

# Make Your Smile Count!



A Survey of the Oral Health of Ohio Schoolchildren, 2004-2005



June 2007

To our partners in oral health,

Good oral health is critical to a child's total physical, social and emotional well-being. Every child in Ohio deserves a healthy mouth. Every child in Ohio deserves to attend school without the painful distraction of a toothache that makes it impossible to learn. Every child in Ohio deserves a chance to go to school every day, rather than staying home because of an infected tooth. And every child in Ohio deserves to be able to smile without the embarrassment of missing teeth that have been pulled due to cavities.

The Ohio Department of Health is pleased to provide the following report on the oral health of Ohio's children. The report summarizes key findings of a statewide survey of the oral health of Ohio's schoolchildren that was conducted during the 2004-05 school year.

Findings of the survey indicate that dental disease remains a common, chronic condition among Ohio's children. Clearly, work remains to improve the oral health of our children. I encourage all our state and local partners to use these data to better understand the dental problems faced by Ohio's children, and to develop and support strategies aimed at improving their oral health.



Alvin D. Jackson, M.D.  
Director, Ohio Department of Health



## Summary of Survey Findings

Dental disease remains a common condition among Ohio's children, with 55 percent of children experiencing tooth decay by the time they are in the third grade.

More than one-quarter of the children surveyed had cavities that had not been treated, and 10 percent of all children had suffered from a toothache during the previous six months.

More than 25 percent of the children had cavities or other dental problems that required they see a dentist.

Less than half of children surveyed (43 percent) had one or more dental sealants, even though sealants are the most effective way of preventing the most common type of tooth decay.

While most children had reportedly visited a dentist during the past year, nearly one-quarter (22 percent) had not.

The most common reasons for not receiving desired dental care were that the family couldn't afford to go to the dentist or because the family didn't have dental insurance.

The overall oral health of Ohio's children is not improving dramatically. The findings from the 2004-05 survey remain consistent with findings from the previous survey conducted in 1998-99, and fall short of national targets for oral health. The only indicator of oral health that has shown substantial improvement is the prevalence of dental sealants, which has increased from 34 percent in 1998-99 to 43 percent in 2004-05. This may be due to the expansion of public health dental sealant programs in Ohio's schools.



## Introduction

Despite knowing how to prevent tooth decay, it remains a common chronic disease of childhood. Nationally, among children ages 2-11 years, 42 percent have had cavities in their primary (“baby”) teeth.<sup>1</sup> However, the most recent national survey of children ages 2-5 years indicates the prevalence of tooth decay in primary teeth has increased from 24 percent from 1988 to 1994 to 28 percent from 1999 to 2004.<sup>1</sup> By the time children finish high school, 59 percent have had cavities in their permanent teeth.<sup>1</sup> Tooth decay is five times more common than asthma, and more than 51 million school hours are lost each year due to dental-related illness.<sup>2</sup>

Since the early 1970s, the amount of tooth decay among children has declined dramatically. This decline is most likely the result of the availability of drinking water with an adequate amount of fluoride in it, as well as the use of toothpastes and mouth rinses with fluoride. Even so, tooth decay remains a significant problem for many children, especially those from poor families and certain racial and ethnic groups.

This report presents findings from a statewide survey of the oral health of Ohio schoolchildren conducted during the 2004-05 school year. It provides information on the amount of dental disease among children in third grade, as well as their access to dental care. Statewide and county-level information is presented.

## How the Survey Was Conducted

During the 2004-05 school year, 374 randomly selected public elementary schools from all Ohio counties participated in an oral health survey and body mass index assessment. With written parental permission, 14,029 third-grade students received an oral health screening by trained dentists and dental hygienists. Each child was screened for the following:

- whether the child had ever had cavities ("history of tooth decay");
- whether the child had cavities that hadn't been treated;
- whether the child had any dental sealants on their permanent teeth; and
- how soon the child should see a dentist.

The consent form asked the parent or guardian for the following information about their child's dental health:

- how long it had been since the child had seen a dentist;
- how the family pays for dental care;
- whether the child had ever needed dental care but couldn't get it (and why); and
- whether the child had a toothache during the past six months.

## Terms Used in This Report

**Access to Dental Care**—a term that means people are able to get dental care when they need it. It is evaluated by measuring the number of people who have had a recent dental visit; the number who do not have dental insurance; and the number who indicate they need dental care but can't obtain it.

**County Type**—a term that classifies each Ohio county into one of four categories:

- **Appalachian** as designated by the federal Appalachian Regional Commission;
- **metropolitan** (a non-Appalachian county that contains at least one city with 50,000 or more inhabitants);
- **suburban** (a non-metropolitan, non-Appalachian county that meets the U.S. Census definition of an urbanized area); and
- **rural/non-Appalachian** (all other counties not classified as Appalachian, metropolitan or suburban). A table of Ohio counties by their classification can be found in the Appendix of this report.

**Dental Screening**—a process used to describe, through direct observation of the mouth, the general oral health of the individual. It is not a thorough exam that results in a diagnosis of a dental problem or a plan for its treatment.

**Dental Sealants**—thin plastic coatings that are painted on to the chewing surfaces of the back teeth to prevent cavities. Dental sealants are one of the most effective ways to prevent tooth decay.

**Early or Urgent Dental Visit**—an “early” visit to the dentist is one that should be scheduled within several weeks; an “urgent” visit is one that should be scheduled within 24 hours.

**History of Tooth Decay**—a child either had an untreated cavity, a filling or a permanent tooth that was missing because it had been extracted due to tooth decay.

**Low-income**—the child was eligible for the statewide Free and Reduced Price Meal Program (families whose income was <185 percent of the Federal Poverty Level [FPL]). In 2004, the year the oral health survey was conducted, 185 percent of the FPL was less than \$34,875 for a family of four.

**Statistically Significant**—a term used to describe data comparing two or more groups. In this report, the term “statistically significant” refers to a very small probability of observing the findings if there were actually no true difference between the groups. Traditionally, if this probability is less than 5 percent (“ $p < .05$ ”), it is called statistically significant; i.e., the differences noted are unlikely to have occurred by chance.

