

# Sonoma County Smile Survey



**AN ORAL HEALTH ASSESSMENT OF SONOMA COUNTY'S  
KINDERGARTEN AND 3<sup>RD</sup> GRADE CHILDREN**

**JUNE, 2009**

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# Sonoma County Smile Survey

## AN ORAL HEALTH ASSESSMENT OF SONOMA COUNTY'S KINDERGARTEN AND 3<sup>RD</sup> GRADE CHILDREN

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### EXECUTIVE SUMMARY

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Tooth decay (dental caries) is an infectious disease process affecting both children and adults. It is probably the most prevalent – yet the most preventable – disease known to man. By the age of 18, about 80 percent of children in the United States have experienced dental disease in the form of tooth decay.<sup>1</sup>

While the prevalence of tooth decay in the U.S. has declined over the last 30 years, certain groups suffer disproportionately from dental disease – including both low-income and minority children. Two major factors affect an individual's overall oral health status: their disease rate and their ability to access and obtain dental treatment. Unfortunately, those individuals at highest risk of dental disease are also the least likely to have access to routine professional dental care.

#### Key Points:

- ⇒ Tooth decay is a significant problem for elementary school children in Sonoma County.
- ⇒ 16% have untreated tooth decay.
- ⇒ 4% need urgent dental care because of pain or infection.
- ⇒ Very few children in Sonoma County have access to dental sealants; a proven method for preventing tooth decay.

The public perception – especially among those who can afford dental care or have dental insurance – is that tooth decay is a natural and minor occurrence that deserves little attention or dollars. However, if left untreated tooth decay can lead to needless pain and suffering; difficulty in speaking, chewing, and swallowing; lost school days; increased cost of care; and loss of self-esteem. In 1996, children ages 5 to 17 years missed 1,611,000 school days due to acute dental problems – an average of 3.1 days per 100 students.<sup>2</sup> The good news is that most oral diseases are preventable. Some of the methods to prevent tooth decay include dental sealants, drinking fluoridated water, using toothpaste that contains fluoride, limiting sugar intake, and having access to dental care.

In order to obtain information on the oral health of kindergarten and 3<sup>rd</sup> grade children in Sonoma County, a county wide oral health needs assessment was conducted during the 2008-2009 school year. Information from the *Sonoma County Smile Survey* will be used to develop policy recommendations designed to improve the oral health of elementary school children. To share what we learned through the *Sonoma County*

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<sup>1</sup> National Center for Health Statistics. National Health and Nutrition Examination Survey III, 1988-94. Hyattsville, MD: Centers for Disease Control and Prevention, unpublished data.

<sup>2</sup> National Center for Health Statistics. Current estimates from the National Health Interview Survey, 1996 (Vital and Health Statistics; Series 10, Data from the National Health Survey; no. 200). Hyattsville, MD: U.S. Department of Health and Human Services, National Center for Health Statistics, 1996.

*Smile Survey*, we have organized this report into six key findings, and for each we present our data in terms of graphs and tables. We hope that you find this information both informative and useful.

### KEY FINDINGS

- ◆ An epidemic of dental disease is compromising the health and quality of life of Sonoma County's children. Almost half of our kindergarteners and about 6 out of 10 3<sup>rd</sup> graders have experienced tooth decay, and over 16% of them have *untreated* decay. Left untreated, tooth decay often has serious consequences, including needless pain and suffering, difficulty speaking and chewing and lost days in school.
- ◆ More than 425 kindergarteners and third graders in Sonoma County have serious problems from dental disease – abscesses, inflammation and pain. All of these can lead to reduced school performance, lack of concentration and absenteeism. Extrapolated to all school children in Sonoma County, more than 2,800 children could be suffering from advanced dental disease.
- ◆ Most children in Sonoma County do not have dental sealants, a well accepted clinical intervention to prevent tooth decay on molar teeth.
- ◆ Poor children and children of color are much more likely to have tooth decay and suffer the consequences of untreated disease.
- ◆ Sonoma County has met the Healthy People 2010 objective for reducing the prevalence of untreated tooth decay and, but has not met the Healthy People 2010 objectives for decay experience or increasing the prevalence of dental sealants.
- ◆ Increasing resources for dental treatment are needed, but will not alone stem the tide of dental disease. More resources for early preventive activities are also needed.

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## INTRODUCTION

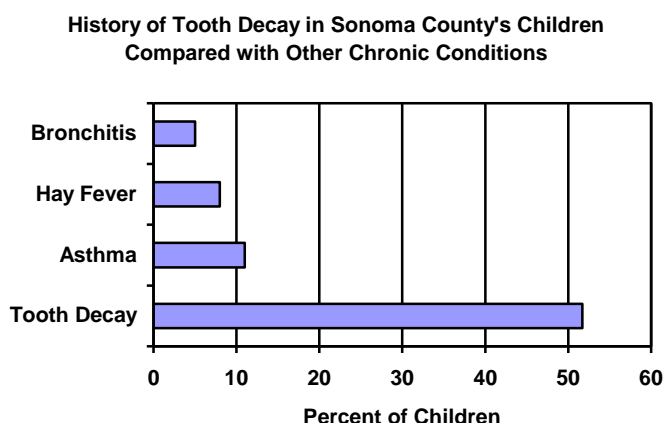
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### **“The mouth reflects general health and well-being.”**

