

Across the state, about one in six children (17 percent) had cavities that had not been treated.

- Map 2 shows counties with a **significantly higher (red)** or **lower (blue)** rate of children with untreated cavities, compared to the state.
- Many of the counties with significantly higher rates are in Appalachian Ohio.
- Counties that are not shaded had rates that were not significantly different from rates for the entire state.

**Map 2: Percentage of Children with Untreated Cavities,
by County, 2013-15**

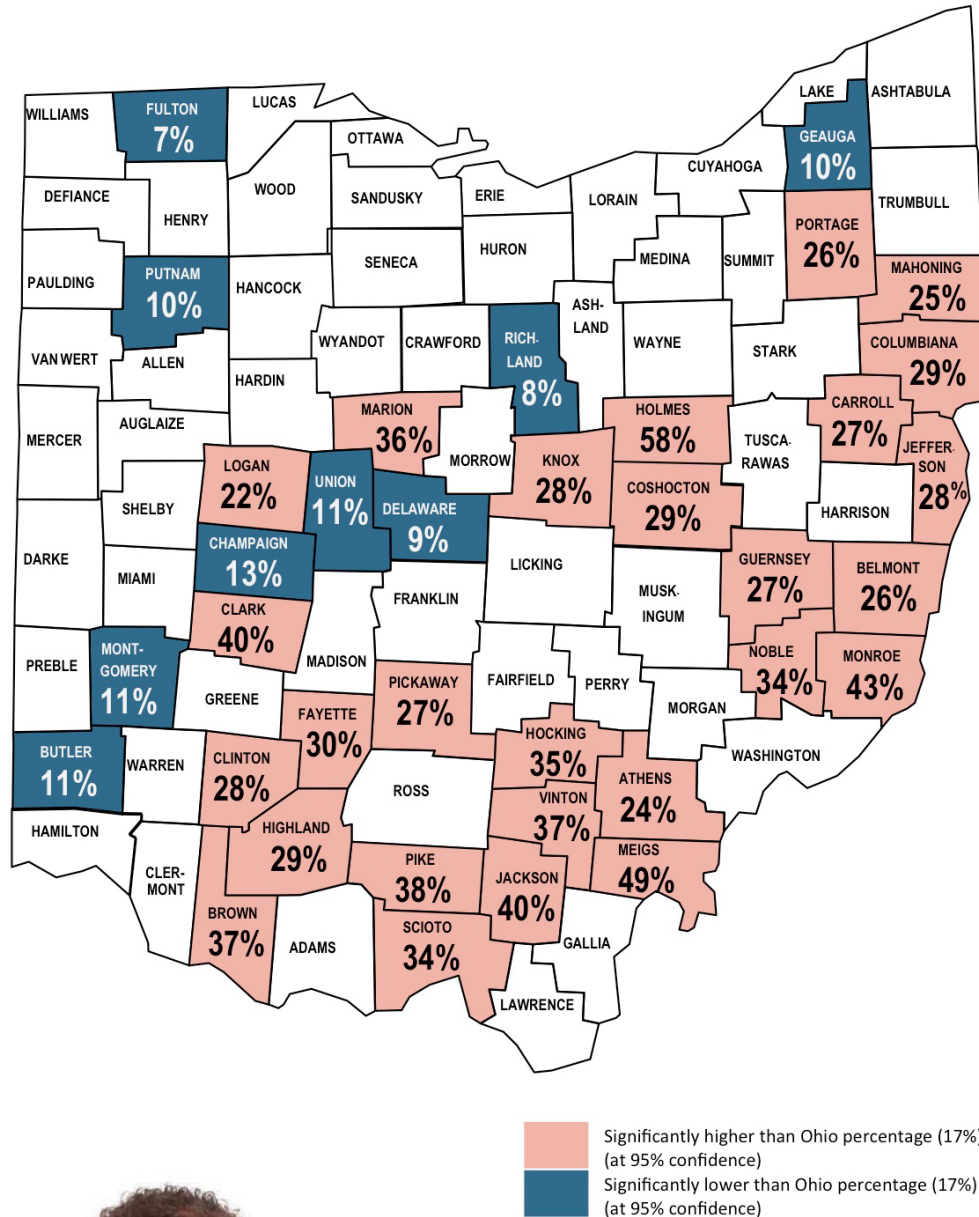
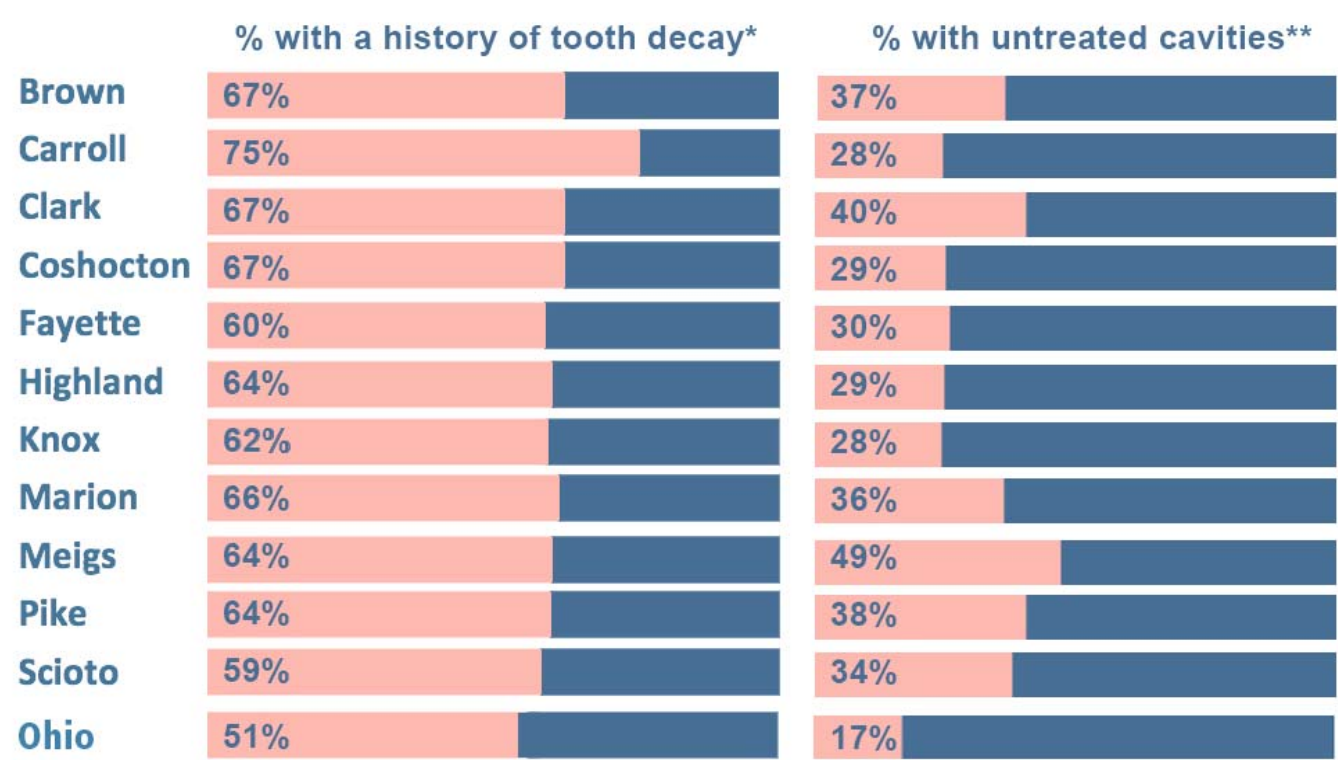