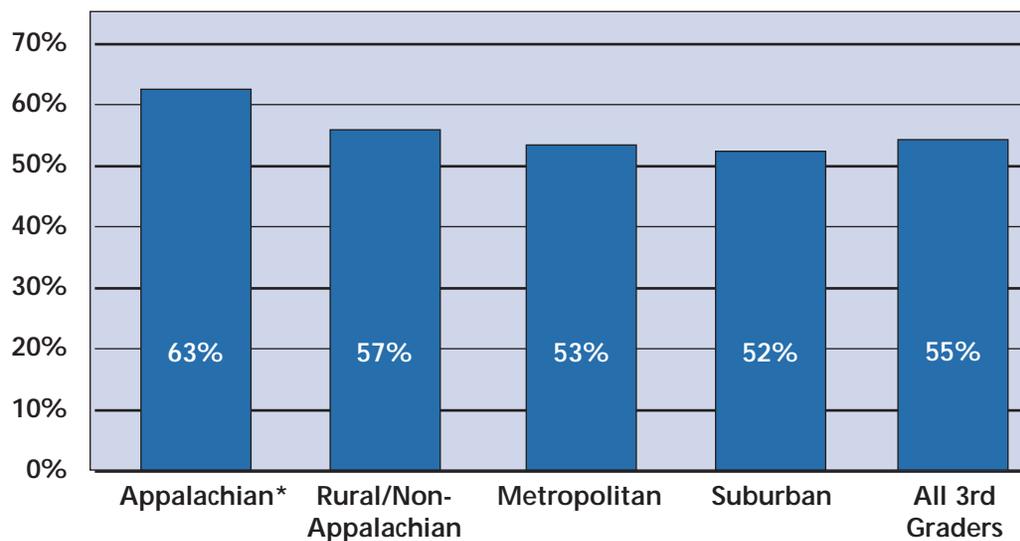
## Important Findings

### Who had a history of tooth decay?

The survey showed that most children (55 percent) had a history of tooth decay by the time they were in third grade. Children in Appalachian counties were significantly more likely to have had tooth decay than children living in other areas of the state, as were children from low-income families and those whose dental care was covered by Medicaid. Children whose dental care was covered by private insurance were significantly less likely to have had tooth decay. Children from minority groups were more likely to have a history of tooth decay, although these differences were not statistically significant.

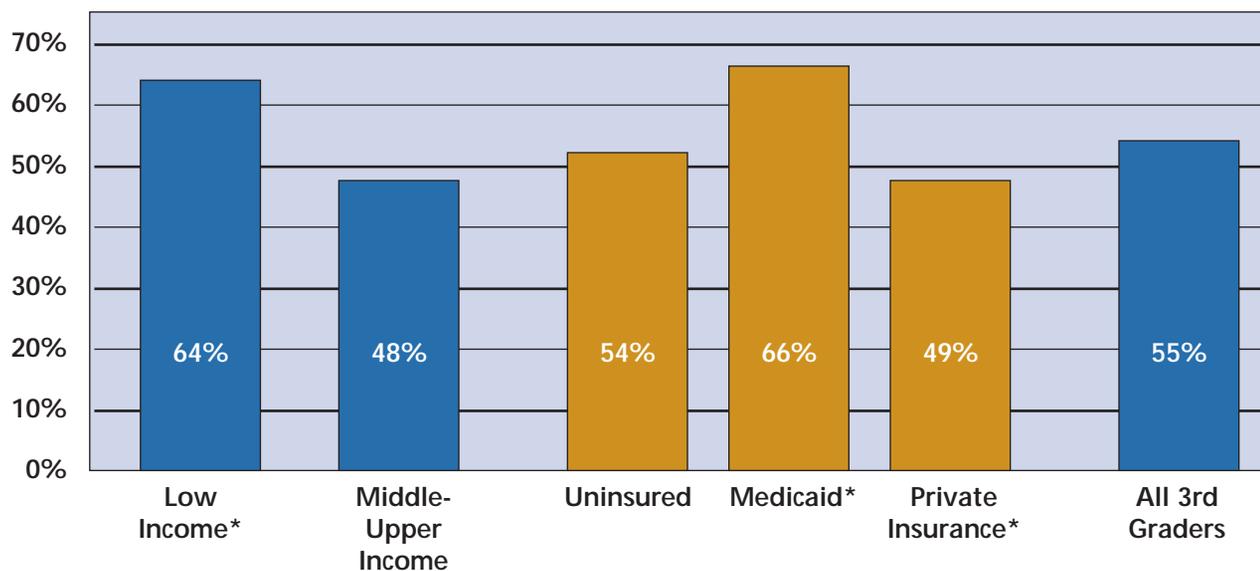


### Percentage of Ohio Third Graders with a History of Tooth Decay, 2004-05, by County Type



\* Statistically significant at  $p < .05$

### Percentage of Ohio Third Graders with a History of Tooth Decay, 2004-05, by Family Income and Insurance Coverage



\* Statistically significant at  $p < .05$



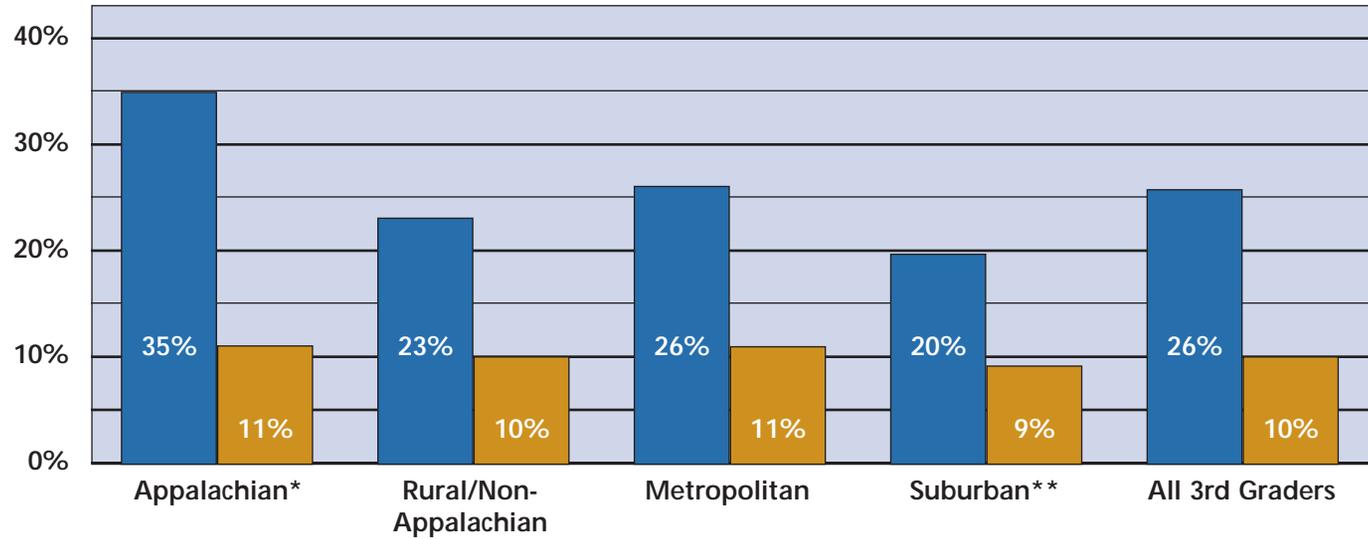
## Who had untreated cavities and toothaches?