Former Surgeon General David Satcher, 2001

Tooth decay (dental caries) is the single most common chronic disease of childhood, occurring five to eight times more frequently than asthma, the second most common chronic disease in children.<sup>1</sup> Although preventable, tooth decay affects more than half of all children by the third grade and by the time students finish high school; about 80 percent have decay.<sup>2</sup> Tooth decay is not simply a hole in a tooth – if left untreated it can lead to needless pain and suffering;

difficulty in speaking, chewing, and swallowing; lost school days; increased costs of care; and loss of self-esteem. In 1996, students ages 5 to 17 years missed 1,611,000 school days due to acute dental problems – an average of 3.1 days per 100 students.<sup>3</sup>



While the prevalence and severity of tooth decay has declined dramatically among U.S. school-aged children, it remains a significant problem in some populations – particularly certain racial and ethnic groups and poor children.<sup>4</sup> National data indicate that 80 percent of tooth decay in children is concentrated in 25 percent of the child population.<sup>5</sup> Poor people and racial/ethnic minority groups have more untreated oral disease than does the population as a whole. According to national data, poor Mexican-American children are about three times more likely to have untreated decay compared to a higher income non-Hispanic white child.

Unfortunately, poverty is a problem for a significant portion of Sonoma County residents. According to the U.S. Census Bureau ([www.census.gov](http://www.census.gov)), nine percent of families in Sonoma County with children less than 18 years live below the federal

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<sup>1</sup> Edelstein B, Douglass C. Dispelling the cavity free myth. Public Health Reports 1995, 110:522-30.

<sup>2</sup> National Center for Health Statistics. National Health and Nutrition Examination Survey III, 1988-94. Hyattsville, MD: Centers for Disease Control and Prevention, unpublished data.

<sup>3</sup> National Center for Health Statistics. Current estimates from the National Health Interview Survey, 1996 (Vital and Health Statistics; Series 10, Data from the National Health Survey; no. 200). Hyattsville, MD: U.S. Department of Health and Human Services, National Center for Health Statistics, 1996.

<sup>4</sup> Vargas CM, Crall JJ, Schneider DA. Sociodemographic distribution of pediatric dental caries, NHANES III, 1988-1994. J Am Dent Assoc 1998,129:1229-38.

<sup>5</sup> Kaste LS, Selwitz RH, Oldakowski RJ, Brunelle JA, Winn DM, Brown LJ. Coronal caries in the primary and permanent dentition of children and adolescents 1-17 years of age: United States 1988-91. J Dent Research 1996, 75:631-41.

poverty level. Since low-income children are more likely to have untreated decay, the need for dental care could potentially overburden the County's oral health care system.

We hope that by recognizing and understanding the oral health needs of Sonoma County's children, we will be able to contribute to policies that will ensure all children receive the oral health care they need. The answers to effective policies to protect children's oral health lie in a few sound principles outlined in the 2000 *Oral Health in America: A Report of the Surgeon General*. Some of the approaches to promote oral health include:

- ◆ Change perceptions regarding oral health and disease so that oral health becomes an accepted component of general health.
- ◆ Build an effective health infrastructure that meets the oral health needs of all Americans and integrates oral health effectively into overall health.
- ◆ Remove known barriers between people and oral health services.
- ◆ Use public-private partnerships to improve the oral health of those who still suffer disproportionately from oral diseases.

This needs assessment demonstrates that we still face many barriers to improving the oral health of Sonoma County's children. We are seeing more dental disease among children, and we have fewer dentists in the County than we need to provide essential preventive and restorative services. In order to reverse these trends, we need to mobilize resources, including both public and private oral health care providers.

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## METHODS

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During the 2008-2009 school year, oral health screenings were completed at randomly selected elementary schools throughout Sonoma County. Fifteen elementary schools were selected; one school declined to participate and one school only allowed us to screen kindergarten students. Trained dental examiners completed all of the screenings using the diagnostic criteria developed and published by the Association of State and Territorial Dental Directors (*Basic Screening Surveys: An Approach to Monitoring Community Oral Health*, [www. astdd.org](http://www.astdd.org)). Four oral health indicators were collected for each child screened – presence of decayed teeth, presence of filled teeth, presence of dental sealants, and treatment urgency. Only those children that returned a positive consent form were screened.

Data analysis was completed using SAS 9.1 (Cary, NC). Data obtained through the oral health screening has been adjusted to account for both the sampling scheme and non-response.

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## RESULTS

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The *Sonoma County Smile Survey* screened 808 kindergarten and 675 3<sup>rd</sup> grade children; 82% of students enrolled in the 15 sample schools. About half of the children screened were male, 56% were Hispanic and 32% were white non-Hispanic.

To make this complex information easier to understand, the results are being presented in terms of six key findings. The data to support each finding is presented both graphically as well as in text format. The six key findings from the *Sonoma County Smile Survey* are as follows:

