

# Hills and Valleys:

## The Challenge of Improving Oral Health in Appalachian Ohio 2012

A Report on Oral Health and Barriers to Getting Dental Care

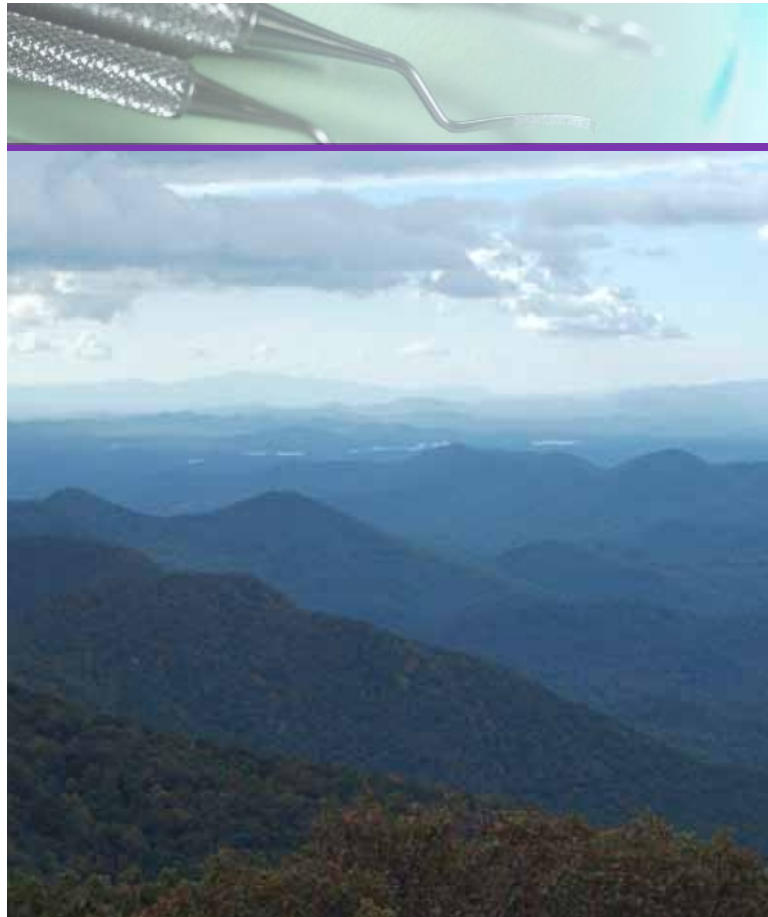


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# Executive Summary

## Executive Summary



Appalachian Ohio is a region unlike any other in Ohio. People are lured to the lush temperate forests, mountaintop vistas and meandering streams. Its history and culture are rooted in the vastness of the area, where a mile or more may separate neighbors and the nearest town is an hour's drive away. The size of the Appalachian region and its relative sparseness, while appealing to the tourist wanting to "get away from it all," contribute to unique problems for people who live there day to day.

One problem can be accessing health care. Getting dental care, in particular, has been a challenge to people in the Appalachian region for years, resulting in poorer oral health status.

### The Oral Health of Children

- Children in Appalachian Ohio suffer from tooth decay at nearly a 59 percent higher rate than children in other areas of Ohio. They have more untreated cavities and toothaches.
- Getting dental care is the single most common unmet health care need among children in the region.
- They are more likely to have dental problems that need prompt attention than children in other areas of the state.
- They are less likely to have visited the dentist in the past year, and a higher percentage has never been to the dentist.



## The Oral Health of Adults

- ◀◀ Working-age adults (19-64 years of age) and seniors age 65 and older in Appalachian Ohio are more likely to have lost all their permanent teeth due to tooth decay or gum disease, and are less likely to have had a recent dental visit than adults in other areas of the state.
- ◀◀ Thirteen of the 21 counties with the highest incidence of oral and pharyngeal cancer in Ohio are found in the Appalachian region.
- ◀◀ 16 percent of adults in Appalachian Ohio state that they can't get the dental care they need; in some counties, one-quarter to one-third of adults can't get care.
- ◀◀ Nearly half of working-age adults (more than 425,000 persons) in Appalachian Ohio don't have dental insurance.

## Barriers to Care

- ◀◀ There is a shortage of dentists in the region, particularly specialists. Twenty-five of the 32 counties in the region are designated as federal dental Health Professional Shortage Areas.
- ◀◀ Thousands of residents in Appalachian Ohio live a minimum of ten miles from the nearest dentist; the distance is 25 or more miles for specialty care, such as services by a pediatric dentist.
- ◀◀ There aren't enough dentists who take patients on Medicaid to provide care to the large number of people who are Medicaid-eligible.
- ◀◀ Voluntary programs to provide dental care at low- or no-cost have relatively few dentists enrolled, and the waiting list is long for people who've been approved to receive care.

There are a handful of programs making a difference in the oral health of residents in the Appalachian region in non-traditional ways, such as through mobile dental programs. But a broader and more sustainable effort will be needed to reduce the disparities in oral health between residents of Appalachian Ohio and other areas of the state.



## Introduction

Sara\* lives in Appalachian Ohio. A very bright student, Sara struggled for years in school, reluctant to talk to teachers and classmates. She had a habit of holding her hand over her mouth so people couldn't see her teeth. When Sara was in the fourth grade, she was told that she needed orthodontics to fix the extreme overbite she had. Her case was complex, requiring oral surgery. Even though both her parents worked, neither had dental insurance and they couldn't afford to pay for the dental care she needed. In addition, there wasn't an orthodontist in her area who could help her, so the only option was to go to Nationwide Children's Hospital in Columbus to get the care she needed. But transportation for the two-hour drive to Columbus was a problem, as was finding a place for her mother to stay while Sara received care. Finally, four years after her diagnosis, a local philanthropic organization was able to provide the money to help Sara. Today, she is a new person who has blossomed into a confident and successful high school student.

Jacob\* also lives in the Appalachian region and likes to play ice hockey. One morning while playing, one of his teeth was knocked out. Jacob had dental insurance through Medicaid, but didn't have a regular dentist. The school nurse began calling dental offices in the area to see if a dentist would see Jacob. One by one, each dental office declined to see Jacob because the office didn't serve people on Medicaid. Finally, the sixth office she called agreed to see Jacob, but would only offer an appointment later in the afternoon, even though he was having a dental emergency. Undeterred, the school nurse refused to wait and took Jacob to the office anyway. The tooth was saved, but Jacob never returned to the dental office to receive the root canal that was recommended.

Sara's and Jacob's stories are not that different from others' in the Appalachian region. Getting dental care has been a challenge to people in the Appalachian region for years, resulting in poorer oral health status. 1-4 This report provides the latest information about the oral health of people in Appalachian Ohio and the unique difficulties they face in getting dental care. The report also provides examples of innovative programs that are helping to improve the oral health of people in the region and offers recommendations for other strategies that hold promise for improving oral health in Appalachian Ohio.



