

# Bellingham Smile Survey

2005 Final Report



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## Executive Summary

In 2004, the Whatcom County Oral Health Coalition asked the Whatcom County Health Department to conduct a local oral health screening of 3<sup>rd</sup> grade children attending public schools in the Bellingham district in conjunction with the statewide Smile Survey.

A Registered Dental Hygienist screened 84% of Bellingham 3<sup>rd</sup> grade students (653 children).

- 60% of children had experienced tooth decay (cavities). This is much higher than the Healthy People 2010 national target of 42%. 20% of the 3<sup>rd</sup> graders had untreated decay.
- 22% of children had rampant tooth decay, defined as 7 or more teeth with treated or untreated decay. This is a significantly higher rate than the statewide rate of 15% (2000 WA Smile Survey).
- 19% of children were referred for dental treatment, including 2% referred for urgent treatment due to pain, infection or swelling.
- 51% of children had at least one dental sealant on a permanent molar. This meets the Healthy People 2010 national target of 50% and can be attributed to Bellingham Public Schools participating in a school-based sealant program.
- Low-income children (those on the free or reduced lunch program) were significantly more likely to have experienced tooth decay, have untreated tooth decay, and rampant decay, and be referred for dental treatment than children that were not low-income.
- While low-income children have higher rates of tooth decay, over 50% of children who are not low-income also experience tooth decay and 14% have untreated tooth decay.

Tooth decay is an infectious, transmissible disease with multiple contributing factors. It is the most common chronic disease of childhood, five times more common than asthma. Given the preventable nature of dental decay and its significant consequences for children – pain, missed school days, difficulty eating, lower self-esteem, and potential for lifelong dental problems, Whatcom County Health Department makes the following recommendations:

- 1) Whatcom County communities should consider community water fluoridation where feasible,
- 2) Expand and encourage school-based dental sealant programs,
- 3) Improve access to dental care through programs like Access to Baby and Child Dentistry (ABCD), and
- 4) Expand oral health education activities for parents and children.

For more information about this report call 360-676-4593 Janet Davis at Ext. 32009.

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## Final Report

### Introduction

Approximately every 5 years, the Washington State Department of Health (DOH) conducts a statewide oral health screening of children in preschools and elementary schools called the Smile Survey. In 2000, the statewide Smile Survey sample included 2 elementary schools from Whatcom County. While data from these schools contributed to the statewide results, the sample size was too small to draw conclusions specific for our community.

The 2005 DOH Smile Survey sample did not include any schools in Whatcom County, so the Whatcom County Oral Health Coalition recommended the implementation of a local survey to the Whatcom County Health Department. The Coalition recommended a partnership with the Bellingham School District to conduct a survey focused on children attending Bellingham public schools in conjunction with the DOH Smile Survey. After consultation with the DOH Smile Survey epidemiologist, the Health Department decided to fund and conduct a survey with 3<sup>rd</sup> grade children in Bellingham. A census survey was recommended, meaning that all 3<sup>rd</sup> grade children would be asked to participate.

The purpose of the Bellingham Smile Survey was to provide information to the Oral Health Coalition, Coalition partners, and the Bellingham School District regarding the oral health status of Bellingham's children. This information will be used to compare local children's oral health status with state rates and national goals and to support program and policy development that more effectively meets the oral health needs of children in our community.

### Methods

The Health Department received permission from the Bellingham School District to conduct the survey in all 13 Bellingham elementary schools. The School District provided access to the students and assistance in gathering demographic information. The Health Department contracted with a local Registered Dental Hygienist (RDH) to conduct the dental screenings. The RDH had previous experience providing oral health services in the Bellingham schools and thus had established relationships with many of the school staff. The RDH attended calibration training conducted by DOH to learn the screening methodology. Screeners were asked to be conservative when documenting decay, as stated in the calibration materials, "if you are not sure if a cavity is present, assume it is not." As instructed by DOH, only a penlight was used for lighting. All the schools distributed permission slips to parents before the scheduled screening date. The Bellingham School District approved "passive consent" for this survey, meaning that parents only needed to return the permission slip if they did not want their child to participate. School screenings occurred in January and February of 2005.