**Overall, 26 percent of all children surveyed had one or more cavities that had not been treated. Ten percent of all children had suffered from a toothache during the previous six months.** The percentage of children who had untreated cavities and toothaches varied by county type, family income, race and insurance coverage. Children from Appalachian counties and from low-income families had significantly more untreated cavities. Children from minority groups also had more untreated cavities, although these differences were not statistically significant. Children from suburban counties had significantly fewer untreated cavities and toothaches than children from other types of counties, as did children whose dental care was covered by private dental insurance.

Children from low-income families had toothaches at more than twice the rate of children from middle- or higher-income families. Black or African-American children had significantly more toothaches than white children.

Children who were covered by Medicaid were significantly more likely to have untreated cavities and toothaches. These children had almost twice the rate of untreated cavities and more than two times the rate of toothaches as children whose dental care was covered by private dental insurance.

Percentage of Ohio Third Graders with Untreated Cavities and Toothaches, 2004-05, by County Type

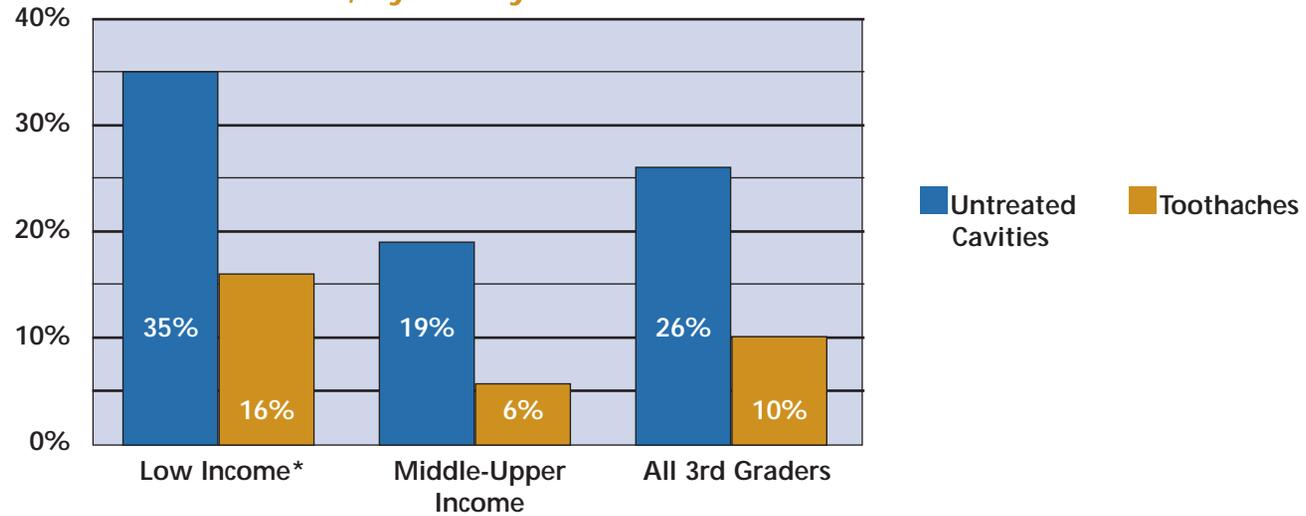


\* Statistically significant at  $p < .05$  for untreated cavities only

\*\* Statistically significant at  $p < .05$  for both untreated cavities and toothaches

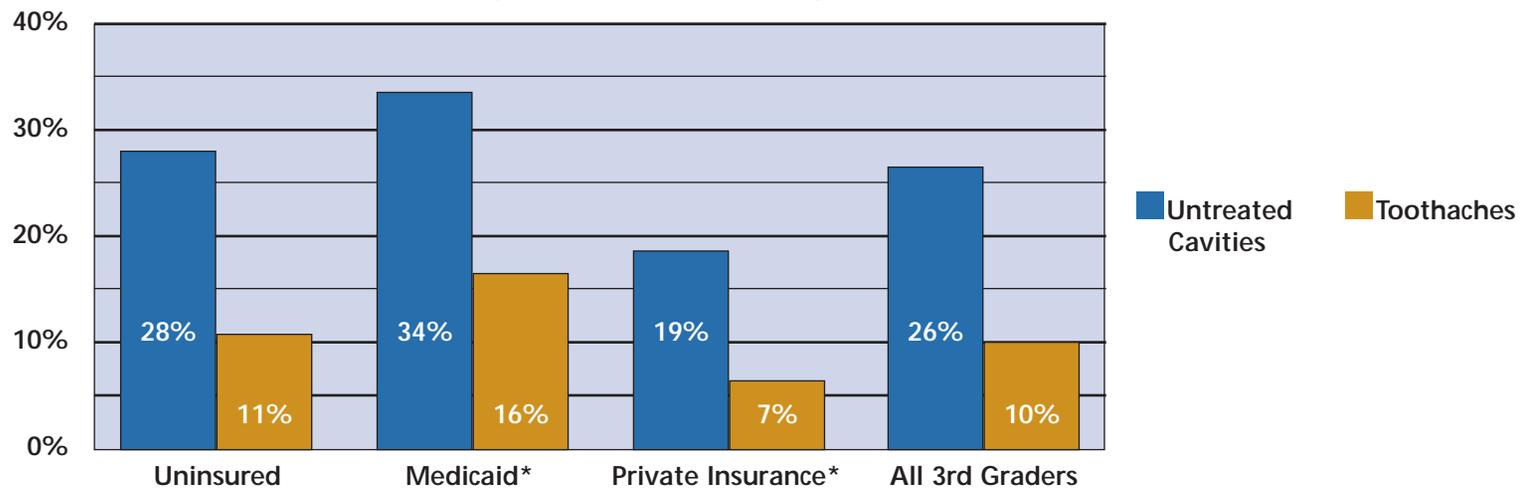
■ Untreated Cavities    ■ Toothaches

Percentage of Ohio Third Graders with Untreated Cavities and Toothaches, 2004-05, by Family Income



\*Statistically significant at  $p < .05$  for untreated cavities and toothaches

Percentage of Ohio Third Graders with Untreated Cavities and Toothaches, 2004-05, by Insurance Coverage



\* Statistically significant at  $p < .05$  for both untreated cavities and toothaches