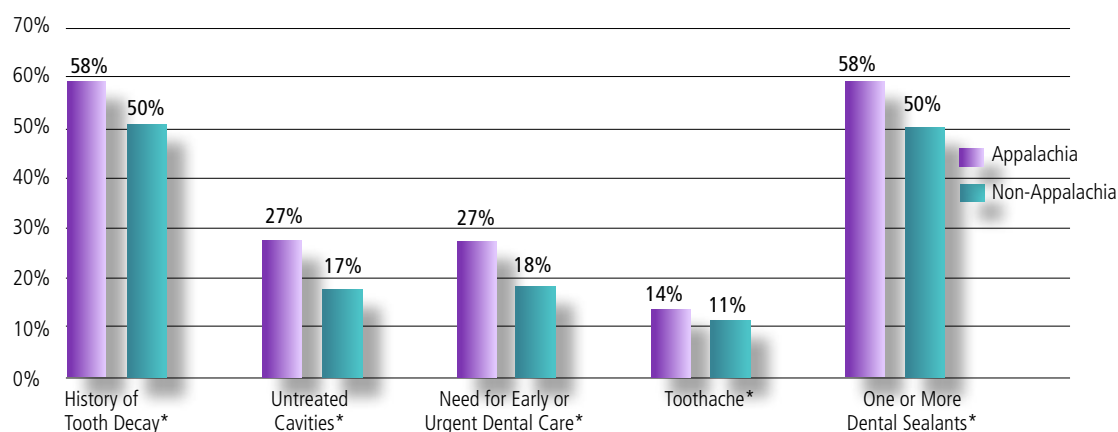
## Section 1: The Oral Health of Children in Appalachian Ohio

### What do we know about the oral health of children who live in Appalachian Ohio?

These children have worse oral health than children living elsewhere in Ohio. Most recent data show that:

- ◀ A higher percentage of children in Appalachia have experienced tooth decay in their permanent teeth.<sup>1</sup>
- ◀ A higher percentage of these children have one or more untreated cavities.<sup>1</sup>
- ◀ They continue to suffer from tooth decay at nearly a 59 percent higher rate than children in other areas of Ohio.<sup>1</sup>
- ◀ Children in Appalachia have significantly more dire dental needs than children in other areas of the state. Twenty-seven percent of children in Appalachian counties needed early or urgent dental care compared to 18 percent of children in other areas of the state.<sup>1</sup>
- ◀ They are more likely to report having a toothache during the previous six months.<sup>1</sup>

Table 1: Comparison of Oral Health among Third Grade Children in Appalachian and Non-Appalachian Counties, 2009-2010



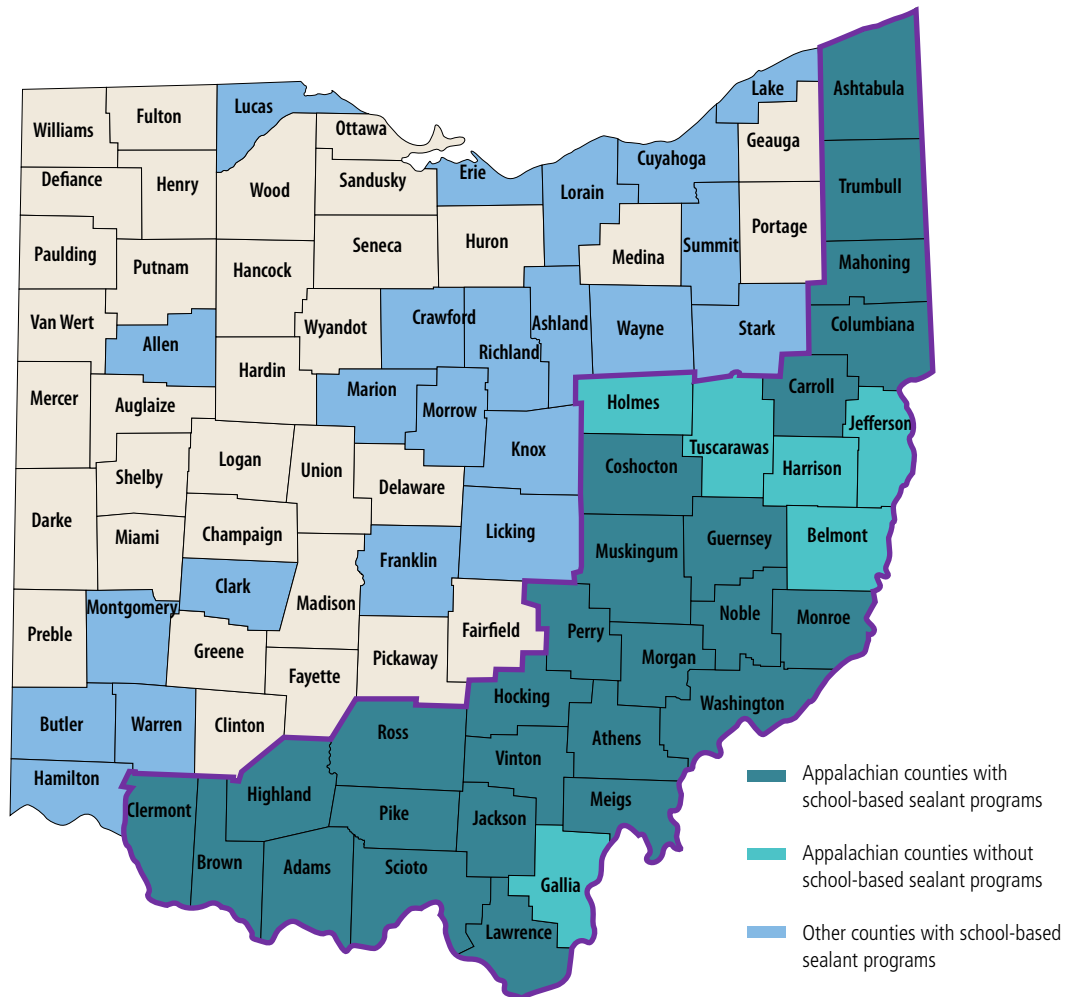
\*Statistically significant at  $p < .05$

Fortunately, 58 percent of children in Appalachian counties have one or more dental sealants, the highest percentage of any region in the state.<sup>1</sup> Dental sealants are the most effective tool to prevent the most common type of tooth decay seen among school-age children today. As the map on the next page shows, 26 of the 32 counties in Appalachia have school-based sealant programs.<sup>5</sup>

However, over the past few years, consent for participation in school-based sealant programs has decreased across the state, including in the Appalachian region where it has dropped from 54 percent in 2005 to 46 percent in 2011.<sup>5</sup> The reason for the decline in consent is unclear, but the impact could be significant.

School-based sealant programs are especially critical in Appalachian Ohio where oral health status is worse and access to regular dental care is poor.

Figure 1: School-based Sealant Programs in Ohio, 2012



## Is the oral health of children in Appalachian Ohio improving?

Unfortunately, the oral health of children in Appalachia continues to fall short of other children in Ohio.

- ◀ The three most recent statewide oral health surveys of Ohio's children have consistently shown that more children in the Appalachian region experience tooth decay, have untreated cavities and have the need for early or urgent dental care compared to other children in Ohio.<sup>1, 3, 4</sup>
- ◀ The disparity between children in Appalachian Ohio and other children in Ohio appears to be worsening. For example, in 1998-99, children in Appalachian Ohio had a 38 percent higher rate of untreated cavities than children elsewhere in Ohio; in 2004-05, the disparity increased to 46 percent higher; and in 2009-10, the disparity increased again to nearly 59 percent higher.<sup>1, 3, 4</sup>
- ◀ The only measure that has shown steady improvement is the percentage of children with one or more dental sealants, which has increased among children in Appalachia from 44 percent to 58 percent over the years, due in large part to the targeting of school-based sealant programs in southeastern Ohio.<sup>1, 4</sup>
- ◀ Except for dental sealants, the measures of oral health for children in Appalachia have not met the 2020 national benchmarks.