Table 1 lists counties with the highest rates of children with a history of tooth decay and untreated cavities, compared to the state. The oral health of children in these counties could be characterized as the poorest, based on these two measures. These children experienced more tooth decay and had more decay left untreated, indicating they were less likely to receive regular dental care.

Table 1: Counties Where Children Have the Poorest Oral Health, 2013-15



* Significantly higher than the percentage for Ohio (51%)
** Significantly higher than the percentage for Ohio (17%)

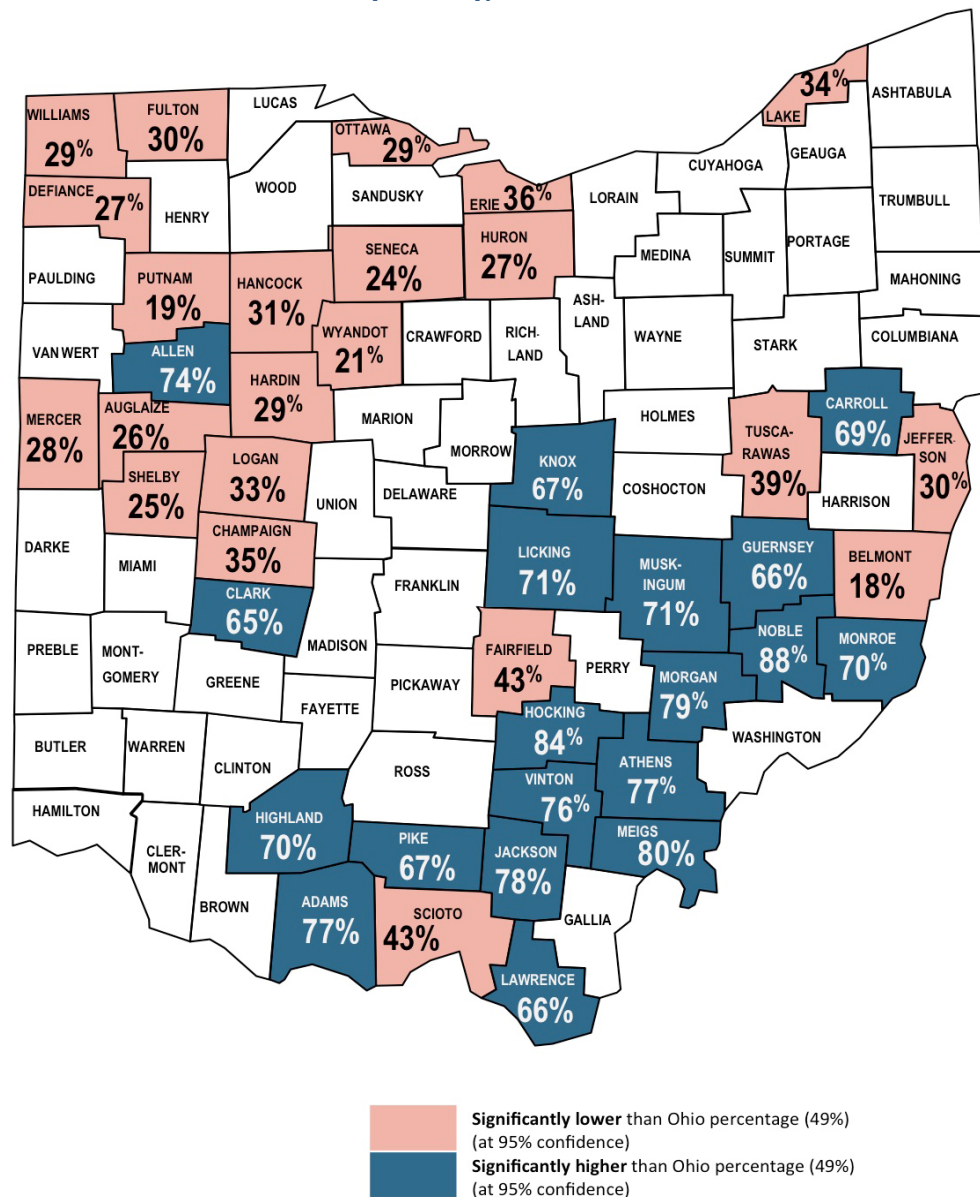
Conversely, there were four counties where children had the lowest rates of untreated cavities and history of tooth decay: Butler, Delaware, Geauga and Union counties. Children in these counties had experienced less tooth decay overall, and were more likely to have received treatment for tooth decay.



About half (49 percent) of Ohio's 3rd grade schoolchildren had a dental sealant on at least one permanent molar. A dental sealant prevents the most common type of tooth decay seen in children today—decay on the biting surfaces of the back teeth.