A representative from the Health Department attended the school screenings to assist the RDH with logistics and documentation. Typically, the screeners set up a small station directly outside the 3<sup>rd</sup> grade classrooms to reduce the amount of missed class time. Children were called from class 2 at a time to be screened. Sex and race were documented from the school roster. Age and language spoken at home were asked of the child. Free and reduced lunch program status for each child was obtained utilizing a code-based system to maintain school confidentiality policies. The RDH

screened for untreated decay, treated decay, history of rampant decay (7 or more decayed teeth), presence of sealants, and treatment urgency (none, early, or urgent). Child received a toothbrush and mouth mirror as well as a letter to take home to parent stating whether treatment is necessary. Screening took approximately 2 minutes per child. No identifying information (such as student name) was removed from the school.

Data was entered and analyzed utilizing Epi Info 2002. Bellingham data was provided to DOH for possible inclusion in statewide results.

## Results

### Participants

84% of Bellingham 3<sup>rd</sup> grade students (653 children) were screened. Those not screened were either absent on screening day or had returned a permission slip from a parent requesting exclusion from the survey.

School	School FRL %*	# Screened	3 <sup>rd</sup> grade enrollment	% Screened
Alderwood	63%	40	44	91%
Birchwood	63%	48	68	71%
Carl Cozier	37%	43	58	74%
Columbia	31%	30	39	77%
Geneva	20%	76	83	92%
Happy Valley	20%	58	78	74%
Larrabee	39%	31	34	91%
Lowell	26%	44	52	85%
Northern Heights	29%	67	74	91%
Parkview	49%	51	56	91%
Roosevelt	56%	50	62	81%
Silver Beach	15%	66	79	84%
Sunnyland	58%	49	53	92%
	39% (avg.)	653	780	84%

\* The percent of students that are eligible for free or reduced lunch (FRL), which is a proxy for low-income.

### Demographic characteristics:

- 52% of participants were female, 48% male
- 57% were 8 years old, 42% were 9 years old
- 86% reported their language spoken at home to be English, 6% Spanish, and 7% reported another language
- 76% were white, 10% Hispanic, 6% Asian, 3% Black, and 3% Alaska Native/American Indian (obtained from school roster)
- 35% were low-income as defined by free or reduced lunch eligibility.

**Overall Results**

60% of children screened had experienced tooth decay (cavities). Fifty-three percent of 3<sup>rd</sup> graders had treated decay and 20% had untreated decay (12% had both treated and untreated decay). 22% of children screened had a history of rampant decay, defined as 7 or more teeth with treated or untreated decay. 19% of children screened were referred for dental treatment, including 2% referred for urgent care due to pain, infection, or swelling. 51% of children screened had at least one dental sealant.

The following table displays results by free or reduced lunch status. Low-income children (those with FRL status) were significantly more likely to have experienced dental disease, have untreated decay, have a history of rampant decay, and be referred to treatment than children that were not low-income. There was no significant difference among income groups for presence of sealants.

	FRL Status	
	YES	NO
Dental Disease	73%*	53%
Untreated Decay	32%*	14%
History of Rampant Decay	33%*	16%
Needing Treatment	31%*	13%
Needing URGENT TX	4%	1%
Sealants	48%	52%

\*Statistically significant difference with 95% confidence interval

**Comparison with State Rates and National Goals**

Because the 2005 WA State Smile Survey will not be complete until December 2005, the best comparison to WA State data at this time is the 2000 Smile Survey results. National goals were taken from the Healthy People 2010 Oral Health section. Bellingham 3<sup>rd</sup> graders have a significantly higher rate of history of rampant decay than children statewide. Also, dental disease among Bellingham’s children is much higher than the national target of 42%.

	Bellingham 2005	WA State 2000	National 2010 Goal
Dental Disease	60%	58%	42%
Untreated Decay	20%	21%	21%
History of Rampant Decay	22%*	15%	NA
Needing Treatment	19%	21%	NA
Needing Urgent Treatment	2%	3%	NA
Sealants	51%	56%	50%

\* Statistically significant difference with 95% confidence interval

**See Appendix A for results by school**

## Conclusions

The 2005 Bellingham Smile Survey results demonstrate that almost 2/3<sup>rd</sup> of our children have tooth decay, commonly called cavities. 20% of our children are currently experiencing untreated tooth decay, with 2% needing urgent treatment. A more alarming finding is the high rate of rampant decay, more than 1 in 5 children. Bellingham's rate was significantly higher than the statewide rate, indicating this preventable dental disease is more severe in our community than across the State. While low-income children have higher rates of tooth decay, over 50% of children who are not low-income also experience tooth decay and 14% have untreated tooth decay. It is clear that dental disease affects children of all income groups.