These disparities are highlighted in Table 2.

Table 2: The Oral Health Status of Children in Appalachia in Comparison to Ohio and National Benchmarks

Measure	1998-99 Survey <sup>4</sup>	2004-05 Survey <sup>3</sup>	2009-10 Survey <sup>1</sup>	National targets for 2020 <sup>6</sup>
<b>Percentage of children with a history of tooth decay</b>				
Appalachian region	57%	63%	58%	49%
Remainder of Ohio	50%	54%	50%	
<b>Percentage of children with untreated cavities</b>				
Appalachian region	33%	35%	27%	26%
Remainder of Ohio	24%	24%	17%	
<b>Percentage of children with an obvious need for dental care</b>				
Appalachian region	33%	35%	27%	Not addressed
Remainder of Ohio	24%	25%	18%	
<b>Percentage of children with one or more dental sealants</b>				
Appalachian region	44%	48%	58%	28%
Remainder of Ohio	32%	43%	50%	

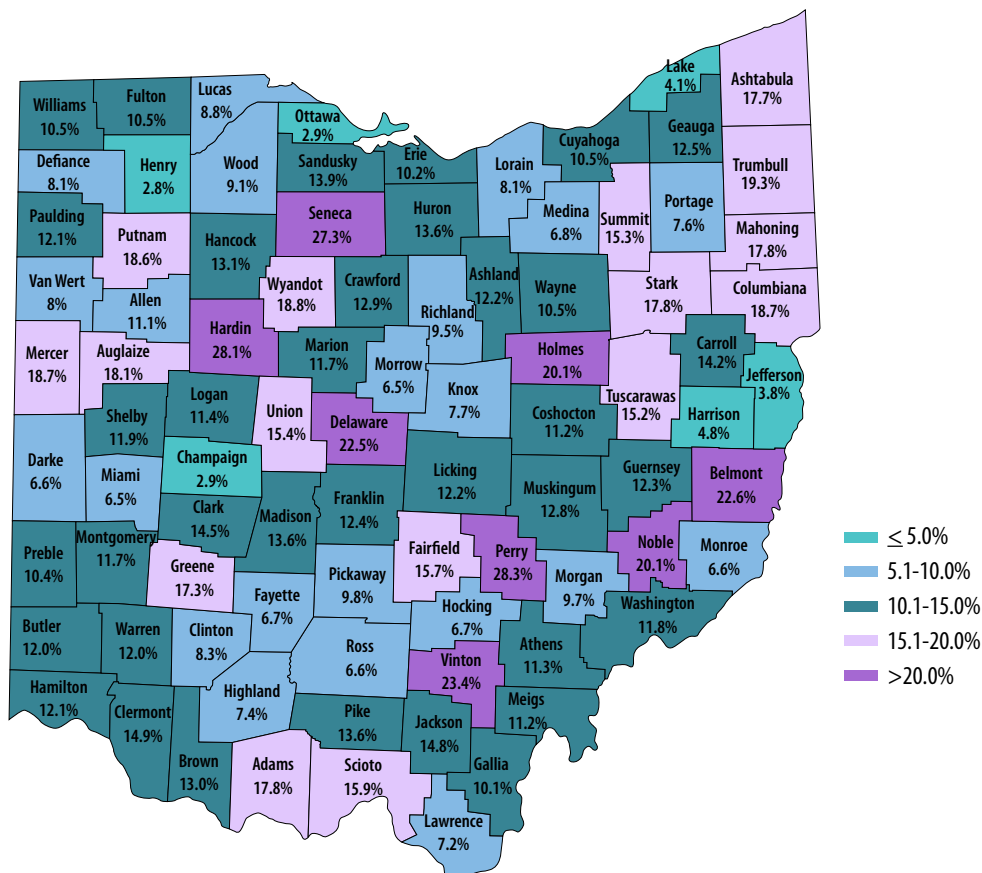
\*Data from the 1998-99, 2004-05 and 2009-10 surveys are based on oral health findings for permanent teeth among third-grade school-children. The national Healthy People 2020 Objectives are expressed in terms of age, not grade. The comparable national objectives for children aged 6-9 years are: 1) Reduce the proportion of children with dental caries experience ("history of tooth decay") in their primary and permanent teeth; 2) Reduce the proportion of children with untreated dental decay in primary and permanent teeth; and 3) Increase the proportion of children who have received dental sealants on their molar teeth.

## Are children in Appalachian Ohio able to get dental care?

Many can't. In 2010, access to dental care was the single most common unmet health care need among children in Ohio, including in Appalachia.<sup>7</sup>