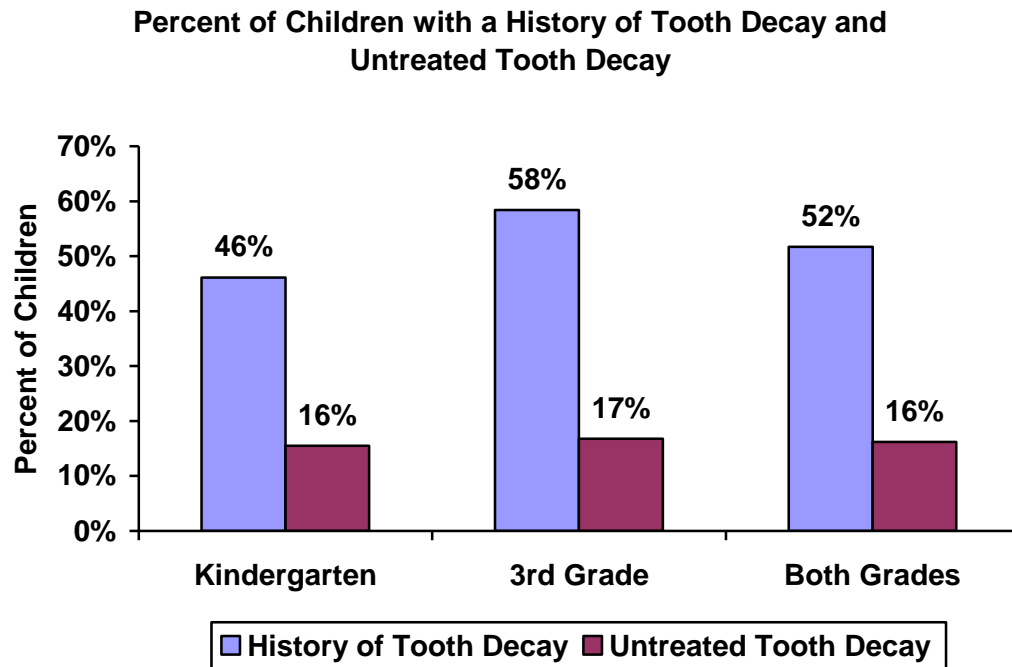
- #1: An epidemic of dental disease is compromising the health and quality of life of Sonoma County's children. Almost half of our kindergarteners and about 6 out of 10 3<sup>rd</sup> graders have experienced tooth decay, and over 16% of them have *untreated* decay. Left untreated, tooth decay often has serious consequences, including needless pain and suffering, difficulty speaking and chewing and lost days in school.
- #2: More than 425 kindergarteners and third graders in Sonoma County have serious problems from dental disease – abscesses, inflammation and pain. All of these can lead to reduced school performance, lack of concentration and absenteeism. Extrapolated to all school children in Sonoma County, more than 2,800 children could be suffering from advanced dental disease.
- #3: Most children in Sonoma County do not have dental sealants, a well accepted clinical intervention to prevent tooth decay on molar teeth.
- #4: Poor children and children of color are much more likely to have tooth decay and suffer the consequences of untreated disease.
- #5: Sonoma County has met the Healthy People 2010 objective for reducing the prevalence of untreated tooth decay and, but has not met the Healthy People 2010 objectives for decay experience or increasing the prevalence of dental sealants.
- #6: Increasing resources for dental treatment are needed, but will not alone stem the tide of dental disease. More resources for early preventive activities are also needed.



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**KEY FINDING #1: AN EPIDEMIC OF DENTAL DISEASE IS COMPROMISING THE HEALTH AND QUALITY OF LIFE OF SONOMA COUNTY’S CHILDREN. ALMOST HALF OF OUR KINDERGARTENERS AND ABOUT 6 OUT OF 10 3RD GRADERS HAVE EXPERIENCED TOOTH DECAY, AND OVER 16% OF THEM HAVE UNTREATED DECAY. LEFT UNTREATED, TOOTH DECAY OFTEN HAS SERIOUS CONSEQUENCES, INCLUDING NEEDLESS PAIN AND SUFFERING, DIFFICULTY SPEAKING AND CHEWING AND LOST DAYS IN SCHOOL.**

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Forty-six percent of the kindergarten and 58% of the 3<sup>rd</sup> grade children screened had a history of tooth decay; which means that they had at least one tooth that was either decayed or had been filled because of tooth decay. This is **5 times higher** than the prevalence of the next most common chronic disease of childhood – asthma.

The proportion of children with untreated tooth decay was fairly consistent across grades with almost 2 out of every 10 children having untreated decay. It should be noted that the manifestations of tooth decay in children go beyond pain and infection. Left untreated, tooth decay often has serious consequences, including needless pain and suffering, difficulty speaking and chewing and lost days in school.<sup>1</sup>

Refer to Table 1.

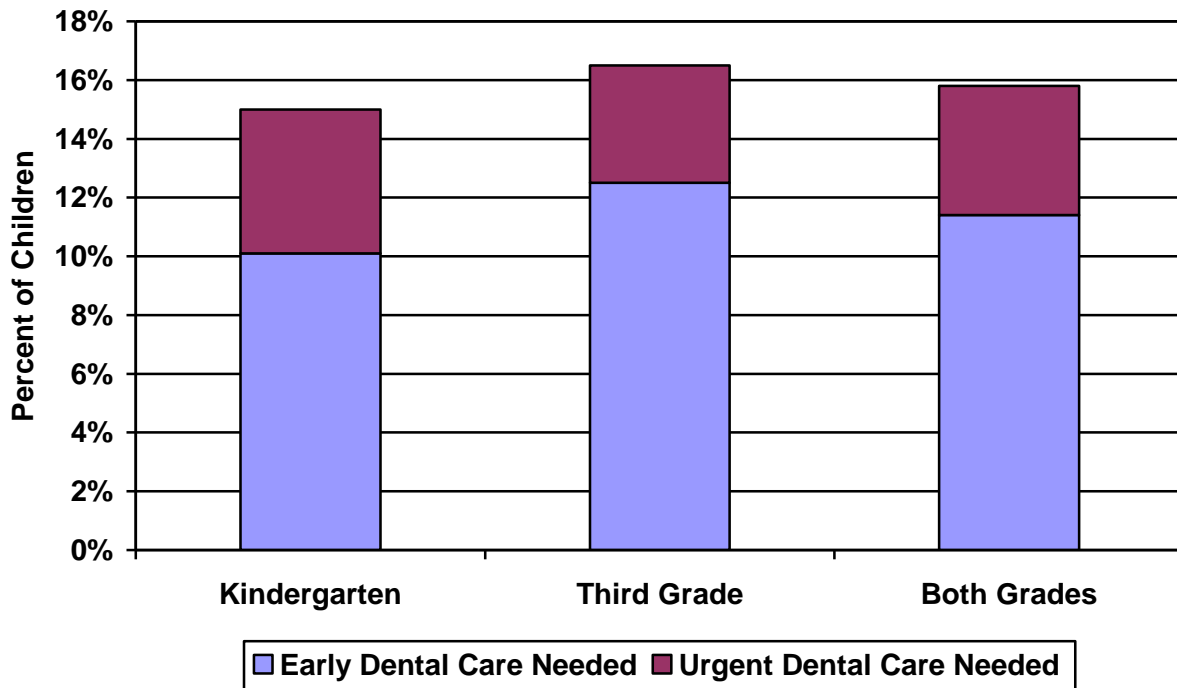
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<sup>1</sup> National Center for Education in Maternal and Child Health. Oral health and learning: when children’s oral health suffers, so does their ability to learn, <http://www.mchoralhealth.org/PDFs/Learningfactsheet.pdf>.