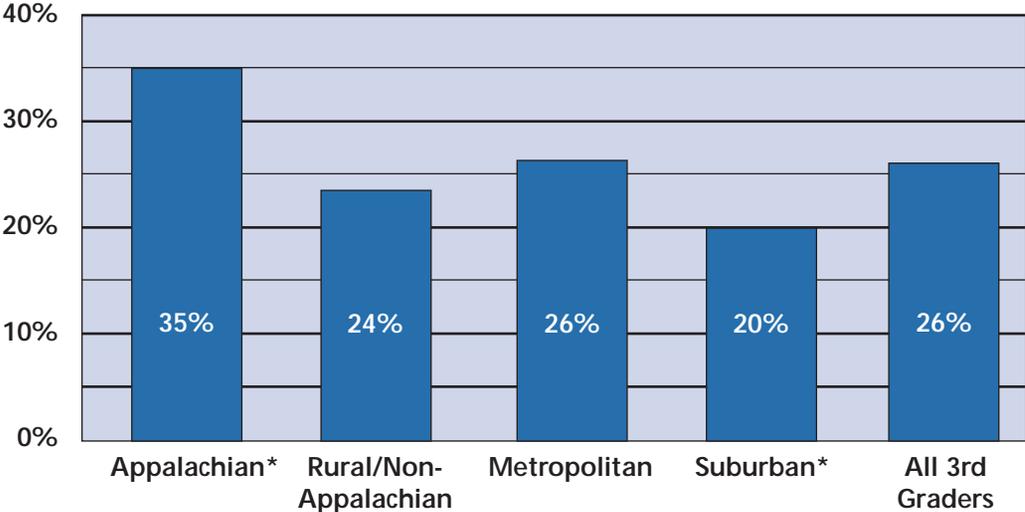
## How many children needed dental treatment?

**Overall, nearly 26 percent of all children surveyed had cavities or other dental problems that required an early or urgent visit to the dentist.** This finding varied by county type, family income and insurance coverage. Children in Appalachian counties, from low-income families and those covered by Medicaid were significantly more likely to have early or urgent dental needs. In fact, children in low-income families and those on Medicaid were nearly twice as likely to have early or urgent dental needs, compared to children from middle- or higher-income families or families with private dental insurance. Children from minority groups were more likely to have early or urgent dental needs, although these differences were not statistically significant.

In contrast, children in suburban counties were significantly less likely to have dental problems that required an early or urgent dental visit, as were children whose dental care was covered by private insurance.

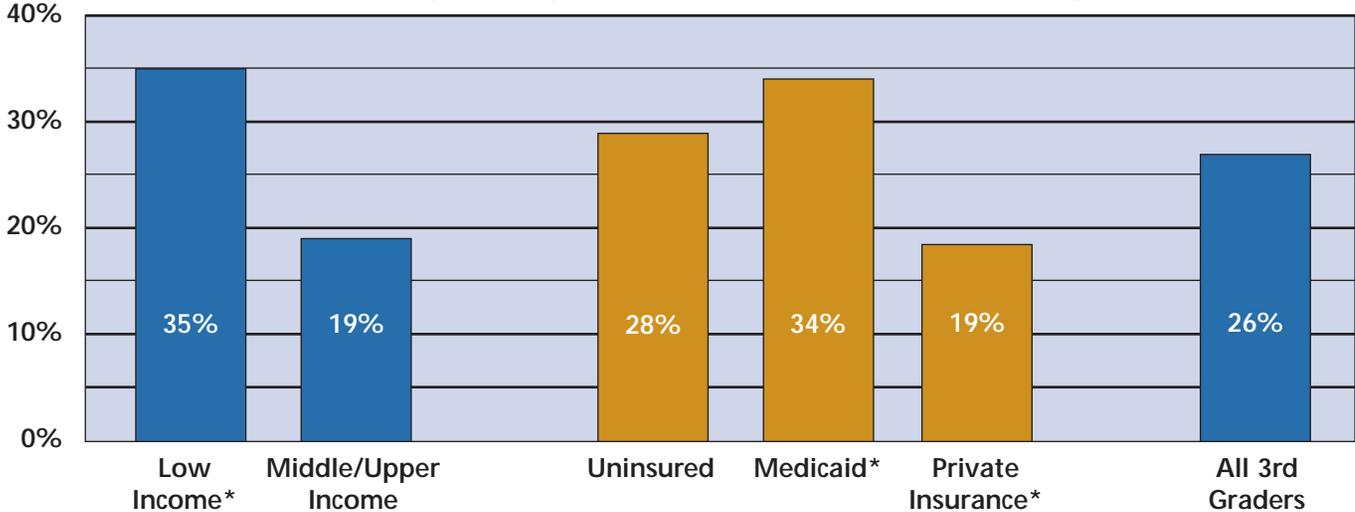


**Percentage of Ohio Third Graders in Need of Early or Urgent Dental Care, 2004-05, by County Type**



\* Statistically significant at  $p < .05$

**Percentage of Ohio Third Graders in Need of Early or Urgent Dental Care, 2004-05, by Family Income and Insurance Coverage**



\* Statistically significant at  $p < .05$

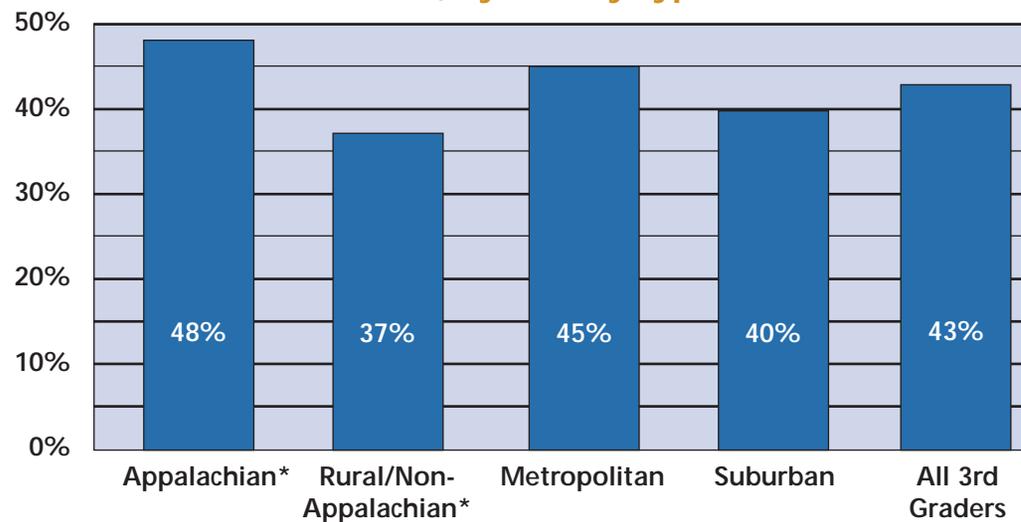


## Who had dental sealants?

**Overall, only 43 percent of children surveyed had one or more dental sealants on their permanent teeth.** The prevalence of dental sealants was significantly higher among children living in Appalachian counties. Many of these counties have public health dental sealant programs. Children served by these programs have dental sealants placed on their teeth while at school. By contrast, children living in rural or non-Appalachian counties were significantly less likely to have sealants.