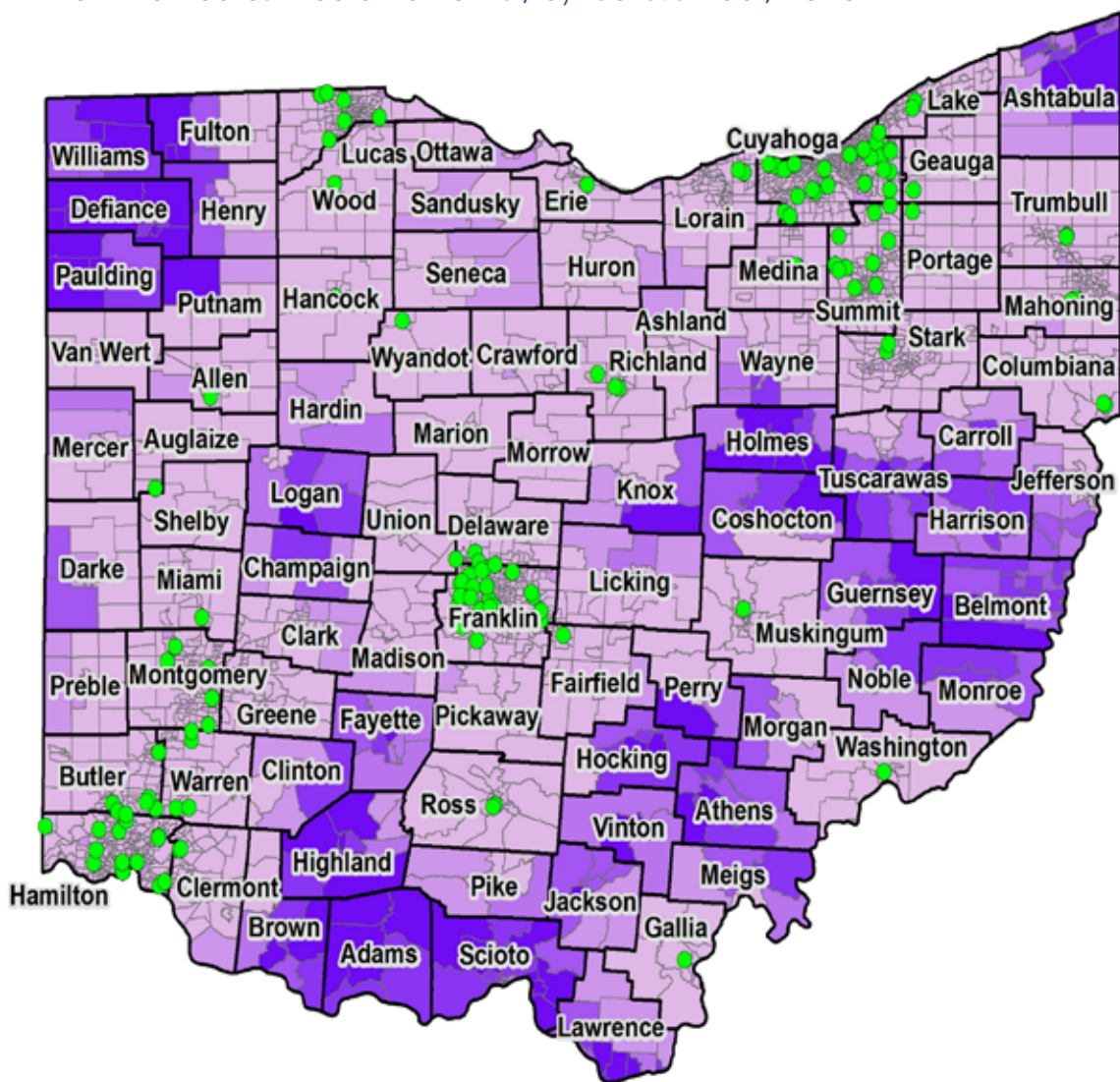
- ◀ The three most common reasons cited for why children in Appalachia can't get the dental care they need is that their families can't afford it (22 percent); the wait to see a dentist is too long (19 percent); and they don't have dental insurance (15 percent).<sup>1</sup>
- ◀ Children in Appalachia are less likely to have visited the dentist during the past year than children in other regions of Ohio. Seventy-seven percent of children in Appalachia had visited the dentist during the past year, compared to 81 percent of children in non-Appalachian Ohio.<sup>8</sup>
- ◀ Figure 2 shows the percentage of children in each Ohio county who have **never** visited the dentist. About 48,000 (12 percent) of children in Appalachia have never been to the dentist.<sup>7</sup> Twelve of the 24 counties in Ohio with the highest percentage of children who have never been to the dentist are Appalachian.<sup>8</sup>

Figure 2: Percentage of Ohio Children (under age 18) who have Never Visited a Dentist, Ohio Family Health Survey, 2008



There are few dental specialists in the Appalachian region, such as pediatric dentists. Most children in Appalachia are 25 miles or more from the nearest pediatric dentist, as seen in Figure 3 on page 9.<sup>5</sup>

Figure 3: Population Under 18 Years of Age Living 25 Miles or More From the Nearest Pediatric Dentist, by Census Tract, 2010



**Legend**

● Licensed Pediatric Dentists 2010

Ohio Census Tracts 2010

Population Under 18 Living 25 Miles or More from the Nearest Pediatric Dentist

- None
- 1-250
- 251-500
- 501-750
- 751-1000
- 1001 or more

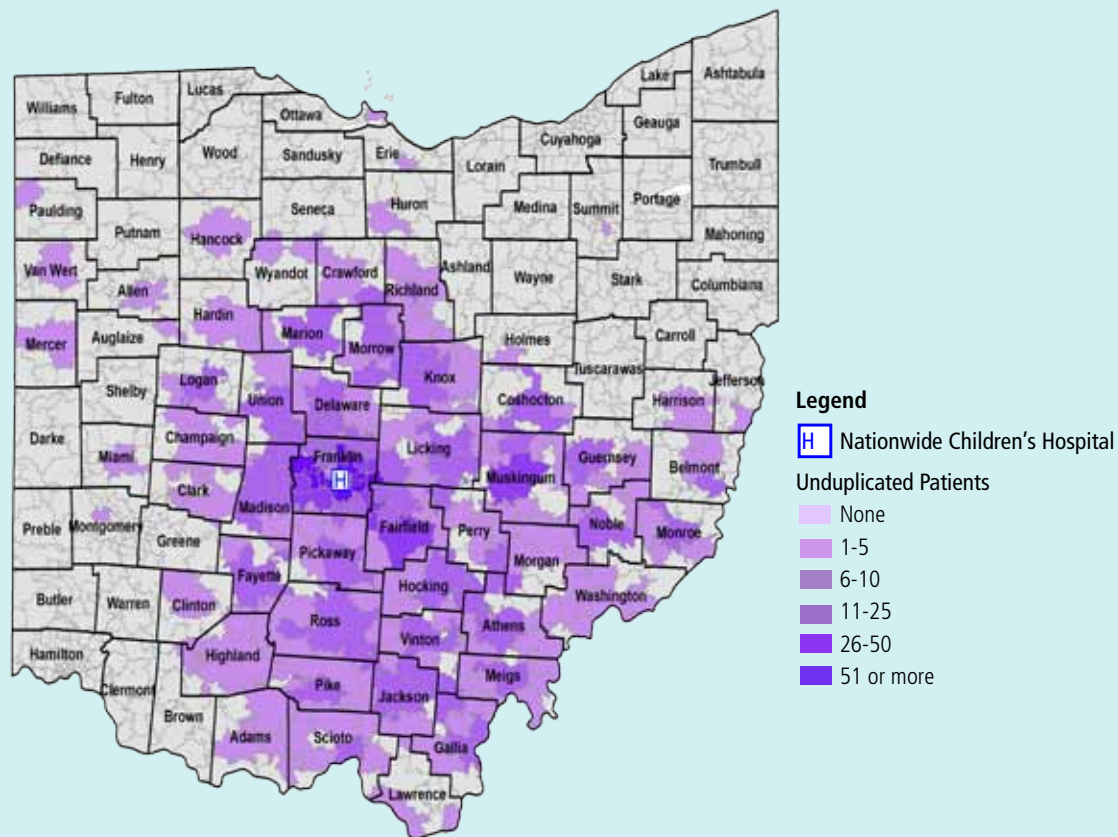


## Getting Dental Care Far From Home

Without access to regular dental care, dental problems in children can become serious and require care by a pediatric dentist. And for children with special health needs, even routine care can require the expertise of a pediatric dentist. But what do families do when there aren't any pediatric dentists nearby? One option for many families in Appalachian Ohio is to take their children to Nationwide Children's Hospital (NCH) in Columbus. As seen in Figure 4, NCH draws patients from across Ohio, and a significant number of children come to NCH from the Appalachian region.

Between February 2011 and April 2012, a total of 560 patients from Appalachian Ohio came to NCH for dental care.<sup>9</sup> This represents 15 percent of all patients seen at NCH during that time period. Most of these children came from families with low incomes; 76 percent were enrolled in Medicaid. An additional eight percent were uninsured. As seen in Table 3 on page 11, children came to NCH for a wide array of dental procedures, most commonly for diagnostic and preventive services. However, restorative and surgical procedures were also quite common.