**KEY FINDING #2: MORE THAN 425 KINDERGARTENERS AND THIRD GRADERS IN SONOMA COUNTY HAVE SERIOUS PROBLEMS FROM DENTAL DISEASE – ABSCESSSES, INFLAMMATION AND PAIN. ALL OF THESE CAN LEAD TO REDUCED SCHOOL PERFORMANCE, LACK OF CONCENTRATION AND ABSENTEEISM.**

**Need for Early and Urgent Dental Care**



Almost 16 percent of the children screened had a need for dental care; 11% needed non-urgent or early dental care while an additional **4% needed urgent dental care** because of pain or infection. In 2008-2009 there were more than 10,750 kindergarten and 3<sup>rd</sup> grade children in Sonoma County. If 4% are in urgent need of dental care, this means that more than 425 kindergarten and 3<sup>rd</sup> grade children are in the classroom in pain or with an oral infection. Extrapolated to all 71,000 school children in Sonoma County, about 2,800 school aged children could be suffering from advanced dental disease.

For the *Smile Survey* we did not do complete diagnostic dental examinations. We did dental screenings - "Say 'Ah,'" a look inside with a dental mirror, no x-rays, none of the more advanced diagnostic tools. So we probably missed some problems. It is reasonable to assume that these numbers actually **underestimate the proportion of children needing dental care.**

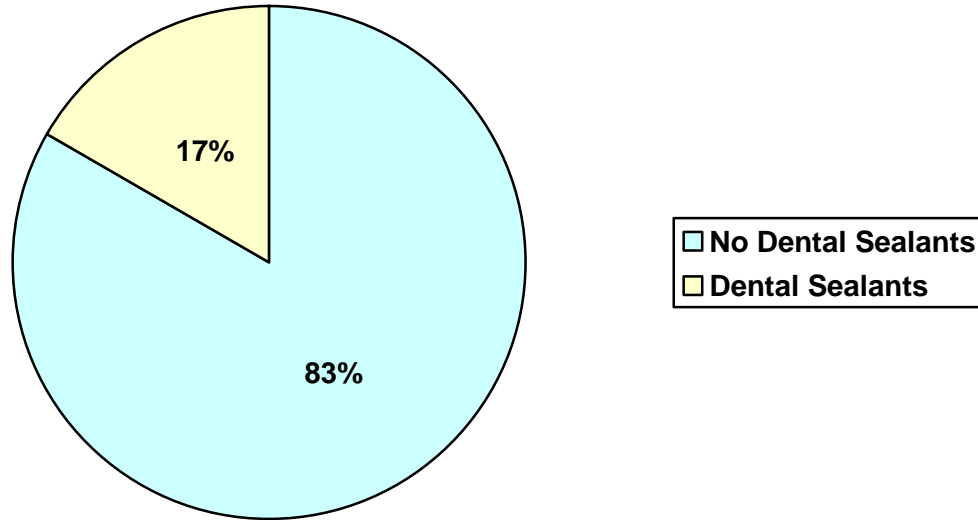
Refer to Table 1.

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**KEY FINDING #3: MOST CHILDREN IN SONOMA COUNTY DO NOT HAVE DENTAL SEALANTS, A WELL ACCEPTED CLINICAL INTERVENTION TO PREVENT TOOTH DECAY ON MOLAR TEETH.**

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**Percent of Sonoma County's Third Graders with Dental Sealants**



Dental sealants are a plastic coating applied to the chewing surfaces of the back teeth. They are a safe, effective way to prevent tooth decay among schoolchildren. Sealants have been shown to significantly reduce a child's risk for having untreated decay. In some cases, sealants can even stop tooth decay that has already started.<sup>1</sup> In Sonoma County, only 17% of the third grade children screened had dental sealants.