Sealants were significantly more common among children covered by Medicaid, compared to children whose families were uninsured for dental care (47 percent vs. 36 percent). Children who had a dental visit during the past year were also significantly more likely to have dental sealants (47 percent vs. 29 percent).

**Percentage of Ohio Third Graders with One or More Dental Sealants, 2004-05, by County Type**



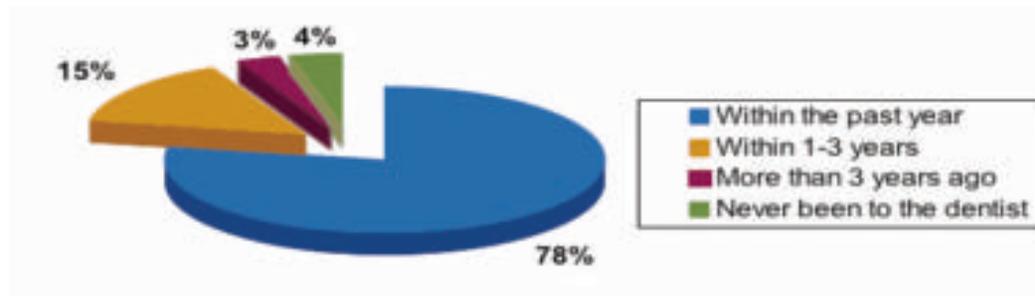
\* Statistically significant at  $p < .05$

## Did Ohio's children have access to dental care?

Experts recommend that most children should visit the dentist on a regular basis, as this provides the best opportunity for prevention, early diagnosis and treatment of dental problems. **The survey found 78 percent of third graders had seen a dentist within the past year.** However, parents typically overestimate how recently their child last visited the dentist, so the true percentage was probably less than 78 percent.

Nearly one-quarter (22 percent) of children screened had not visited a dentist within the past year. In fact, almost 3 percent of children surveyed had not seen a dentist for more than three years, and another 4 percent had never been to the dentist.

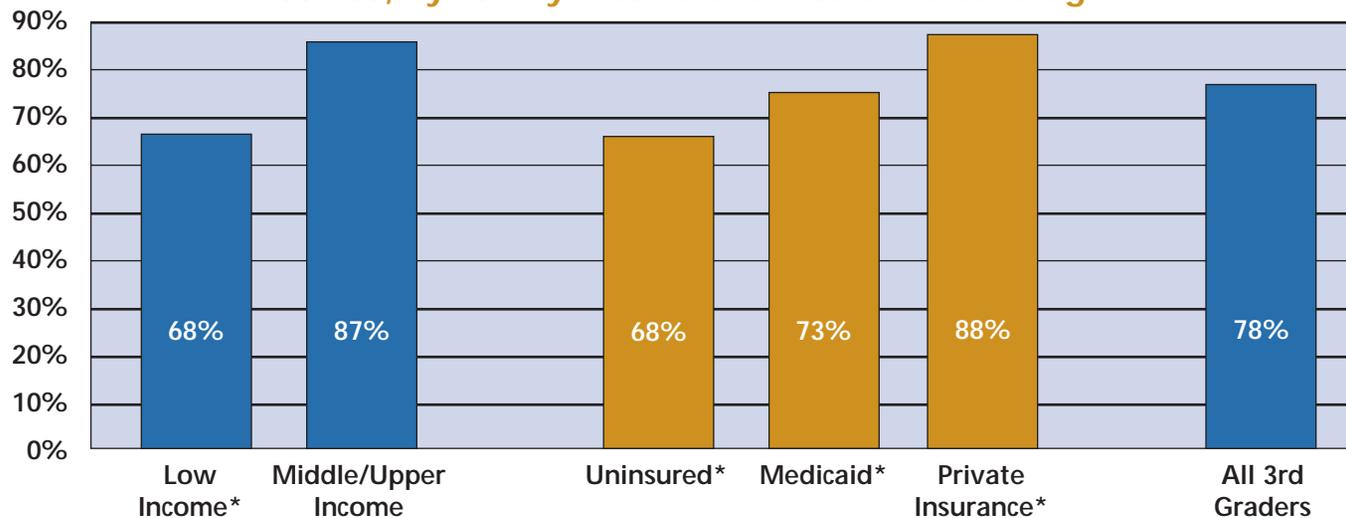
Recency of Last Dental Visit Among Ohio Third Graders, 2004-05



The percentage of children who had seen a dentist within the past year varied by family income and insurance coverage. Children from low-income families were significantly less likely to have seen a dentist during the past year. Children whose dental care was covered by private insurance were significantly more likely to have seen a dentist during the past year than children covered by Medicaid or uninsured for dental care. Children covered by Medicaid were also significantly more likely to have seen a dentist than children who were uninsured.

Black or African-American children were significantly less likely to have seen a dentist during the past year, compared to white children.

**Percentage of Ohio Third Graders who had Visited a Dentist in the Past Year, 2004-05, by Family Income and Insurance Coverage**



\* Statistically significant at  $p < .05$

Dental problems do not go away without treatment, so the impact of not receiving regular dental care can be significant.

- Children who had not visited the dentist in more than three years or who had never been to the dentist were about two times more likely to have untreated cavities, compared to children who had been to the dentist within the past year.
- Among children from low-income families, 19 percent could not get the dental care their parents felt they needed, more than three times the rate for middle- and upper-income families.
- The most common reason for not receiving desired dental care was the family couldn't afford to go to the dentist or because the family did not have dental insurance.
- The percentage of parents who reported their child needed care but couldn't get it was four times higher among families that were uninsured for dental care and nearly three times higher among children who were covered by Medicaid, compared to children covered by private dental insurance.



## Is the oral health of Ohio children improving?

The findings of the 2004-05 survey show the oral health of Ohio's children has not **substantially improved**. The following table presents key findings of the 2004-05 survey and compares those findings to the previous survey of Ohio schoolchildren conducted in 1998-99. The only indicator for which progress is substantial is the percentage of children with one or more dental sealants, which has increased from 34 percent in 1998-99 to 43 percent in 2004-05.

**Comparison of Findings Between the 1998-99 and 2004-05 Oral Health Surveys of Ohio Third Graders**

<b>Measure</b>	<b>1998-99 Survey</b>	<b>2004-05 Survey</b>	<b>National Targets for 2010*</b>
Percentage of children with history of tooth decay	51%	55%	42%
Percentage of children with untreated cavities	26%	26%	21%
Percentage of children with one or more dental sealants	34%	43%	50%
Percentage of children who had visited the dentist within the past year	74%	78%	56%
Percentage of children with an obvious need for dental care	25%	26%	Not Addressed

\*Data from the 1998-99 and 2004-05 surveys are reported for third grade schoolchildren; the national Healthy People 2010 objectives are expressed in terms of children 6-8 years old.