Figure 4: Nationwide Children's Hospital Dental Clinic Unduplicated Patients by Zip Code, February 2011 - April 2012





## Getting Dental Care Far From Home

Table 3: Types of Dental Procedures Provided to Children from Appalachian Counties in Ohio, Nationwide Children's Hospital Dental Clinic, February 2011-April 2012

Procedure Types	For Patients from Appalachia	
	Number of Procedures*	Percentage of Total Procedures
Emergency Exams	132	5.2%
Other Diagnostic	739	29.2%
Preventive	677	26.7%
Restorative	447	17.6%
Endodontic	59	2.3%
Surgical	257	10.1%
Sedation	136	5.4%
Other	88	3.5%
Total Procedures	2535	

\*A patient can have multiple procedures in the same category during one visiting (e.g., restorative procedures) or can have multiple procedures in the same category during separate visits (e.g., emergency examinations). Sedation procedures are counted as one procedure for the first 30 minutes and then a separate procedure for every additional 15 minutes of sedation.

Eighty patients were seen during this time period for emergency examinations, and 76 required sedation (and possibly general anesthesia) for their dental treatment.

Having to travel far from home to get dental care isn't a convenient option for most families. But for a family with a low income, it may prevent them from getting care at all. A parent with a low-paying job may not receive time off to take their child for care. Being off work may lead to lost wages or worse—loss of a job. Lack of transportation or the cost of traveling long distances can be another significant obstacle for families, as is making arrangements for the care of other family members left at home.

## Fluoride Varnish: Effective But Underused in Appalachian Ohio



*A child receiving an application of fluoride varnish*

Despite recommendations by the American Academy of Pediatrics<sup>10</sup> and the American Academy of Pediatric Dentistry<sup>11</sup> that children see a dentist by their first birthday, most young children are unlikely to visit a dentist until 3 years of age or older. However, the majority of babies and young children visit a physician or other primary care provider on a regular basis; these health

care professionals can play a critical role in making sure that a child gets off to a good oral health start. Since 2006, Ohio Medicaid has reimbursed physicians and advanced practice nurses for fluoride varnish (FV) applications when done in conjunction with an oral health assessment and anticipatory guidance. FV is a highly concentrated form of fluoride and is effective in preventing cavities in both the permanent and primary (baby) teeth. It can also stop cavities that are just starting from getting bigger. FV is easy to apply, inexpensive, tastes good and is well tolerated by children of all ages, even infants.

Unfortunately, the application of FV by medical care providers remains underutilized in Ohio and especially in the Appalachian counties. As seen in Table 4, most recent data show that only nine non-dental health care providers in Appalachia applied FV to a total of 92 Medicaid-eligible patients in 2010.<sup>12</sup>

**Table 4: Number of Children Covered by Medicaid who Received Fluoride Varnish, and the Number of Providers who Applied Fluoride Varnish, by Region, SFY 2010**

Region	Patients	Percent of Patients	Providers	Percent of Providers
Appalachia	92	2%	9	5%
Rural	956	18%	24	14%
Metropolitan	3,649	67%	116	66%
Suburban	722	13%	25	14%
All Ohio	5,445	100%	175	100%

The Ohio Department of Health has developed a Web-based curriculum, *Smiles for Ohio—Fluoride Varnish Training for Primary Medical Care Providers Serving Young Children Enrolled in Medicaid*<sup>13</sup>, to provide physicians and other primary medical care providers with knowledge needed to prevent tooth decay in young children. Clearly, more work needs to be done to promote the application of fluoride varnish for children who reside in the Appalachian region.

## Section 2: The Oral Health of Adults in Appalachian Ohio

What do we know about the oral health of adults who live in Appalachian Ohio?

Adults in Appalachian Ohio suffer from poorer oral health than adults in other areas of Ohio.

- Working-age adults (19-64 years of age) and seniors age 65 and older in Appalachia are more likely to have lost all their permanent teeth due to tooth decay or gum disease, and are less likely to have had a recent dental visit.<sup>14</sup>

Table 5 shows the disparities in oral health between adults in Appalachia and in other areas of the state.<sup>14</sup>

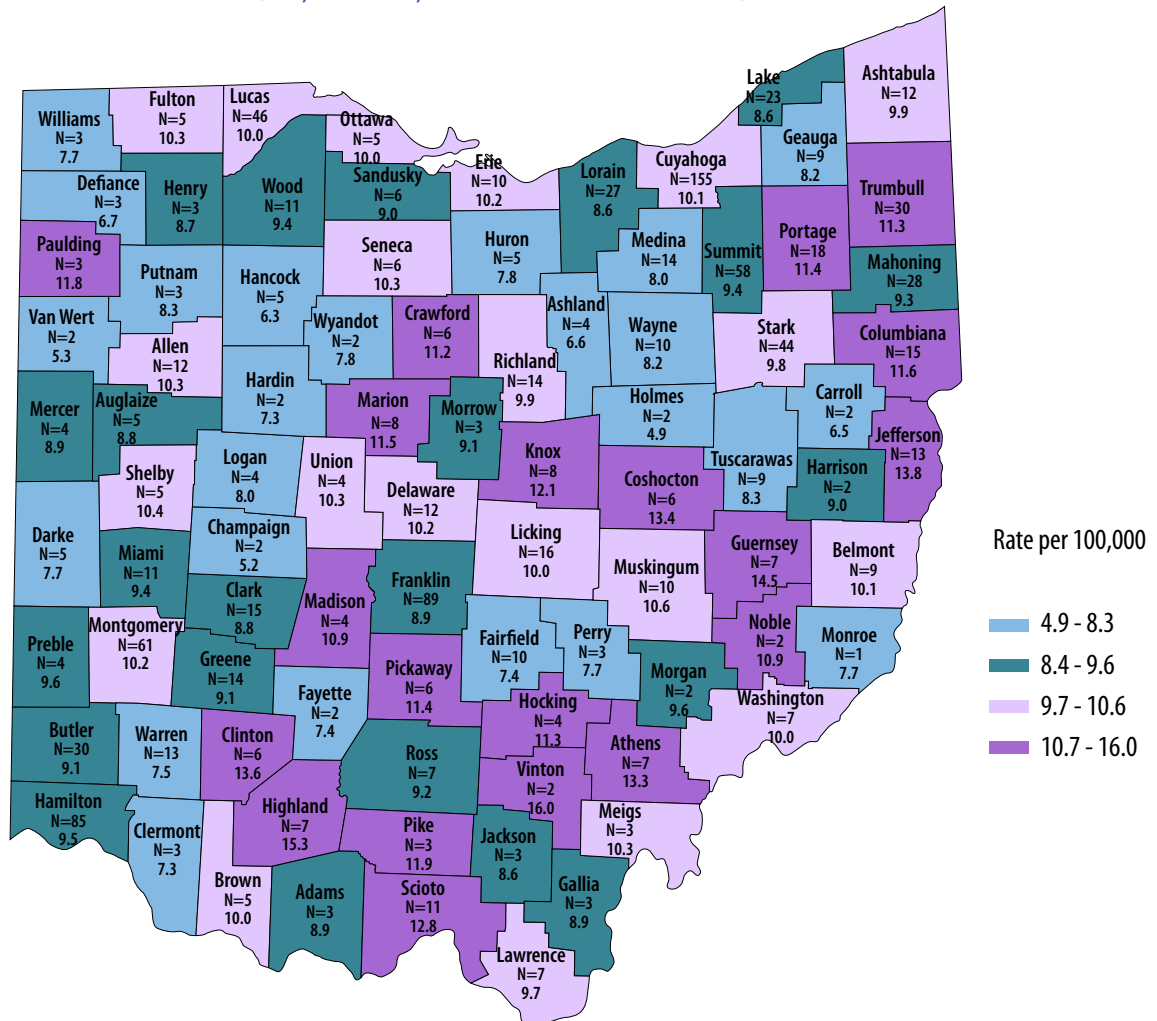
Table 5: Measures of Oral Health of Adults in Appalachia, Compared to Other Regions of the State and Ohio, Behavioral Risk Factor Surveillance System, 2010