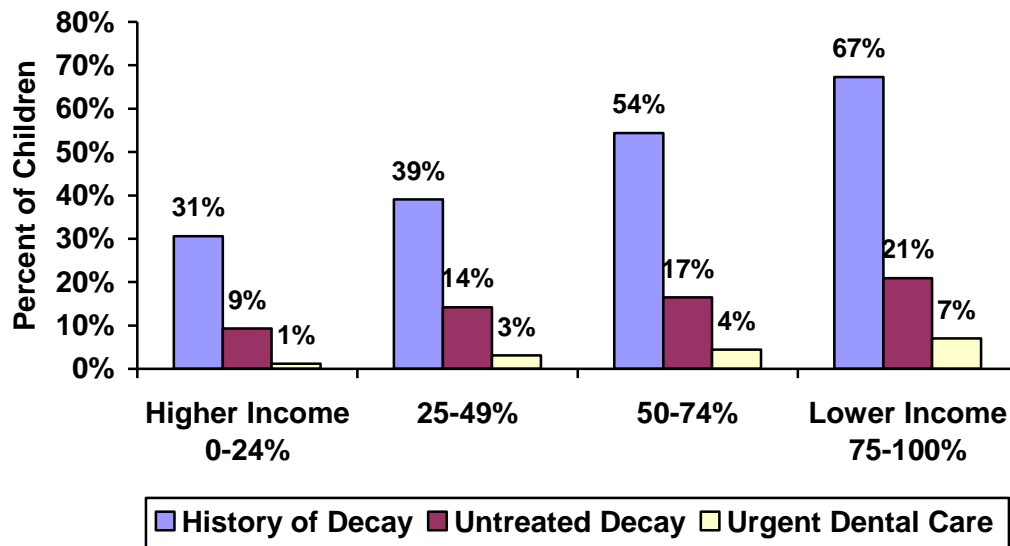
Refer to Table 1.

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<sup>1</sup> Heller KE, Reed SG, Bruner FW, Eklund SA, Burt BA. Longitudinal evaluation of sealing molars with and without incipient dental caries in a public health program. J Public Health Dent. 1995; 55:148-53.

**KEY FINDING #4: POOR CHILDREN AND CHILDREN OF COLOR ARE MUCH MORE LIKELY TO HAVE TOOTH DECAY AND SUFFER THE CONSEQUENCES OF UNTREATED DISEASE.**

**Oral Health of Kindergarten & 3rd Grade Children by Percent of Students Eligible for the FRL Program**



Eligibility for the free and/or reduced price lunch (FRL) program is often used as an indicator of overall socioeconomic status. To be eligible for the FRL program during the 2008-2009 school year, annual family income for a family of four could not exceed \$39,220.<sup>1</sup> Information on an individual child’s participation in the FRL program was not available; however, the percentage of children participating in the FRL program in each school was known. Compared to children from “higher income” schools, children in schools where  $\geq 75\%$  of children participates in the FRL program had a significantly higher prevalence of decay experience, untreated decay and urgent dental care needs.

If you are a child in Sonoma County, the poorer you are, the more likely it is that your teeth hurt – and it is especially likely if you are Hispanic or a member of some other racial or ethnic minority.

Refer to Table 2.

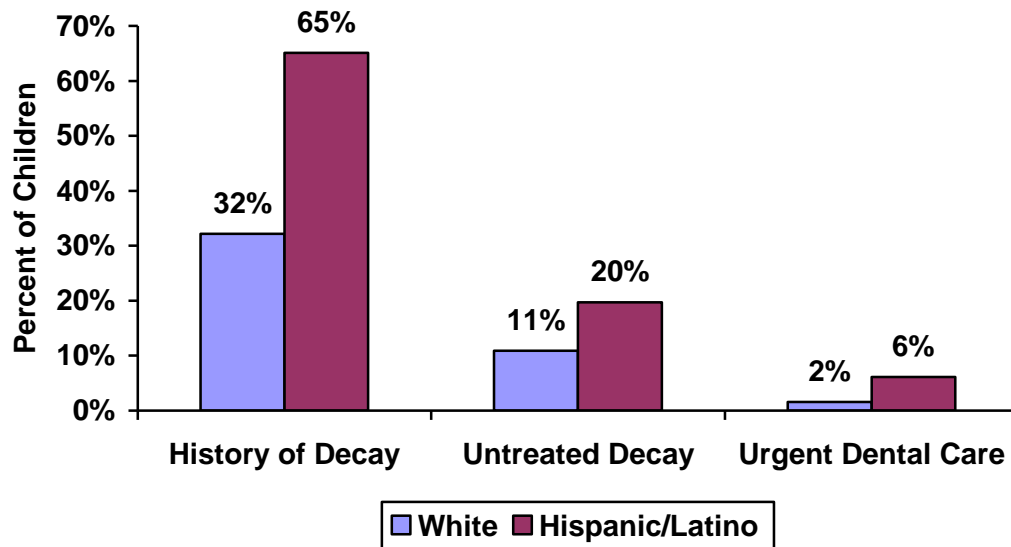
<sup>1</sup> U.S. Department of Agriculture, Child Nutrition Programs, School Lunch Program, Income Eligibility Guidelines SY 2008-2009, <http://www.fns.usda.gov/cnd/governance/notices/iegs/IEGs08-09.pdf>.