A positive outcome indicated by the Smile Survey results was the achievement of the Healthy People 2010 dental sealant goal. The Bellingham School District participates in a school-based sealant program, which has contributed to this success.

## Recommendations

Tooth decay is an infectious, transmissible disease with multiple contributing factors. It is the most common chronic disease of childhood, five times more common than asthma. Given the preventable nature of dental decay and its significant consequences for children – pain, missed school days, difficulty eating, lower self-esteem, and potential for lifelong dental problems, Whatcom County Health Department makes the following recommendations:

- 1) The Oral Health Coalition should consider supporting the following public health interventions:
  - a. Community water fluoridation where feasible,
  - b. School-based dental sealant programs,
  - c. Improved access to dental care through programs like Access to Baby and Child Dentistry (ABCD), and
  - d. Oral health education activities for parents and children.
- 2) Communities should work with the Health Department and Oral Health Coalition to implement the public health interventions most appropriate for their populations.

## Limitations

The 2005 Bellingham Smile Survey screened only 3<sup>rd</sup> graders who attend public school in Bellingham. Children who are home-schooled, or attend a private school were not screened. Additionally, 16% of Bellingham 3<sup>rd</sup> graders did not participate due to absence or parent electing to opt-out of the survey, however significant differences between these groups is unlikely. The Smile Survey is a dental screening and not a diagnostic examination (no magnification or explorers were used) therefore disease rates may be underestimated. Finally, no information was collected on factors contributing to decay rates such as oral hygiene habits, diet, fluoride supplement consumption, or frequency of dental visits. Each of these factors plays a role in the dental disease process; therefore, more than one intervention will be needed to make a difference in disease rates.

For more information about this report call 738-2504 - Diane Lowry ex 31781 or Janet Davis ext 32009.

APPENDIX A  
Results by School

**Alderwood** - 63% of students are on free or reduced lunch program

- ❑ 40 3<sup>rd</sup> grade children (91%) were screened
- ❑ Alderwood participates in school-based dental sealant program

	Definition	Alderwood	Bellingham District
Dental Disease	Treated or untreated decay	63%	60%
Treated Decay	Fillings, pulled teeth, crowns	55%	53%
Untreated Decay	Current decay (cavities)	23%	20%
History of Rampant Decay	7 or more decayed teeth	23%	22%
Sealants	Sealant on permanent molar	50%	51%

**Birchwood** - 63% of students are on free or reduced lunch program

- ❑ 48 3<sup>rd</sup> grade children (71%) were screened
- ❑ Birchwood participates in school-based dental sealant program

	Definition	Birchwood	Bellingham District
Dental Disease	Treated or untreated decay	56%	60%
Treated Decay	Fillings, pulled teeth, crowns	46%	53%
Untreated Decay	Current decay (cavities)	27%	20%
History of Rampant Decay	7 or more decayed teeth	35%	22%
Sealants	Sealant on permanent molar	43%	51%

**Carl Cozier** - 37% of students are on free or reduced lunch program

- ❑ 43 3<sup>rd</sup> grade children (74%) were screened
- ❑ Carl Cozier participates in school-based dental sealant program

	Definition	Carl Cozier	Bellingham District
Dental Disease	Treated or untreated decay	57%	60%
Treated Decay	Fillings, pulled teeth, crowns	55%	53%
Untreated Decay	Current decay (cavities)	17%	20%
History of Rampant Decay	7 or more decayed teeth	26%	22%
Sealants	Sealant on permanent molar	42%	51%

**Columbia** - 31% of students are on free or reduced lunch program

- ❑ 30 3<sup>rd</sup> grade children (77%) were screened
- ❑ Columbia does not participate in school-based dental sealant program

	Definition		Bellingham District
Dental Disease	Treated or untreated decay	67%	60%
Treated Decay	Fillings, pulled teeth, crowns	67%	53%
Untreated Decay	Current decay (cavities)	20%	20%
History of Rampant Decay	7 or more decayed teeth	10%	22%
Sealants	Sealant on permanent molar	50%	51%

**Geneva** - 20% of students are on free or reduced lunch program

- ❑ 76 3<sup>rd</sup> grade children (92%) were screened
- ❑ Geneva does not participate in school-based dental sealant program

	Definition	Geneva	Bellingham District
Dental Disease	Treated or untreated decay	61%	60%
Treated Decay	Fillings, pulled teeth, crowns	47%	53%
Untreated Decay	Current decay (cavities)	22%	20%
History of Rampant Decay	7 or more decayed teeth	18%	22%
Sealants	Sealant on permanent molar	57%	51%