Region	Percentage with all permanent teeth removed due to tooth decay or gum disease		Percentage with a dental visit in the past year		Percentage that had not visited the dentist for 5 or more years	
	Adults 19-64 years	Seniors age 65 and older	Adults 19-64 years	Seniors age 65 and older	Adults 19-64 years	Seniors age 65 and older
Appalachian	7%	26%	61%	53%	15%	29%
Metropolitan	3%	20%	73%	69%	9%	16%
Rural/Non-Appalachian	5%	19%	69%	62%	12%	20%
Suburban	2%	17%	76%	69%	7%	14%
State of Ohio	4%	20%	71%	66%	10%	18%

The Behavioral Risk Factor Surveillance System categorizes Ashtabula County as a rural/Non-Appalachian county. However, in all other data presented in this report, Ashtabula County is categorized as an Appalachian county.

- Figure 5 on page 14 shows the age-adjusted incidence rates for oral cavity and pharynx cancer by county in Ohio. As can be seen, incidence rates are generally higher for counties in the Appalachian region.<sup>15</sup>

Figure 5: Oral Cavity and Pharynx Cancer: Average Annual Number of Cases (N) and Age-adjusted Incidence Rates per 100,000 Persons, by County of Residence in Ohio, 2002-2006



N= Average number of cases per year rounded to the nearest integer

Rate =  $\frac{\text{Total cases in 2002-2006}}{5 \text{ years}}$

Each category represents approximately 25 percent of the 88 Ohio counties.

## Are adults in Appalachian Ohio able to get dental care?

- ◀◀ The Appalachian region is the area with the most unmet dental needs. Overall, 16 percent of adults in Appalachia state that they can't get the dental care they need.<sup>7</sup>
- ◀◀ In some counties, one-quarter to one-third of adults can't get care.<sup>8</sup>
- ◀◀ Many adults can't get dental care because they don't have dental insurance. Nearly half (47 percent) or more than 425,000 working age adults in Appalachia don't have **dental** insurance, compared to about 22 percent of adults in the region who don't have medical insurance.<sup>7</sup>
- ◀◀ The poorest adults are the least likely to have private dental insurance, and are more likely to be covered by Medicaid.<sup>8</sup>

Figure 6 shows the percentage of working-age adults who can't get needed dental care in each Ohio county<sup>8</sup> and Figure 7 on page 16 shows the percentage of all adults in Ohio without dental insurance.<sup>8</sup>

Figure 6: Percent of Ohio Adults (age 18-64) with Unmet Dental Care Needs, Ohio Family Health Survey, 2008

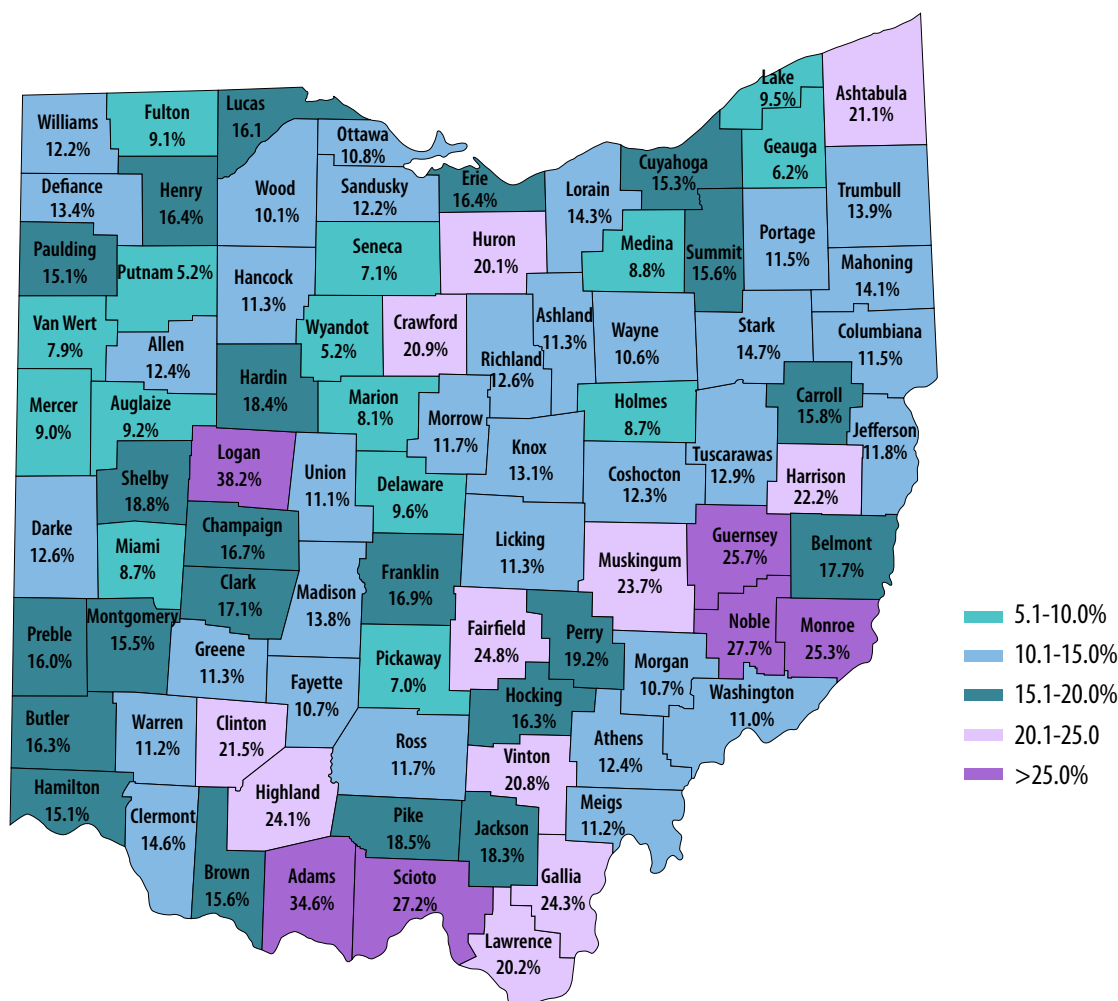
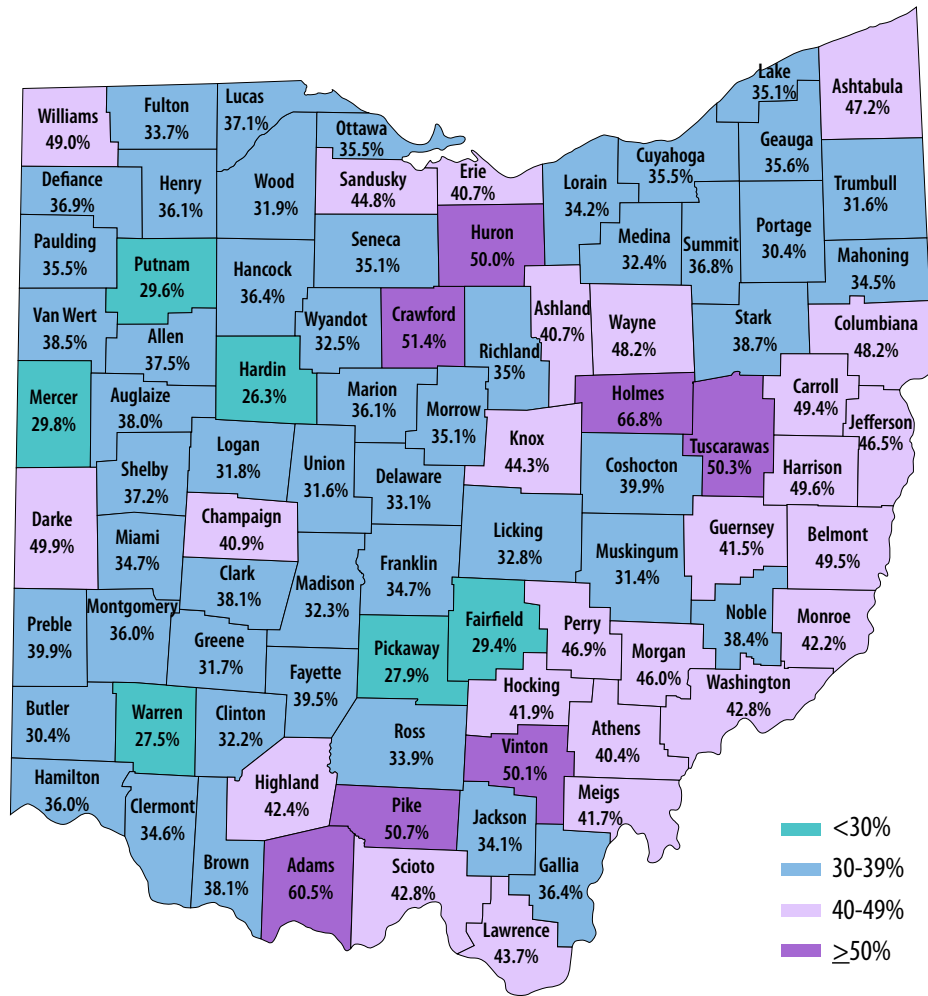