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**KEY FINDING #4 (CONT.): POOR CHILDREN AND CHILDREN OF COLOR ARE MUCH MORE LIKELY TO HAVE TOOTH DECAY AND SUFFER THE CONSEQUENCES OF UNTREATED DISEASE.**

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**Oral Health of Kindergarten & 3rd Grade Children by Race and Ethnicity**

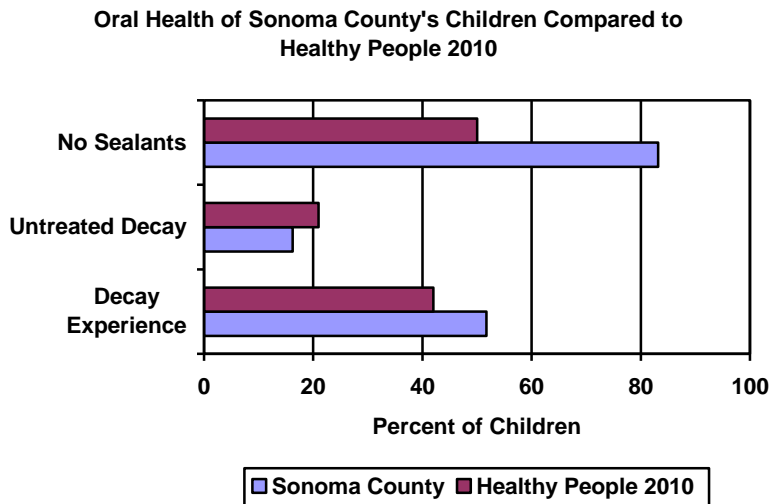


As depicted in the graph, Hispanic children screened had significantly more decay experience, untreated tooth decay and urgent dental care needs than non-Hispanic white children. Oral health disparities between racial/ethnic groups in Sonoma County are further affected by socioeconomic status. Seventy-six percent of the children in the higher income schools were white non-Hispanic while only 8 percent of the children in the lower income schools were white non-Hispanic (Table 3).

Refer to Table 3.

**KEY FINDING #5: SONOMA COUNTY HAS MET THE HEALTHY PEOPLE 2010 OBJECTIVE FOR REDUCING THE PREVALENCE OF UNTREATED TOOTH DECAY AND, BUT HAS NOT MET THE HEALTHY PEOPLE 2010 OBJECTIVES FOR DECAY EXPERIENCE OR INCREASING THE PREVALENCE OF DENTAL SEALANTS.**

*Healthy People 2010* is a set of health objectives for the Nation to achieve over the first decade of this century. The objectives were developed through a broad consultation process, built on the best scientific knowledge and designed to measure programs over time. By using *Healthy People 2010* objectives, communities can measure how the health of their community compares to national objectives.<sup>1</sup>



*Healthy People 2010* includes for following oral health objectives for children aged 6-8 years.

- Reduce the proportion of children with tooth decay experience in either their primary or permanent teeth to 42 percent.
- Reduce the proportion of children with untreated tooth decay in primary or permanent teeth to 21 percent.
- Reduce the proportion of 3<sup>rd</sup> grade children who **do not** have dental sealants to 50%.

Sonoma County has met the *Healthy People 2010* objective for untreated decay which suggests that our treatment programs are working. However, a **significant expansion in our dental sealant programs** must occur in order to meet the national dental sealant goal.

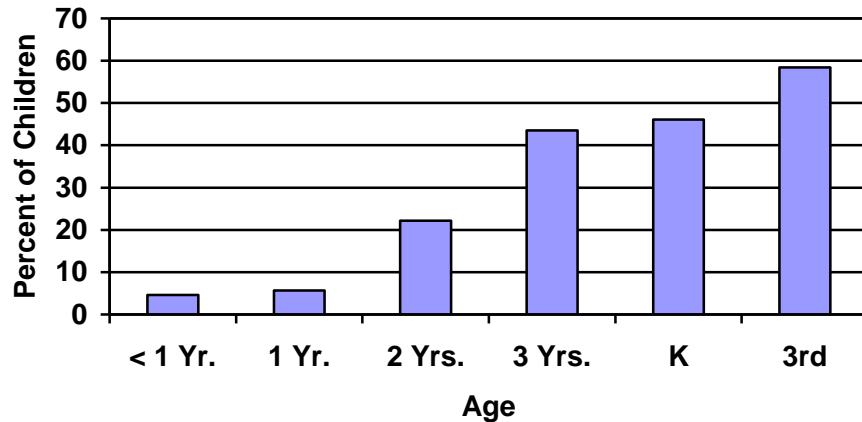
<sup>1</sup> *Healthy People* is managed by the Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services. Additional information on *Healthy People 2010* can be obtained at the *Healthy People* website, [www.healthypeople.gov](http://www.healthypeople.gov).

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**KEY FINDING #6: Increasing resources for dental treatment are needed, but will not alone stem the tide of dental disease. More resources for early prevention activities are also needed.**

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**Prevalence of Decay Experience by Age  
San Joaquin (0-3 years) & Sonoma County (K & 3rd)**



*Healthy Smiles San Joaquin* – a county wide oral health program funded by the San Joaquin County First Five Commission – completed an oral health needs assessment of preschool children in San Joaquin County, CA. Data from this survey is the only publically available data in California on the oral health of very young high-risk children. As shown in the graph, more than 20% of 2 years olds in San Joaquin County had dental decay and the percentage with a history of decay rises with age. In order to prevent disease, efforts must be made before the onset of disease in a large portion of the population. For this reason, it is essential that the medical and dental professions focus dental disease prevention efforts on children less than 2 years of age because **“two is too late and five is way too late”**.

The American Academy of Pediatric Dentistry recommends several strategies for preventing decay in young children – some targeted toward the mother or primary caregiver and some targeted toward the infant.<sup>1</sup> For the mother, general anticipatory guidance should be given which focuses on use of fluoride, oral hygiene, diet, treatment of decay, transmission of cavity causing bacteria, and xylitol chewing gums. For the infant, prevention strategies include fluoride exposure, good oral hygiene, and limiting exposure to sugars in all forms.