**Happy Valley** - 20% of students are on free or reduced lunch program

- ❑ 58 3<sup>rd</sup> grade children (74%) were screened
- ❑ Happy Valley participates in school-based dental sealant program

	Definition	Happy Valley	Bellingham District
Dental Disease	Treated or untreated decay	59%	60%
Treated Decay	Fillings, pulled teeth, crowns	59%	53%
Untreated Decay	Current decay (cavities)	14%	20%
History of Rampant Decay	7 or more decayed teeth	14%	22%
Sealants	Sealant on permanent molar	50%	51%

**Larrabee** - 39% of students are on free or reduced lunch program

- 31 3<sup>rd</sup> grade children (91%) were screened
- Larrabee participates in school-based dental sealant program

	Definition	Larrabee	Bellingham District
Dental Disease	Treated or untreated decay	68%	60%
Treated Decay	Fillings, pulled teeth, crowns	52%	53%
Untreated Decay	Current decay (cavities)	32%	20%
History of Rampant Decay	7 or more decayed teeth	32%	22%
Sealants	Sealant on permanent molar	32%	51%

**Lowell** - 26% of students are on free or reduced lunch program

- 44 3<sup>rd</sup> grade children (85%) were screened
- Lowell does not participate in school-based dental sealant program

	Definition	Lowell	Bellingham District
Dental Disease	Treated or untreated decay	41%	60%
Treated Decay	Fillings, pulled teeth, crowns	36%	53%
Untreated Decay	Current decay (cavities)	16%	20%
History of Rampant Decay	7 or more decayed teeth	14%	22%
Sealants	Sealant on permanent molar	50%	51%

**Northern Heights** - 29% of students are on free or reduced lunch program

- 67 3<sup>rd</sup> grade children (91%) were screened
- Northern Heights participates in a school-based dental sealant program

	Definition	Northern Heights	Bellingham District
Dental Disease	Treated or untreated decay	69%	60%
Treated Decay	Fillings, pulled teeth, crowns	63%	53%
Untreated Decay	Current decay (cavities)	16%	20%
History of Rampant Decay	7 or more decayed teeth	30%	22%
Sealants	Sealant on permanent molar	61%	51%

**Parkview** - 49% of students are on free or reduced lunch program

- 51 3<sup>rd</sup> grade children (91%) were screened
- Parkview participates in a school-based dental sealant program

	Definition	Parkview	Bellingham District
Dental Disease	Treated or untreated decay	59%	60%
Treated Decay	Fillings, pulled teeth, crowns	53%	53%
Untreated Decay	Current decay (cavities)	14%	20%
History of Rampant Decay	7 or more decayed teeth	20%	22%
Sealants	Sealant on permanent molar	61%	51%

**Roosevelt** - 56% of students are on free or reduced lunch program

- 50 3<sup>rd</sup> grade children (81%) were screened
- Roosevelt participates in a school-based dental sealant program

	Definition	Roosevelt	Bellingham District
Dental Disease	Treated or untreated decay	68%	60%
Treated Decay	Fillings, pulled teeth, crowns	52%	53%
Untreated Decay	Current decay (cavities)	26%	20%
History of Rampant Decay	7 or more decayed teeth	24%	22%
Sealants	Sealant on permanent molar	56%	51%

**Silver Beach** - 15% of students are on free or reduced lunch program

- 66 3<sup>rd</sup> grade children (84%) were screened
- Silver Beach does not participate in school-based dental sealant program

	Definition	Silver Beach	Bellingham District
Dental Disease	Treated or untreated decay	50%	60%
Treated Decay	Fillings, pulled teeth, crowns	42%	53%
Untreated Decay	Current decay (cavities)	12%	20%
History of Rampant Decay	7 or more decayed teeth	15%	22%
Sealants	Sealant on permanent molar	55%	51%

**Sunnyland** - 58% of students are on free or reduced lunch program

- 49 3<sup>rd</sup> grade children (92%) were screened
- Sunnyland participates in a school-based dental sealant program

	<b>Definition</b>	<b>Sunnyland</b>	<b>Bellingham District</b>
Dental Disease	Treated or untreated decay	71%	60%
Treated Decay	Fillings, pulled teeth, crowns	61%	53%
Untreated Decay	Current decay (cavities)	24%	20%
History of Rampant Decay	7 or more decayed teeth	27%	22%
Sealants	Sealant on permanent molar	35%	51%