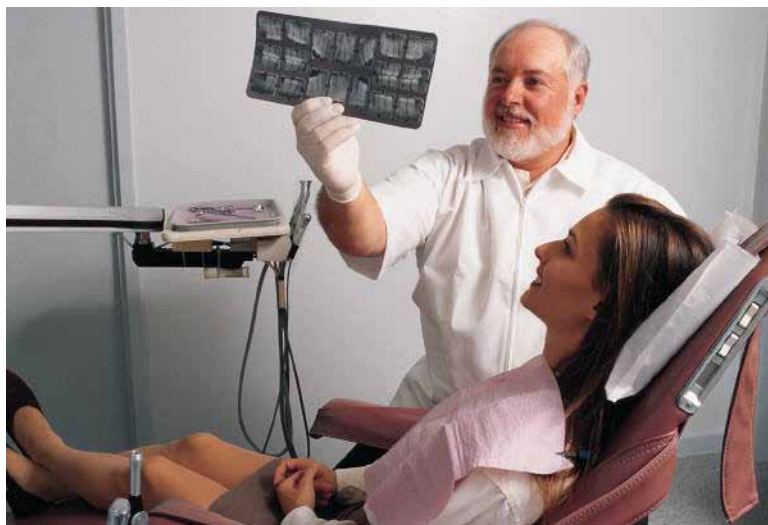


Figure 7: Percentage of All Adults in Ohio without Dental Insurance, by County, Ohio Family Health Survey, 2008





## Section 3: Barriers to Getting Dental Care in Appalachian Ohio



### Barrier #1: There aren't enough dentists in the region.

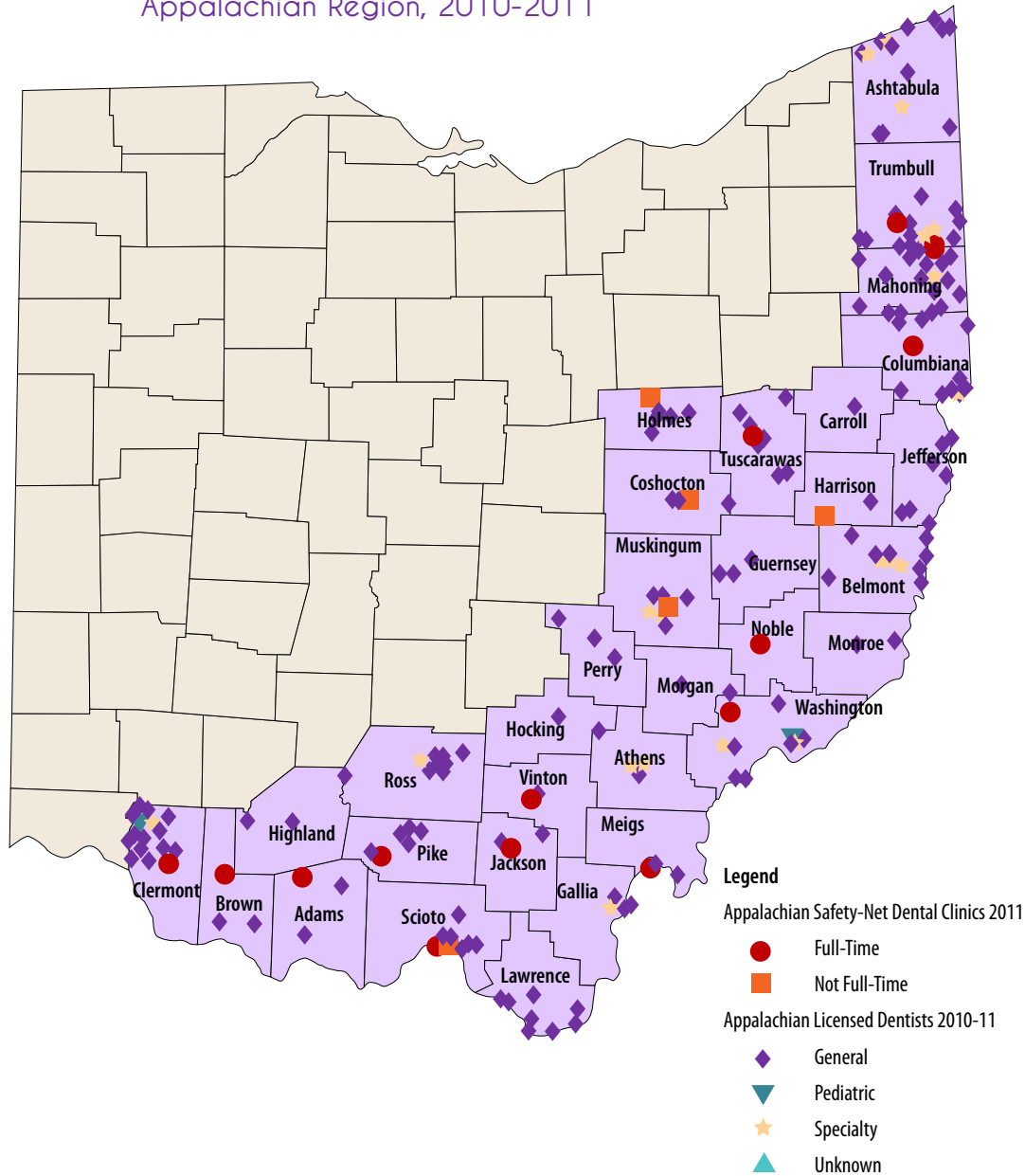
- « Ohio has almost 6,200 dentists licensed and residing in Ohio, to provide care to more than 11.5 million residents; a ratio of about one dentist for every 1,874 Ohioans.<sup>16, 17</sup> In contrast, there is only one dentist for every 3,138 persons in the Appalachian region.<sup>16, 17</sup>
- « Fewer dental specialists (e.g., periodontists, endodontists and oral surgeons) practice in Appalachia and they are unevenly distributed in the region. Across the state, there is one specialist for every 9,959 persons; however, in Appalachia, the ratio is one specialist for every 11,915 persons.<sup>16, 17</sup> More importantly, the majority of specialists practice in the larger urban areas, such as in the Youngstown area, Ashtabula, Chillicothe and Zanesville. Twelve of 32 counties in the region do not have any dental specialists.<sup>16</sup>