The table also presents a comparison between findings from the 2004-05 survey and the national Healthy People 2010: Objectives for Improving Health.<sup>3</sup> These national objectives set benchmarks against which the Ohio findings can be compared. The only national goal that Ohio's children have surpassed is the percentage who has visited the dentist during the past year. However, this indicator is based on self-reports from parents and guardians and may be an over-estimation of the true percentage.

## What is the oral health of children in each Ohio county?

The Appendix to this report contains a table that lists the percentage of children in each Ohio county found to have a history of tooth decay, untreated cavities, one or more dental sealants, the need for early or urgent dental care and toothaches.

The table shows that counties appear to vary in the extent of these oral health measures. However, the reader is cautioned to interpret the differences between counties carefully. Due to the sampling methods used in the survey, relatively small numbers of children were screened in each county. Thus, the precision of the rates in each county cannot be reliably determined. **The rates for each county should not be compared to those of other counties.**

## Conclusion

Dental disease remains a persistent problem, particularly among children from low-income families, those without dental insurance, those living in Appalachian counties and, for some dental problems, those children from minority groups.

## References

<sup>1</sup>Dye BA, Tan S, Smith V, Lewis BG, Barker LK, Thornton-Evans G, et al. *Trends in Oral Health Status: United States, 1988-1994 and 1999-2004*. National Center for Health Statistics. 2007.

[http://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_248.pdf](http://www.cdc.gov/nchs/data/series/sr_11/sr11_248.pdf). Accessed May 14, 2007.

<sup>2</sup>U.S. Dept of Health and Human Services. *Oral Health in America: A report of the Surgeon General*. US Dept of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health. 2000. <http://www2.nidcr.nih.gov/sgr/sgrohweb/welcome.htm>. Accessed March 8, 2007.

<sup>3</sup>U.S. Department of Health and Human Services. *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington DC: US Government Printing Office, November 2000.

<http://www.healthypeople.gov/hpscripts/KeywordResult.asp?n358=358&Submit=Submit>. Accessed March 8, 2007.



## Acknowledgements

The Ohio Department of Health (ODH) would like to thank Elizabeth Conrey, RD, PhD for her expertise in survey design and analysis and Shalin Desai, MPH, for his expertise in performing the data analysis.

This survey would not have been possible without the help of many local health officials and school personnel, and ODH would like to thank those persons who lent their support and assistance. ODH would also like to thank the parents/guardians of the students who were screened for allowing their children to participate in the survey and for providing such important information.

**For more information on this report and for other oral health information and data, please contact:**

The Bureau of Oral Health Services  
Ohio Department of Health  
246 N. High Street  
Columbus, Ohio 43215

**614-466-4180**

E-mail: [bohs@odh.ohio.gov](mailto:bohs@odh.ohio.gov)

<http://www.odh.ohio.gov> (click on ODH Programs/Oral Health)

# Appendix

## County Type Designations

### Appalachian

Adams  
Athens  
Belmont  
Brown  
Carroll  
Clermont  
Columbiana  
Coshocton  
Gallia  
Guernsey  
Harrison  
Highland  
Hocking  
Holmes  
Jackson  
Jefferson  
Lawrence  
Meigs  
Monroe  
Morgan  
Muskingum  
Noble  
Perry  
Pike  
Ross  
Scioto  
Tuscarawas  
Vinton  
Washington

### Rural/Non-Appalachian

Ashland  
Ashtabula  
Champaign  
Clinton  
Crawford  
Darke  
Defiance  
Erie  
Fayette  
Hancock  
Hardin  
Henry  
Huron  
Knox  
Logan  
Marion  
Mercer  
Morrow  
Ottawa  
Paulding  
Preble  
Putnum  
Sandusky  
Seneca  
Shelby  
Van Wert  
Warren  
Wayne  
Williams  
Wyandot

### Metropolitan

Allen  
Butler  
Cuyahoga  
Franklin  
Hamilton  
Lorain  
Lucas  
Mahoning  
Montgomery  
Richland  
Stark  
Summit

### Suburban

Auglaize  
Clark  
Delaware  
Fairfield  
Fulton  
Geauga  
Greene  
Lake  
Licking  
Madison  
Medina  
Miami  
Pickaway  
Portage  
Trumbull  
Union  
Wood