For high-risk children, dental decay prevention strategies should be an integral part of health care messages given by pediatricians, nurses, health department staff, teachers, health educators, and day-care providers.

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<sup>1</sup> American Academy of Pediatric Dentistry. Clinical Guideline on Infant Oral Health. Accessed December 2004, [www.aapd.org/media/Policies\\_Guidelines/G\\_InfantOralHealthCare.pdf](http://www.aapd.org/media/Policies_Guidelines/G_InfantOralHealthCare.pdf)

## DATA TABLES



**Table 1: Percent of Sonoma County’s Kindergarten and 3<sup>rd</sup> Grade Children with a History of Tooth Decay, Untreated Decay, Dental Sealants, and Treatment Need Stratified by Grade**

Variable	Kindergarten (n=808)	Third Grade (n=675)	Both Grades (n=1,483)
% with a history of tooth decay	46.1	58.4	51.7
% with untreated decay	15.5	16.8	16.2
% with dental sealants	NA*	16.8	NA*
% needing dental treatment (early & urgent)	14.9	16.6	15.9
% needing urgent treatment	4.9	4.0	4.4

\* Not applicable: This indicator measures the prevalence of sealants on permanent 1<sup>st</sup> molars. Since the majority of kindergarten children do not yet have 1<sup>st</sup> molars, this indicator is only calculated for 3<sup>rd</sup> grade children.

**Table 2: Oral Health Status of Sonoma County’s Kindergarten and 3<sup>rd</sup> Grade Children Stratified by Free or Reduced Price Lunch (FRL) Status of School (% eligible by school)**

Variable	“Higher Income”			“Lower Income”
	< 25% FRL (n=223)	25-49% FRL (n=238)	50-74% FRL (n=454)	≥ 75% FRL (n=568)
% with decay experience	30.6	39.1	54.4	67.3
% with untreated decay	9.3	14.2	16.5	20.9
% with dental sealants*	13.6	17.4	19.6	16.2
% needing dental treatment (early & urgent)	10.1	14.5	15.4	20.2
% needing urgent treatment	1.2	3.1	4.4	7.0
% white non-Hispanic	75.8	52.9	30.0	7.7

\* Information on dental sealants is limited to 3<sup>rd</sup> grade children only.

**Table 3: Oral Health Status of Sonoma County’s Kindergarten and 3<sup>rd</sup> Grade Children Stratified by Race/Ethnicity**

<b>Variable</b>	<b>White (n=475)</b>	<b>Hispanic/Latino (n=828)</b>
% with decay experience	32.2	65.1
% with untreated decay	10.9	19.7
% with dental sealants*	15.6	16.8
% needing treatment (early & urgent)	10.8	19.0
% needing urgent treatment	1.6	6.1

\* Information on dental sealants is limited to 3<sup>rd</sup> grade children only.

# APPENDIX

**Table A1: Participating Children and Schools Compared to Original Sample and Schools in Sampling Frame**

<b>Variable</b>	<b># Schools</b>	<b># of Kindergarten &amp; 3<sup>rd</sup> Graders</b>
All Public Schools with K and/or 3 <sup>rd</sup> Grade	110	10,753
Sampling Frame	96	10,654
Original Sample	15	1,816
Participating Schools	14	1,735
Participating Children	NA	1,483

**NOTE 1:** The sampling frame for this survey included public elementary schools with 20+ students enrolled in kindergarten and/or 3<sup>rd</sup> grade.

**Table A2: Race, Gender and Age of Participating Children**

Variable	Kindergarten	3 <sup>rd</sup> Grade	Total
Number Screened	808	675	1,483
Race/Ethnicity (%)			
White	32.7	31.3	32.0
African American / Black	2.0	1.9	2.0
Hispanic / Latino	55.7	56.0	55.9
Asian	2.8	3.3	3.0
American Indian	0.2	0.1	0.2
Pacific Islander	1.0	0.6	0.8
Multi-racial	1.7	0.7	1.3
Unknown	3.8	6.0	4.9
Gender (%)			
Male	49.1	54.2	51.4
Female	50.7	45.6	48.4
Unknown	0.1	0.1	0.1
Age			
Number with data	802	675	1,477
Age range	5 – 7 years	8 – 10 years	5 – 10 years
Mean (standard deviation)	5.5 (0.53)	8.7 (0.58)	7.0 (1.66)

**Table A3: Oral Health of Sonoma County Kindergarten & Third Grade Children**

Variable	Kindergarten % of children (95% CI)	3 <sup>rd</sup> Grade % of children (95% CI)	Both Grades % of children (95% CI)
Decay experience	46.1 (42.7 – 49.5)	58.4 (54.8 – 62.2)	51.7 (49.2 – 54.2)
Untreated decay	15.5 (13.0 – 18.0)	16.8 (13.9 – 19.6)	16.2 (14.3 – 18.1)
Need treatment (early & urgent)	14.9 (12.5 – 17.4)	16.6 (13.7 – 19.4)	15.9 (14.0 – 17.7)
Need urgent treatment	4.9 (3.3 – 6.4)	4.0 (2.6 – 5.5)	4.4 (3.4 – 5.5)
Dental sealants	NA	16.8 (13.9 – 19.7)	NA

**Note:** Cells highlighted in yellow indicate a significant difference ( $p < 0.05$ ) from kindergarten children screened.