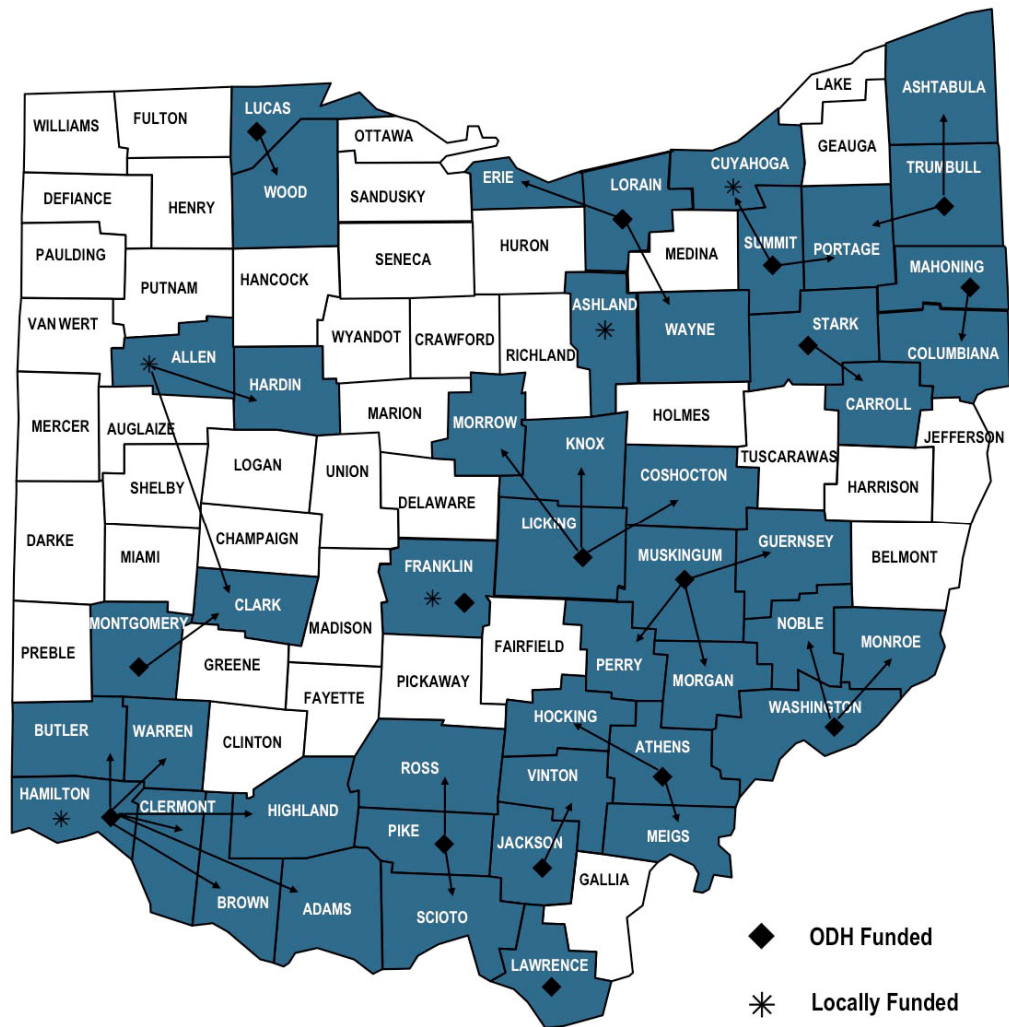
- Map 3 shows counties with a significantly high or low percentage of children with one or more dental sealants, compared to the state.
- Children in counties **shaded blue were more likely** to have dental sealants.
- Children in counties **shaded red were less likely** to have dental sealants.
- Counties that are not shaded had rates for dental sealants that were not significantly different from rates for the entire state.

**Map 3: Percentage of Children with Dental Sealants,
by County, 2013-15**



The Ohio Department of Health (ODH) funds school-based sealant programs (SBSPs) in many counties. Most of these programs are in metropolitan and Appalachian counties. Programs are targeted to areas with more children from lower-income families who have trouble getting dental care. Map 4 shows counties that had ODH SBSP grants and locally-funded programs in 2016. The arrows point to additional counties that were served by these programs. There is considerable overlap between the counties with significantly higher rates of dental sealants seen in Map 3 and the location of SBSPs seen in Map 4.