# Prevalence of Various Oral Health Measures Among Ohio 3rd Graders, By County, 2004-2005

COUNTY	History of Tooth Decay			Untreated Cavities			One or More Sealants			Early or Urgent Dental Needs			Toothache		
	Percent	95% Confidence Limits		Percent	95% Confidence Limits		Percent	95% Confidence Limits		Percent	95% Confidence Limits		Percent	95% Confidence Limits	
Adams	83.1	73.5	92.8	55.9	48.4	63.5	71.6	68.5	74.7	55.9	48.4	63.5	8.4	7.8	9.0
Allen	56.1	48.5	63.7	25.3	17.9	32.7	30.8	15.7	45.9	24.4	17.4	31.4	9.6	5.8	13.5
Ashland	55.4	47.2	63.6	26.4	20.0	32.8	57.0	40.0	74.1	26.6	19.9	33.2	7.0	0.0	14.1
Ashtabula	64.9	59.8	70.1	35.1	29.6	40.5	38.4	27.5	49.2	35.4	30.6	40.2	13.3	11.6	15.0
Athens	62.3	48.7	76.0	26.5	13.7	39.4	73.2	44.8	100.0	27.6	17.2	38.0	4.9	0.1	9.8
Auglaize	54.8	52.2	57.5	28.4	21.7	35.2	10.9	9.6	12.1	27.9	20.7	35.1	12.6	6.4	18.7
Belmont	58.6	52.1	65.2	27.3	23.0	31.6	33.7	17.3	50.1	27.3	23.0	31.6	9.9	5.0	14.8
Brown	69.7	64.4	74.9	46.5	40.6	52.4	79.9	72.8	87.0	46.5	40.6	52.4	11.7	10.0	13.5
Butler	48.0	32.8	63.2	31.7	20.6	42.9	57.7	42.0	73.4	32.8	19.6	46.0	10.1	0.0	20.9
Carroll	74.2	66.4	82.0	34.0	23.5	44.5	22.8	18.8	26.9	34.0	23.5	44.5	22.6	13.7	31.4
Champaign	51.2	48.0	54.4	18.9	12.6	25.2	36.0	34.6	37.3	17.8	12.2	23.4	13.4	9.8	17.0
Clark	54.4	49.0	59.9	24.9	15.9	33.9	30.8	23.7	37.8	24.3	14.5	34.0	9.1	3.7	14.5
Clermont	54.0	38.3	69.6	33.9	22.6	45.2	35.0	21.1	48.9	34.5	22.3	46.8	6.4	5.7	7.2
Clinton	52.7	41.3	64.0	20.4	18.6	22.3	34.1	15.0	53.3	17.9	15.4	20.4	12.6	11.8	13.5
Columbiana	62.4	61.5	63.3	27.9	16.0	39.8	47.7	30.5	65.0	25.5	9.0	41.9	21.8	11.4	32.2
Coshocton	70.4	64.3	76.6	31.4	29.6	33.3	77.3	69.9	84.6	33.3	30.5	36.1	12.5	5.6	19.4
Crawford	77.6	66.8	88.4	43.8	31.4	56.1	26.3	22.6	29.9	43.8	32.1	55.6	9.4	6.1	12.8
Cuyahoga	64.4	58.6	70.2	36.5	29.7	43.2	49.2	44.8	53.6	36.6	29.7	43.5	15.5	11.9	19.0
Darke	46.1	31.9	60.2	13.1	7.1	19.2	21.4	11.3	31.5	13.1	7.1	19.2	7.6	5.0	10.2
Defiance	50.0	33.2	66.7	17.5	2.9	32.1	26.9	16.6	37.2	17.8	3.1	32.5	9.9	5.2	14.6
Delaware	38.8	32.5	45.1	11.5	8.1	14.9	67.9	62.2	73.6	11.7	8.1	15.3	7.7	4.5	10.8
Erie	52.3	49.9	54.6	20.2	17.4	23.1	33.9	32.5	35.3	19.6	16.8	22.5	12.5	10.1	14.9
Fairfield	54.1	50.1	58.1	15.8	11.6	20.0	42.6	34.6	50.5	16.6	12.6	20.7	9.4	7.6	11.2
Fayette	72.4	64.9	80.0	26.9	20.5	33.3	23.0	21.8	24.3	26.9	20.5	33.3	5.3	0.0	14.9
Franklin	38.8	29.6	48.0	13.3	5.5	21.1	31.1	21.6	40.5	13.6	5.7	21.5	10.5	4.9	16.1
Fulton	40.1	37.4	42.8	14.3	10.3	18.3	16.9	12.7	21.1	14.3	10.3	18.3	4.7	2.2	7.2
Gallia	58.1	54.1	62.0	37.8	28.6	47.0	64.0	53.1	74.9	38.3	29.3	47.3	8.5	7.2	9.7
Geauga	40.2	25.9	54.4	18.3	12.2	24.4	34.5	25.6	43.4	18.2	12.2	24.1	6.2	2.8	9.5
Greene	58.7	52.1	65.3	30.1	23.9	36.3	39.5	33.8	45.3	30.4	24.4	36.3	11.4	8.7	14.2
Guernsey	66.5	58.8	74.2	30.4	26.7	34.0	41.9	36.8	47.1	30.4	26.7	34.0	15.0	13.1	17.0
Hamilton	52.4	41.4	63.4	32.0	22.0	42.0	45.8	37.4	54.1	32.8	22.7	42.9	9.5	5.4	13.6
Hancock	46.5	42.2	50.7	14.7	12.7	16.7	30.7	23.1	38.3	14.7	12.7	16.7	11.8	10.0	13.7
Hardin	54.3	46.9	61.7	34.7	19.8	49.6	32.9	25.5	40.3	34.7	19.8	49.6	10.4	7.6	13.3
Harrison	76.6	58.4	94.8	65.3	48.0	82.6	5.3	0.0	16.2	65.3	48.0	82.6	2.4	0.0	7.2
Henry	48.7	46.1	51.3	14.8	13.3	16.2	36.8	30.1	43.4	13.8	10.9	16.6	9.5	3.9	15.0
Highland	69.1	65.3	72.8	39.1	32.0	46.2	54.4	48.6	60.2	39.8	33.6	46.0	11.0	8.5	13.5
Hocking	65.1	58.2	72.0	32.3	25.1	39.6	81.5	75.9	87.1	31.6	24.9	38.4	13.8	11.6	16.0
Holmes	63.4	60.7	66.1	29.2	18.8	39.6	38.0	31.6	44.3	31.2	16.4	45.9	12.7	11.7	13.7
Huron	63.9	56.8	71.1	18.9	13.4	24.5	23.2	17.9	28.4	21.8	18.8	24.9	7.7	5.2	10.2
Jackson	64.8	61.9	67.7	51.6	46.0	57.2	82.2	79.9	84.5	53.2	46.1	60.3	13.9	9.0	18.7
Jefferson	49.3	37.6	60.9	26.8	17.8	35.8	15.9	10.6	21.2	26.8	17.8	35.8	9.9	5.9	14.0
Knox	49.8	45.7	54.0	14.5	7.6	21.4	30.5	23.9	37.1	15.7	7.5	23.9	15.3	10.4	20.1
Lake	50.9	45.0	56.8	19.7	17.4	21.9	35.7	24.9	46.5	18.3	14.7	22.0	7.1	3.9	10.3
Lawrence	67.7	61.1	74.3	46.3	37.9	54.8	57.1	48.8	65.4	46.0	37.6	54.5	16.6	8.0	25.2
Licking	47.6	34.9	60.3	11.6	5.3	17.8	38.1	30.2	46.1	14.4	5.8	23.0	8.1	3.4	12.9
Logan	60.9	55.9	65.9	36.7	33.8	39.5	46.2	43.6	48.8	38.8	35.8	41.8	3.9	0.0	9.1

Due to the sampling methods used in the survey, relatively small numbers of children were screened in each county. Thus, the precision of the rates in each county cannot be reliably determined. *The rates for each county should not be compared to those of other counties.*

