at (801) 538-9177.

Sincerely,

Steven J. Steed, DDS
State Dental Director

Para español, vea del otro lado

Appendix B-1

Access to Care by Race

Table 9. Access to Care by Race

	All		White		Non–White*	
	Weighted Percent	95% Confidence Interval	Weighted Percent	95% Confidence Interval	Weighted Percent	95% Confidence Interval
Type of Dental Insurance						
Medicaid	11.9	10.5 – 13.3	9.1	7.7 – 10.5	24.5	19.9 – 29.1
CHIP	7.6	6.4 – 8.9	7.0	5.7 – 8.4	10.4	7.0 – 13.9
Private	46.0	43.8 – 48.2	50.6	48.1 – 53.1	24.6	20.4 – 28.8
Other	11.8	10.4 – 13.1	12.1	10.5 – 13.7	10.2	7.7 – 12.7
None	21.9	20.0 – 23.8	20.5	18.5 – 22.5	28.2	23.4 – 33.0
Don't know	0.9	0.5 – 1.3	0.6	0.3 – 1.0	2.1	0.5 – 3.6
Dental Visits						
Less than 6 months	57.8	55.6 – 60.0	60.3	57.9 – 62.8	46.1	40.7 – 51.4
6 months – <1 year	24.0	22.1 – 26.0	22.9	20.8 – 25.0	29.3	24.3 – 34.3
1 year – 3 years	12.2	10.7 – 13.7	12.2	10.5 – 13.8	12.2	8.9 – 15.6
More than 3 years	1.7	1.1 – 2.4	1.2	0.6 – 1.8	4.2	1.9 – 6.6
Never visited	3.7	2.8 – 4.6	2.8	2.0 – 3.7	7.7	4.8 – 10.7
Don't know/not sure	0.6	0.3 – 0.8	0.6	0.2 – 0.9	0.5	0.0 – 1.0
Unmet Dental Needs						
Yes	13.4	11.8 – 14.9	11.0	9.5 – 12.6	24.4	19.6 – 29.2
No	86.6	85.1 – 88.2	89.0	87.4 – 90.5	75.6	70.8 – 80.4
Primary Reasons for Not Obtaining Needed Care						
Could not afford it	61.1	54.8 – 67.4	66.1	58.6 – 73.7	49.9	39.7 – 60.2
No insurance	28.3	22.7 – 34.0	23.1	16.9 – 29.2	40.0	29.7 – 50.3
Other	10.6	6.5 – 14.7	10.8	5.6 – 16.0	10.1	3.8 – 16.4

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

Appendix B-2

Access to Care by Ethnicity

Table 10. Access to Care by Ethnicity						
	All		Hispanic		Non–Hispanic	
	Weighted Percent	95% Confidence Interval	Weighted Percent	95% Confidence Interval	Weighted Percent	95% Confidence Interval
Type of Dental Insurance						
Medicaid	11.9	10.5 – 13.3	24.6	17.8 – 27.3	8.6	7.1 – 10.0
CHIP	7.6	6.4 – 8.9	14.2	10.6 – 17.8	5.9	4.6 – 7.3
Private	46.0	43.8 – 48.2	18.7	14.7 – 22.7	52.3	49.6 – 55.0
Other	11.8	10.4 – 13.1	7.9	5.5 – 10.2	12.8	11.1 – 14.6
None	21.9	20.0 – 23.8	33.0	28.0 – 37.9	19.8	17.7 – 22.0
Don't know	0.9	0.5 – 1.3	1.7	0.4 – 3.1	0.5	0.2 – 0.9
Dental Visits						
Less than 6 months	57.8	55.6 – 60.0	42.5	37.4 – 47.6	62.4	59.7 – 65.0
6 months – <1 year	24.0	22.1 – 26.0	29.3	24.5 – 34.1	21.9	19.7 – 24.2
1 year – 3 years	12.2	10.7 – 13.7	16.4	12.6 – 20.3	11.3	9.5 – 13.0
More than 3 years	1.7	1.1 – 2.4	3.8	1.8 – 5.8	1.2	0.5 – 1.8
Never visited	3.7	2.8 – 4.6	6.7	4.0 – 9.4	2.9	1.9 – 3.9
Don't know/not sure	0.6	0.3 – 0.8	1.3	0.1 – 2.6	0.3	0.1 – 0.6
Unmet Dental Needs						
Yes	13.4	11.8 – 14.9	25.0	20.6 – 29.4	10.3	8.7 – 12.0
No	86.6	85.1 – 88.2	75.0	70.6 – 79.5	89.7	88.0 – 91.3
Primary Reasons for Not Obtaining Needed Care						
Could not afford it	61.1	54.8 – 67.4	45.6	35.2 – 56.0	70.6	62.3 – 78.9
No insurance	28.3	22.7 – 34.0	44.7	33.6 – 55.7	19.8	12.9 – 26.7
Other	10.6	6.5 – 14.7	9.8	3.3 – 16.2	9.6	4.1 – 15.2

Appendix C

Parent Questionnaire (English)

Dental Survey Consent Form

Screening Number

Please complete this Dental Survey Consent Form and return it to your child's teacher. Thank you.