Map 4: Counties with School-based Dental Sealant Programs, 2016



The following chart presents rates of four key measures of oral health among 3rd grade schoolchildren by county. For **Toothaches, Untreated Cavities and History of Tooth Decay**, rates shaded in red are significantly higher than those for Ohio. Rates in blue are significantly lower. Conversely, for **One or More Sealants**, county rates in blue are significantly higher and those in red are significantly lower. Counties that are not shaded had rates that were not significantly different from rates for the entire state. The table also provides the lower and upper values of confidence intervals for each rate (“LCI” and “UCI”). A confidence interval is a range around each rate that gives an indication of its precision. County percentages shaded in yellow have a relative standard error greater than or equal to 30 percent and have been deemed unreliable.

	Toothache in the Last Six Months			Untreated Cavities			History of Tooth Decay			One of More Sealants		
County	%	LCI	UCI	%	LCI	UCI	%	LCI	UCI	%	LCI	UCI
Adams	17.1%	10.9%	25.9%	25.1%	14.8%	39.2%	63.3%	58.3%	67.9%	77.0%	54.9%	90.2%
Allen	12.6%	6.5%	22.9%	19.7%	11.2%	32.5%	50.0%	44.0%	55.9%	74.3%	63.8%	82.6%
Ashland	8.7%	5.4%	13.8%	27.4%	18.5%	38.5%	53.7%	43.9%	63.2%	54.4%	31.4%	75.7%
Ashtabula	10.2%	7.8%	13.4%	31.2%	15.8%	52.3%	53.5%	41.4%	65.3%	21.1%	11.3%	36.1%
Athens	13.9%	10.7%	18.0%	24.2%	21.0%	27.7%	56.3%	51.4%	61.1%	76.8%	62.9%	86.5%
Auglaize	7.1%	4.2%	11.9%	14.4%	8.6%	23.0%	41.6%	29.9%	54.3%	26.1%	16.9%	38.0%
Belmont	14.7%	9.7%	21.7%	25.6%	19.1%	33.5%	55.3%	50.6%	59.8%	17.7%	12.2%	24.9%
Brown	13.5%	5.9%	28.0%	36.8%	21.2%	55.8%	66.9%	53.3%	78.1%	70.1%	46.0%	86.5%
Butler	6.7%	4.3%	10.2%	10.8%	8.3%	14.0%	33.9%	29.2%	39.0%	38.2%	24.0%	54.8%
Carroll	5.6%	4.1%	7.5%	27.9%	22.7%	33.8%	75.3%	60.3%	86.0%	69.0%	59.8%	77.0%
Champaign	9.8%	8.5%	11.2%	13.4%	11.3%	15.8%	44.4%	38.4%	50.5%	35.0%	25.6%	45.6%
Clark	13.4%	9.3%	18.8%	39.9%	30.0%	50.7%	67.3%	53.6%	78.6%	64.8%	51.7%	76.0%
Clermont	8.7%	6.0%	12.4%	14.1%	8.4%	22.8%	43.5%	34.9%	52.5%	49.7%	38.2%	61.2%
Clinton	10.2%	7.4%	13.9%	27.5%	23.1%	32.4%	54.0%	51.1%	56.8%	48.5%	39.8%	57.2%