COUNTY	History of Tooth Decay			Untreated Cavities			One or More Sealants			Early or Urgent Dental Needs			Toothache		
	Percent	95% Confidence Limits		Percent	95% Confidence Limits		Percent	95% Confidence Limits		Percent	95% Confidence Limits		Percent	95% Confidence Limits	
Lorain	55.0	48.4	61.7	27.2	17.2	37.2	36.8	24.9	48.6	26.8	16.4	37.2	8.7	5.6	11.8
Lucas	57.9	45.9	69.9	16.2	5.7	26.7	65.9	36.6	95.2	17.3	5.2	29.4	3.5	0.1	6.8
Madison	46.1	46.1	46.1	21.6	21.6	21.6	29.6	29.6	29.6	21.6	21.6	21.6	8.4	8.4	8.4
Mahoning	56.4	49.8	63.0	26.8	24.3	29.2	45.1	26.7	63.5	26.8	24.3	29.2	11.0	3.4	18.6
Marion	62.3	58.2	66.4	38.3	35.0	41.7	38.6	31.7	45.5	38.5	35.2	41.7	10.9	7.1	14.7
Medina	49.0	44.4	53.5	15.2	6.9	23.6	54.1	33.1	75.1	14.2	6.1	22.2	5.8	1.5	10.1
Meigs	65.5	65.5	65.5	42.6	42.6	42.6	73.5	73.5	73.5	45.3	45.3	45.3	10.1	10.1	10.1
Mercer	58.9	55.5	62.3	15.5	10.1	20.8	12.9	7.3	18.5	15.9	11.1	20.7	8.1	4.2	12.0
Miami	51.7	44.7	58.7	23.1	19.1	27.1	34.4	26.9	41.8	22.6	18.9	26.3	14.6	11.5	17.7
Monroe	67.6	66.0	69.3	35.0	30.7	39.3	75.7	70.8	80.7	34.6	30.1	39.1	13.6	11.6	15.7
Montgomery	50.2	44.2	56.2	20.2	19.5	20.9	55.4	46.7	64.1	20.2	19.5	20.9	11.3	7.6	15.0
Morgan	77.4	70.4	84.4	19.3	17.1	21.5	70.0	65.0	75.0	19.3	17.1	21.5	12.1	8.8	15.5
Morrow	66.8	49.9	83.6	48.1	29.1	67.2	62.0	57.6	66.4	48.1	29.1	67.2	14.7	13.9	15.5
Muskingum	61.2	56.9	65.6	27.5	25.6	29.3	42.7	15.7	69.8	28.3	25.1	31.5	9.4	4.9	13.9
Noble	55.4	55.4	55.4	28.8	28.8	28.8	68.1	68.1	68.1	28.8	28.8	28.8	9.7	9.7	9.7
Ottawa	43.6	38.0	49.1	14.3	10.5	18.2	31.5	24.3	38.7	13.8	11.5	16.2	8.2	6.0	10.5
Paulding	52.6	34.8	70.3	13.7	9.1	18.2	40.2	14.6	65.9	13.7	9.1	18.2	9.0	2.3	15.8
Perry	61.4	43.9	78.8	27.3	17.4	37.2	54.1	25.5	82.7	24.8	17.0	32.7	4.6	0.0	9.3
Pickaway	57.4	52.8	62.1	22.7	17.0	28.3	31.1	27.9	34.3	20.3	13.8	26.7	12.5	7.8	17.2
Pike	76.6	68.3	84.8	48.1	33.3	63.0	70.9	62.5	79.4	48.1	33.3	63.0	16.4	12.3	20.6
Portage	51.3	37.5	65.1	21.5	15.0	27.9	40.3	28.2	52.4	21.5	15.0	27.9	8.3	4.7	12.0
Preble	55.7	53.0	58.4	19.6	14.6	24.6	32.3	30.5	34.2	19.6	14.6	24.6	11.7	5.7	17.7
Putnum	42.3	23.1	61.5	6.3	0.0	14.0	31.9	26.7	37.2	5.3	0.0	11.5	3.7	0.0	8.2
Richland	61.0	49.0	72.9	39.1	26.5	51.6	53.8	48.3	59.3	38.5	24.9	52.1	10.8	4.7	16.9
Ross	60.5	52.5	68.5	31.4	12.8	50.0	35.9	30.0	41.9	30.0	13.5	46.5	8.1	2.2	14.0
Sandusky	61.1	59.6	62.6	27.8	12.8	42.8	51.4	44.0	58.8	27.8	12.8	42.8	6.9	6.5	7.3
Scioto	65.9	61.3	70.6	45.2	37.5	53.0	53.7	33.6	73.9	45.2	37.5	53.0	11.7	8.4	15.1
Seneca	64.3	58.3	70.3	23.2	20.1	26.2	33.8	32.0	35.5	23.4	19.9	26.8	11.7	9.9	13.4
Shelby	60.5	52.9	68.2	12.3	0.0	31.5	31.1	6.5	55.7	12.3	0.0	31.5	10.0	5.5	14.5
Stark	54.7	49.6	59.7	30.3	13.5	47.1	38.4	26.1	50.6	30.3	13.5	47.1	10.0	4.8	15.2
Summit	60.5	34.3	86.6	25.3	10.2	40.5	44.3	20.2	68.3	25.3	10.2	40.5	10.9	3.2	18.5
Trumbull	66.9	64.9	68.9	28.7	24.3	33.2	44.7	39.7	49.7	28.7	24.3	33.2	8.6	6.8	10.3
Tuscarawas	61.4	54.1	68.7	33.7	27.8	39.5	31.9	23.5	40.3	33.7	27.8	39.5	11.9	8.3	15.6
Van Wert	54.9	52.5	57.4	22.7	21.8	23.6	36.5	35.6	37.4	18.3	16.7	19.9	5.4	2.1	8.8
Vinton	77.2	72.8	81.7	43.5	26.8	60.2	71.4	68.3	74.6	43.5	26.8	60.2	19.8	19.6	20.0
Warren	51.3	41.8	60.7	21.3	13.9	28.8	58.6	53.3	64.0	25.2	15.6	34.8	9.3	6.8	11.8
Washington	68.1	57.4	78.7	27.9	9.7	46.2	34.3	8.4	60.3	27.9	9.7	46.2	12.3	0.1	24.4
Wayne	63.8	58.5	69.1	25.4	22.8	28.0	36.9	29.2	44.6	25.4	22.8	28.0	10.0	6.4	13.6
Williams	48.4	39.8	57.0	21.0	11.4	30.6	13.3	6.1	20.4	21.0	11.4	30.6	9.0	0.1	17.9
Wood	56.2	43.6	68.7	19.8	12.5	27.1	35.1	27.0	43.2	20.5	12.0	29.0	13.2	3.4	23.0
Wyandot	63.9	58.0	69.8	36.7	28.0	45.4	31.8	18.9	44.6	37.5	29.4	45.5	9.7	5.6	13.8
Ohio	55.0	52.8	57.1	25.7	23.9	27.5	43.3	41.1	45.5	26.0	23.4	28.5	10.4	9.5	11.4

Data for **Union County** are not available because not enough children were screened to calculate county-level estimates.

Due to the sampling methods used in the survey, relatively small numbers of children were screened in each county. Thus, the precision of the rates in each county cannot be reliably determined. *The rates for each county should not be compared to those of other counties.*

The width of the confidence limits gives us some idea about how certain we are about the true percentage of children in each county who have a history of tooth decay, untreated cavities, one or more dental sealants, an early or urgent need to see the dentist or a toothache. In counties with wide confidence limits, we are less certain about the true percentage, while in counties with small limits, we are more certain. In technical terms, the 95% confidence limit means if we were to repeat this survey 100 times, 95 of the confidence limits we found would contain the true estimate for that indicator for that county.