**Table A4: Need for Dental Treatment**

Variable	Kindergarten % of children (95% CI)	3 <sup>rd</sup> Grade % of children (95% CI)	Both Grades % of children (95% CI)
No treatment need	85.1 (82.6 – 87.5)	83.4 (80.6 – 86.3)	84.1 (82.3 – 86.0)
Routine treatment	10.1 (8.1 – 12.1)	12.5 (10.0 – 15.1)	11.4 (9.8 – 13.1)
Urgent treatment	4.9 (3.3 – 6.4)	4.0 (2.6 – 5.5)	4.4 (3.4 – 5.5)

**Table A5: Oral Health of Sonoma County K & 3<sup>rd</sup> Grade Children  
Stratified by Race/Ethnicity**

Variable	Non-Hispanic White % of children (95% CI)	Hispanic / Latino % of children (95% CI)
Number screened	475	828
Decay experience	32.2 (28.0 – 36.5)	65.1 (61.8 – 68.4)
Untreated decay	10.9 (8.1 – 13.7)	19.7 (16.9 – 22.5)
Need treatment (early & urgent)	10.8 (7.9 – 13.7)	19.0 (16.3 – 21.7)
Need urgent treatment	1.6 (0.3 – 2.8)	6.1 (4.4 – 7.7)
<b><i>3<sup>rd</sup> grade children only</i></b>		
Number screened	211	378
Dental sealant	15.6 (10.5 – 20.8)	16.8 (13.0 – 20.6)

**Note:** Cells highlighted in yellow indicate a significant difference ( $p < 0.05$ ) from white children screened.



**Table A6: Oral Health of Sonoma County Children Stratified by Free and Reduced Lunch (FRL) Status of School**

Variable	"Higher Income"		"Lower Income"	
	< 25% FRL (n=223)	25-49% FRL (n=238)	50-74% FRL (n=454)	≥ 75% FRL (n=568)
White non-Hispanic (%)	75.8	52.9	30.0	7.7
Decay experience (%)	30.6 (24.1 – 37.2)	39.1 (32.8 – 45.4)	54.4 (49.9 – 59.0)	67.3 (63.4 – 71.1)
Untreated decay (%)	9.3 (5.1 – 13.5)	14.2 (9.7 – 18.7)	16.5 (13.1 – 19.9)	20.9 (17.5 – 24.2)
Need treatment (%)	10.1 (5.6 – 14.5)	14.5 (10.0 – 19.0)	15.4 (12.0 – 18.7)	20.2 (16.8 – 23.5)
Need urgent treatment (%)	1.2 (0.0 – 2.9)	3.1 (0.8 – 5.4)	4.4 (2.5 – 6.2)	7.0 (4.8 – 9.1)
<b>3<sup>rd</sup> grade children only</b>				
Number screened	119	77	207	271
Dental sealants (%)	13.6 (7.1 – 20.0)	17.4 (8.3 – 26.6)	19.6 (14.2 – 25.1)	16.2 (11.8 – 20.6)

**Note:** Cells highlighted in yellow indicate a significant difference ( $p < 0.05$ ) from the children in the schools with < 25% eligible for FRL.

**Table A7: Percent of Children with Decay Experience, Untreated Decay and Urgent Dental Care Needs Stratified by School**

School	# Screened	% with Decay Experience	% with Untreated Decay	% Needing Urgent Dental Care
Abraham Lincoln	109	67.0%	21.1%	6.4%
Brook Hill	115	70.4%	18.3%	8.7%
Helen Lehman	140	70.7%	24.3%	9.3%
Jefferson	203	47.3%	16.3%	2.0%
John Reed	112	49.5%	14.3%	3.6%
Liberty	50	28.0%	10.0%	2.0%
Mary Collins	76	26.3%	6.6%	0.0%
Meadow View	137	64.2%	22.6%	9.5%
Miwok Valley	100	44.0%	20.0%	4.0%
Monte Rio	24	62.5%	20.8%	8.3%
Oak Grove	97	36.1%	10.3%	1.0%
Olivet	69	34.8%	11.6%	4.3%
Sheppard	182	67.0%	16.5%	3.3%
Valley Vista*	69	37.7%	8.7%	0.0%

\* Only kindergarten children were screened at Valley Vista.

**Table A8: Number of Children Screened and Response Rate at Each School**

School	% of Students on FRL	# K Enrolled	# 3 <sup>rd</sup> Enrolled	# K Screened	# 3 <sup>rd</sup> Screened	K Response Rate	3 <sup>rd</sup> Response Rate
Abraham Lincoln	96%	58	61	52	57	90%	93%
Brook Hill	50%	73	61	62	53	85%	87%
Helen Lehman	89%	83	78	70	70	84%	90%
Jefferson	61%	123	116	104	99	85%	85%
John Reed	55%	78	57	69	43	88%	75%
Liberty	9%	26	32	23	27	88%	84%
Live Oak Charter*	0%	54	27	0	0	0%	0%
Mary Collins	16%	40	46	35	41	88%	89%
Meadow View	77%	80	78	68	69	85%	88%
Miwok Valley	49%	60	54	54	46	90%	85%
Monte Rio	68%	13	13	12	12	92%	92%
Oak Grove	23%	53	58	46	51	87%	88%
Olivet	38%	40	39	38	31	95%	79%
Sheppard	83%	116	79	106	76	91%	96%
Valley Vista**	30%	72	48	69	0	96%	0%

\* Live Oak Charter refused to participate.

\*\* Valley Vista only allowed kindergarten to participate.