Columbiana	7.7%	1.9%	26.0%	29.4%	21.2%	39.2%	56.1%	44.2%	67.3%	47.6%	34.6%	60.8%
Coshocton	10.7%	6.5%	17.0%	29.1%	24.0%	34.9%	66.8%	59.6%	73.3%	62.6%	50.2%	73.4%
Crawford	15.7%	13.3%	18.5%	16.8%	9.9%	27.0%	56.3%	50.4%	62.0%	40.3%	27.4%	54.6%
Cuyahoga	10.2%	6.9%	14.8%	17.1%	12.1%	23.6%	48.9%	41.9%	55.9%	54.7%	50.4%	59.0%
Darke	6.9%	5.8%	8.1%	14.3%	11.2%	18.0%	50.9%	33.6%	68.0%	52.2%	43.2%	61.1%
Defiance	13.3%	7.7%	22.2%	21.1%	13.3%	31.8%	56.7%	44.2%	68.4%	26.9%	23.9%	30.1%
Delaware	5.6%	3.8%	8.1%	9.0%	6.5%	12.3%	36.6%	32.0%	41.5%	46.2%	40.0%	52.5%
Erie	13.3%	10.4%	17.0%	19.0%	12.0%	28.7%	62.2%	50.6%	72.5%	35.6%	26.1%	46.4%
Fairfield	11.6%	8.2%	16.1%	11.1%	6.8%	17.6%	43.1%	32.8%	54.0%	43.4%	39.9%	46.9%
Fayette	7.6%	5.6%	10.3%	30.1%	29.9%	30.4%	59.9%	59.0%	60.7%	45.8%	39.3%	52.4%
Franklin	11.7%	6.0%	21.6%	21.0%	12.9%	32.3%	53.6%	42.5%	64.3%	57.1%	50.2%	63.7%
Fulton	5.2%	2.8%	9.4%	7.3%	4.7%	11.1%	45.6%	40.5%	50.8%	29.8%	25.1%	35.0%
Gallia	7.9%	4.3%	14.1%	33.0%	17.9%	52.6%	55.3%	35.9%	73.2%	53.5%	46.4%	60.5%
Geauga	5.3%	3.0%	9.0%	10.1%	6.6%	15.3%	38.2%	30.6%	46.6%	47.4%	38.3%	56.7%
Greene	6.1%	3.2%	11.5%	19.4%	11.7%	30.4%	52.6%	41.0%	63.9%	54.2%	50.3%	58.1%
Guernsey	15.1%	12.2%	18.6%	26.6%	20.1%	34.3%	56.2%	50.0%	62.3%	66.0%	52.7%	77.1%
Hamilton	10.8%	7.0%	16.3%	11.9%	7.9%	17.5%	46.3%	37.8%	55.1%	46.4%	36.7%	56.5%
Hancock	12.6%	10.8%	14.6%	18.5%	15.0%	22.5%	54.1%	46.8%	61.2%	31.2%	20.6%	44.4%
Hardin	8.5%	6.3%	11.4%	13.0%	6.6%	24.0%	49.7%	49.3%	50.0%	28.7%	19.0%	40.9%
Harrison	9.2%	4.2%	19.1%	21.9%	9.8%	42.1%	52.9%	48.0%	57.7%	45.1%	27.5%	64.0%
Henry	8.7%	5.9%	12.8%	15.0%	12.0%	18.5%	55.8%	42.7%	68.1%	35.7%	22.8%	51.2%
Highland	13.7%	7.4%	23.8%	29.0%	27.1%	31.0%	63.8%	59.5%	67.9%	69.8%	63.1%	75.8%
Hocking	14.6%	13.7%	15.5%	35.3%	24.1%	48.4%	60.1%	45.2%	73.4%	84.4%	83.0%	85.8%
Holmes	21.5%	7.0%	50.0%	57.6%	27.0%	83.3%	67.2%	44.4%	84.0%	11.2%	4.1%	27.0%
Huron	7.0%	3.5%	13.5%	17.6%	12.3%	24.5%	54.6%	49.1%	59.9%	26.6%	18.7%	36.2%
Jackson	12.8%	9.0%	17.8%	39.9%	30.5%	50.1%	56.6%	44.7%	67.8%	77.5%	69.4%	84.0%
Jefferson	7.9%	5.6%	11.0%	27.7%	23.7%	32.0%	57.9%	44.6%	70.0%	29.9%	23.1%	37.8%
Knox	8.1%	5.0%	12.7%	28.1%	23.7%	32.9%	61.8%	57.4%	66.1%	67.0%	52.7%	78.7%