Please complete the following information for your child.

Child's name: _____ _____
Last First Date of birth (Mo/Day/Yr)

_____ _____ _____
School Name Teacher's Name Grade

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

Race: ☐ White ☐ Black/African American ☐ American Indian/Alaskan Native
☐ Asian ☐ Hawaiian/Pacific Islander ☐ Other _____ (check all that apply)

Please answer the following questions to help us learn more about access to dental care.

1. Do you have any kind of insurance that pays for some or all of your child's **dental care**? (check one)
   ☐ Medicaid ☐ CHIP ☐ Private insurance
   ☐ Other ☐ None ☐ Don't know/not sure

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 all other dental specialists, as well as dental hygienists. (check one)
   ☐ Less than 6 months ☐ 1 year - 3 years ☐ Never visited
   ☐ 6 months -1 year ☐ More than 3 years ☐ Don't know/not sure

3. During the past 12 months, was there a time when your child needed dental care but could not get it at that time?
   ☐ Yes ☐ No (Go to # 5)

4 If your child could not get the dental care he/she needed, what was the main reason he/she couldn't get care? (check one)
   ☐ Could not afford it ☐ No insurance
   ☐ Other reason _____

5. What source of water does your child usually drink?
   ☐ Bottled water ☐ Tap water

6 Has your child ever taken fluoride tablets or drops? (Do not include toothpaste, mouth rinse, gels or varnish)
   ☐ Yes ☐ No ☐ Don't know/not sure

7. At what ages did your child take fluoride tablets or drops? (check all that apply.)
   ☐ birth - 2 years old ☐ 3 - 5 years old ☐ 6 years old - present

8. Please list the cities and states your child has lived in and the ages of when they lived in that city.

City	Age
_____	_____
_____	_____
_____	_____

☐ **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.**

_____ _____
Signature of Parent or Guardian Date

(____)_____ (____)_____
Home Phone Number Work Phone Number

Appendix D

List of Participated Schools

Table 11. List of Schools that Participated in the Oral Health Survey

Local Health Department	*District*	*School*
Bear River		
	Box Elder	McKinley
	Cache	Park
Central		
	North Sanpete	Fairview
	Sevier	Monroe
Davis		
	Davis	Hill Field
		Snow Horse
Salt Lake		
	Canyons	Silver Mesa
	Granite	Redwood
	Murray	Parkside Elementary
	Salt Lake	Escalante
Southeastern		
	Carbon	Bruin Point
	Grand	Helen M. Knight
Southwestern		
	Beaver	Minersville
	Iron	Three Peaks
	Washington	Sandstone
Summit		
	Park City	Parley's Way
Tooele		
	Tooele	West
TriCounty		
	Uintah	Discovery
		Lapoint Elementary
Utah		
	Alpine	Bonneville
		Meadow
Wasatch		
	Wasatch	Old Mill
Weber		
	Morgan	Morgan
	Ogden	Wasatch
	Weber	Roosevelt

Appendix E

Utah's Oral Health Programs and 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 a group of volunteer dentists and hygienists to provide free services for the homeless and indigent. Because of the tremendous demand for free dental care, individuals seeking care enter their name into a drawing a day ahead of time and patients who are treated are those whose names are "drawn" daily.

SLDDS offers two programs. One is a donated dental program and the second is a discounted dental program. With the discounted dental program, fees average about 50% less than what one would find in a private practice.

Sealants for Smiles

Sealants for Smiles is a school-based dental sealant program in Utah. It provides oral health education, application of dental sealants, and fluoride varnish application to underserved children in Salt Lake, Tooele, and Davis Counties. The program serves second and sixth grade children in Title I and low income schools, where more than 50% of children are eligible for free or reduced price lunch.

Family Dental Plan

Family Dental Plan (FDP) consists of five dental clinics and a mobile operation that can be taken to various rural locations throughout the state of Utah. Clinics are located in Salt Lake, Ogden, West Valley City, and St. George. FDP is self-funded. The plan provides cost-effective dental services in a patient-friendly environment for patients on Medicaid, PCN, and CHIP. Care is delivered by highly trained professional staff.

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's Oral Health Coalition

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

- Increasing community awareness of the oral health needs in the state by communicating with policy makers and with 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.

To learn more about these and other programs and additional resources available throughout the state, please contact the Utah Oral Health Program at (801) 538-9177 or visit www.health.utah.gov/oralhealth.

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HEALTH


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