	Toothache in the Last Six Months			Untreated Cavities			History of Tooth Decay			One of More Sealants		
County	%	LCI	UCI	%	LCI	UCI	%	LCI	UCI	%	LCI	UCI
Lake	4.0%	2.0%	8.0%	21.4%	15.3%	29.0%	55.0%	49.7%	60.2%	34.4%	30.6%	38.4%
Lawrence	15.6%	8.3%	27.3%	26.9%	10.7%	52.8%	55.3%	40.7%	69.0%	66.2%	56.9%	74.4%
Licking	9.1%	6.1%	13.5%	11.4%	6.6%	18.9%	56.9%	50.0%	63.6%	70.9%	63.2%	77.5%
Logan	9.5%	7.8%	11.5%	22.4%	21.1%	23.9%	50.9%	41.2%	60.6%	33.3%	28.8%	38.0%
Lorain	10.1%	4.8%	20.1%	9.6%	5.1%	17.6%	46.2%	34.2%	58.7%	44.5%	37.4%	51.9%
Lucas	13.5%	10.7%	16.8%	16.2%	12.0%	21.6%	55.4%	49.3%	61.3%	47.5%	40.7%	54.4%
Madison	6.1%	1.8%	18.5%	14.8%	6.7%	29.8%	38.3%	20.1%	60.6%	43.4%	38.7%	48.3%
Mahoning	11.9%	5.8%	22.6%	25.0%	22.3%	27.9%	58.8%	50.0%	67.1%	37.7%	25.6%	51.7%
Marion	20.4%	18.8%	22.2%	35.6%	30.3%	41.2%	65.7%	56.9%	73.6%	39.4%	29.2%	50.7%
Medina	5.8%	4.6%	7.4%	14.8%	11.5%	18.8%	46.8%	40.6%	53.1%	44.2%	33.7%	55.3%
Meigs	9.5%	6.4%	13.8%	48.8%	40.9%	56.7%	64.2%	58.2%	69.7%	79.7%	74.7%	84.0%
Mercer	9.0%	6.8%	11.9%	15.2%	11.8%	19.5%	44.2%	40.1%	48.4%	28.2%	23.3%	33.7%
Miami	7.0%	3.7%	13.0%	12.9%	8.8%	18.5%	39.5%	33.4%	46.1%	34.4%	23.4%	47.5%
Monroe	15.0%	9.3%	23.1%	42.8%	32.2%	54.1%	67.2%	49.2%	81.2%	69.7%	54.9%	81.4%
Montgomery	15.4%	11.1%	21.1%	11.1%	7.9%	15.4%	65.4%	59.6%	70.9%	62.2%	46.0%	76.1%
Morgan	7.8%	5.6%	10.6%	31.6%	15.1%	54.6%	67.5%	52.4%	79.7%	79.0%	67.5%	87.2%
Morrow	8.0%	4.0%	15.2%	23.6%	13.8%	37.3%	59.1%	57.3%	60.9%	56.1%	44.7%	66.9%
Muskingum	9.5%	5.4%	16.2%	20.5%	17.4%	23.9%	53.4%	49.4%	57.3%	71.1%	59.2%	80.7%
Noble	4.2%	1.7%	10.2%	33.7%	21.5%	48.6%	55.2%	44.6%	65.3%	88.2%	62.0%	97.2%
Ottawa	6.3%	1.1%	28.4%	19.4%	14.5%	25.3%	48.3%	45.1%	51.6%	28.6%	26.8%	30.4%
Paulding	4.7%	2.9%	7.4%	11.3%	3.0%	34.3%	45.1%	15.2%	79.0%	46.5%	32.7%	60.9%
Perry	7.8%	4.4%	13.6%	30.5%	17.2%	48.3%	60.2%	45.3%	73.4%	62.6%	42.5%	79.1%
Pickaway	13.0%	9.8%	16.9%	23.6%	19.4%	28.3%	51.0%	37.6%	64.2%	47.9%	40.9%	54.9%
Pike	16.5%	8.8%	28.8%	38.4%	33.6%	43.5%	63.5%	56.4%	70.1%	67.2%	57.3%	75.9%
Portage	9.1%	6.0%	13.6%	25.6%	22.1%	29.3%	59.2%	50.2%	67.7%	49.9%	37.0%	62.8%
Preble	7.2%	4.6%	11.2%	16.7%	12.8%	21.5%	47.8%	45.6%	50.1%	39.0%	22.9%	57.9%
Putnam	7.4%	3.8%	13.7%	9.8%	6.8%	13.9%	45.4%	36.7%	54.3%	18.5%	12.1%	27.4%
Richland	5.7%	3.4%	9.5%	7.9%	5.3%	11.6%	52.6%	41.3%	63.5%	46.2%	40.3%	52.2%
Ross	5.2%	4.7%	5.7%	20.8%	13.6%	30.4%	54.5%	51.5%	57.5%	57.9%	36.2%	77.0%
Sandusky	12.0%	8.2%	17.2%	15.9%	10.4%	23.6%	57.3%	53.0%	61.5%	39.4%	27.0%	53.3%
Scioto	15.4%	15.4%	15.4%	34.0%	34.0%	34.0%	59.3%	59.3%	59.3%	42.5%	42.5%	42.5%
Seneca	11.4%	4.9%	24.1%	20.1%	10.5%	35.0%	53.2%	49.6%	56.7%	23.7%	21.3%	26.2%
Shelby	10.0%	5.5%	17.5%	19.0%	12.7%	27.5%	54.8%	47.0%	62.3%	24.6%	17.4%	33.5%
Stark	8.1%	6.2%	10.5%	19.6%	12.6%	29.4%	49.0%	37.9%	60.1%	51.6%	42.0%	61.0%
Summit	9.0%	5.2%	15.2%	13.1%	6.8%	23.7%	41.4%	33.8%	49.3%	47.2%	38.6%	55.9%
Trumbull	8.3%	6.0%	11.4%	22.1%	18.4%	26.4%	60.4%	54.8%	65.8%	43.9%	35.4%	52.8%
Tuscarawas	8.6%	5.8%	12.6%	20.6%	16.3%	25.7%	61.7%	55.1%	67.8%	38.7%	31.3%	46.7%
Union	7.4%	4.1%	13.0%	10.7%	7.5%	15.0%	40.9%	34.4%	47.8%	39.6%	27.9%	52.6%
Van Wert	13.1%	9.4%	18.0%	22.0%	14.5%	31.9%	54.7%	47.8%	61.4%	35.1%	11.2%	69.9%
Vinton	15.7%	12.3%	19.8%	36.7%	22.9%	53.2%	66.3%	43.5%	83.4%	76.0%	65.7%	83.9%
Warren	6.7%	4.8%	9.3%	11.8%	8.1%	16.9%	39.2%	32.5%	46.4%	45.0%	33.8%	56.8%
Washington	10.3%	7.0%	14.8%	32.4%	17.0%	52.7%	65.3%	50.4%	77.7%	52.7%	42.3%	62.9%
Wayne	9.9%	7.6%	12.9%	19.1%	14.3%	25.0%	60.3%	48.9%	70.6%	62.5%	45.3%	77.1%
Williams	11.0%	7.2%	16.3%	20.5%	15.9%	26.0%	45.4%	33.8%	57.5%	28.7%	21.3%	37.5%
Wood	1.6%	0.4%	6.2%	10.4%	6.6%	16.0%	48.1%	42.9%	53.3%	45.7%	38.5%	53.1%
Wyandot	12.2%	7.3%	19.8%	15.7%	3.3%	50.2%	59.5%	50.2%	68.2%	21.3%	18.7%	24.2%

Due to the sampling methods used in the survey, relatively small numbers of children were screened in each county. The width of each confidence interval (CI) gives us some idea about how certain we are about the true prevalence of each measure in each county. In counties with wide confidence intervals, we are less certain about the true prevalence, while in counties with small intervals, we are more certain. In technical terms, the 95 percent confidence interval means if we were to repeat the survey 100 times, 95 of the confidence intervals we found would contain the true prevalence for that measure in that county.

Methods

The Ohio Department of Health conducted an open-mouth oral health screening survey of 3rd grade schoolchildren during the 2013-15 school years. A randomized sample of 440 public elementary schools was selected to yield data for Ohio and each of its 88 counties. Approximately 16,000 schoolchildren were screened.

With consent from parents, schoolchildren were screened by a trained team of dental hygienists and dentists. Four indicators of oral health were measured: toothaches, history of tooth decay (cavities, fillings, crowns or teeth missing due to cavities) untreated tooth decay, and the presence of dental sealants.

The consent form asked parents questions about getting dental care for their child, such as how recently their child had been to the dentist, if they have dental insurance and their ability to get needed dental care.

Other data collected on each child were race, ethnicity and enrollment in the Free and Reduced Price Meal Program (as an estimate of family income.) Children were classified as to whether they lived in a metropolitan, suburban, Appalachian or rural/non-Appalachian county. These data were collected so disparities in oral health status and access to dental care could be studied.

For more information, please visit our website at <https://odh.ohio.gov/know-our-programs/oral-health-program>.