Figure 8 on page 18 shows the distribution of dentists, including specialists and safety net dental programs\* in the Appalachian Region.

- « Fourteen of the 32 counties in the Appalachian region do not have a safety net dental program. In the 18 counties that do, five safety net programs operate on a part-time basis.<sup>5</sup>

\*Safety net dental programs typically provide dental care to patients covered by Medicaid and offer sliding-fee schedules, reduced fees or free care to patients who cannot afford to pay a private dentist. They are mostly operated by local health departments, community health centers, hospitals and other non-profit organizations. Ohio has about 100 programs in 48 counties that provide basic dental services such as exams, x-rays, fillings, extractions, root canals and dentures.

Figure 8: Dental Care Providers in Ohio's Appalachian Region, 2010-2011

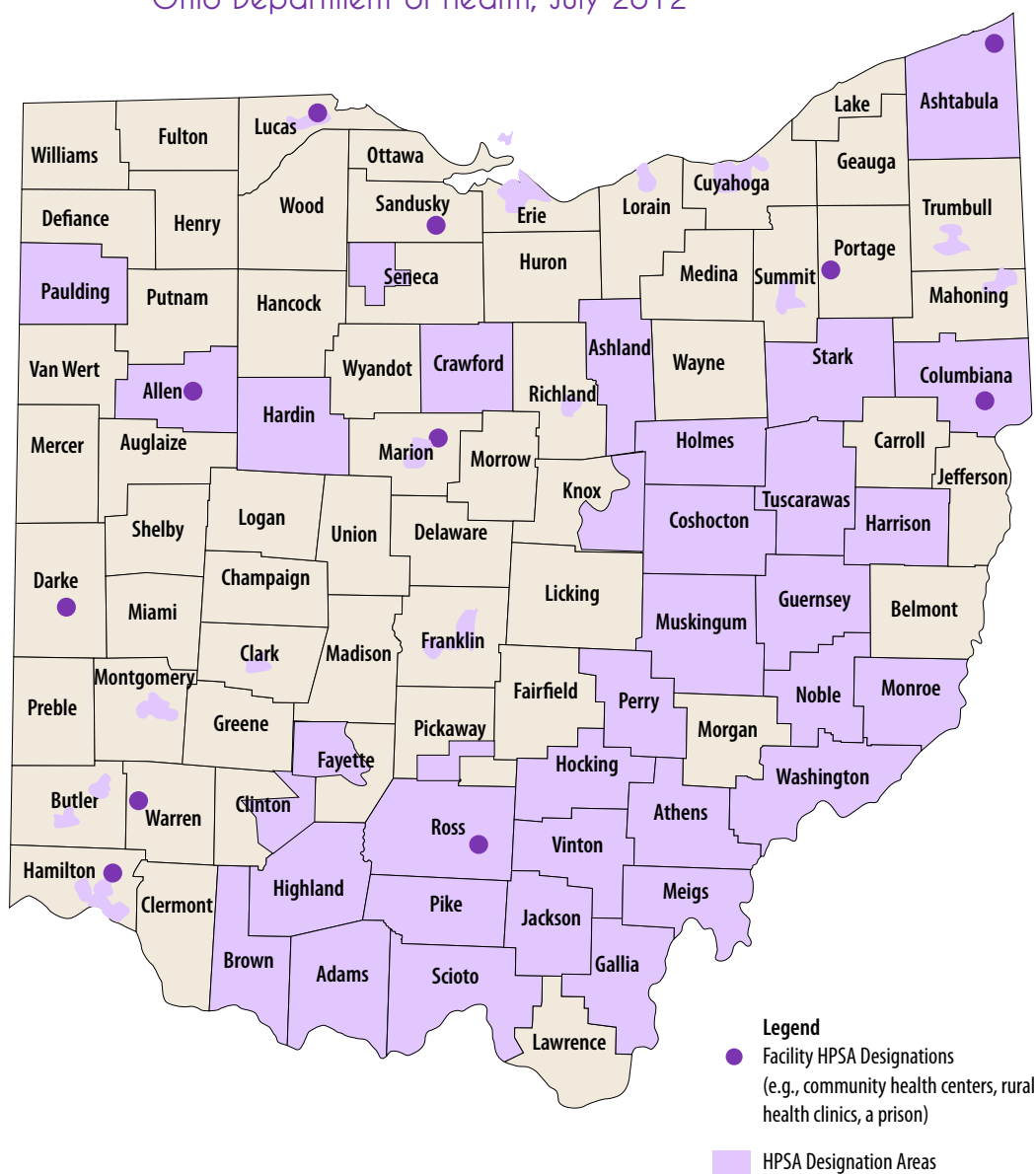


\*Safety net dental programs typically provide dental care to patients covered by Medicaid and offer sliding-fee schedules, reduced fees or free care to patients who cannot afford to pay a private dentist. They are mostly operated by local health departments, community health centers, hospitals and other non-profit organizations. Ohio has about 100 programs in 48 counties that provide basic dental services such as exams, x-rays, fillings, extractions, root canals and dentures.

Two dentists with an "unknown" type of practice are located in the Youngstown (Mahoning County) area. The blue triangles are obscured by the other symbols for that locale.

There are 71 dental Health Professional Shortage Areas (HPSAs) in Ohio, so designated by the federal government because there aren't enough dentists to serve the needs of the people living there.<sup>5</sup> Of the 32 counties in Appalachia, 27 have a designation; 25 of these are for the entire county.<sup>5</sup> Figure 9 shows the counties in Ohio that have one or more dental HPSAs. There are likely other areas in Appalachia that may qualify to be dental HPSAs, but have not gone through the designation process.

Figure 9: Dental Health Professional Shortage Areas,  
Ohio Department of Health, July 2012



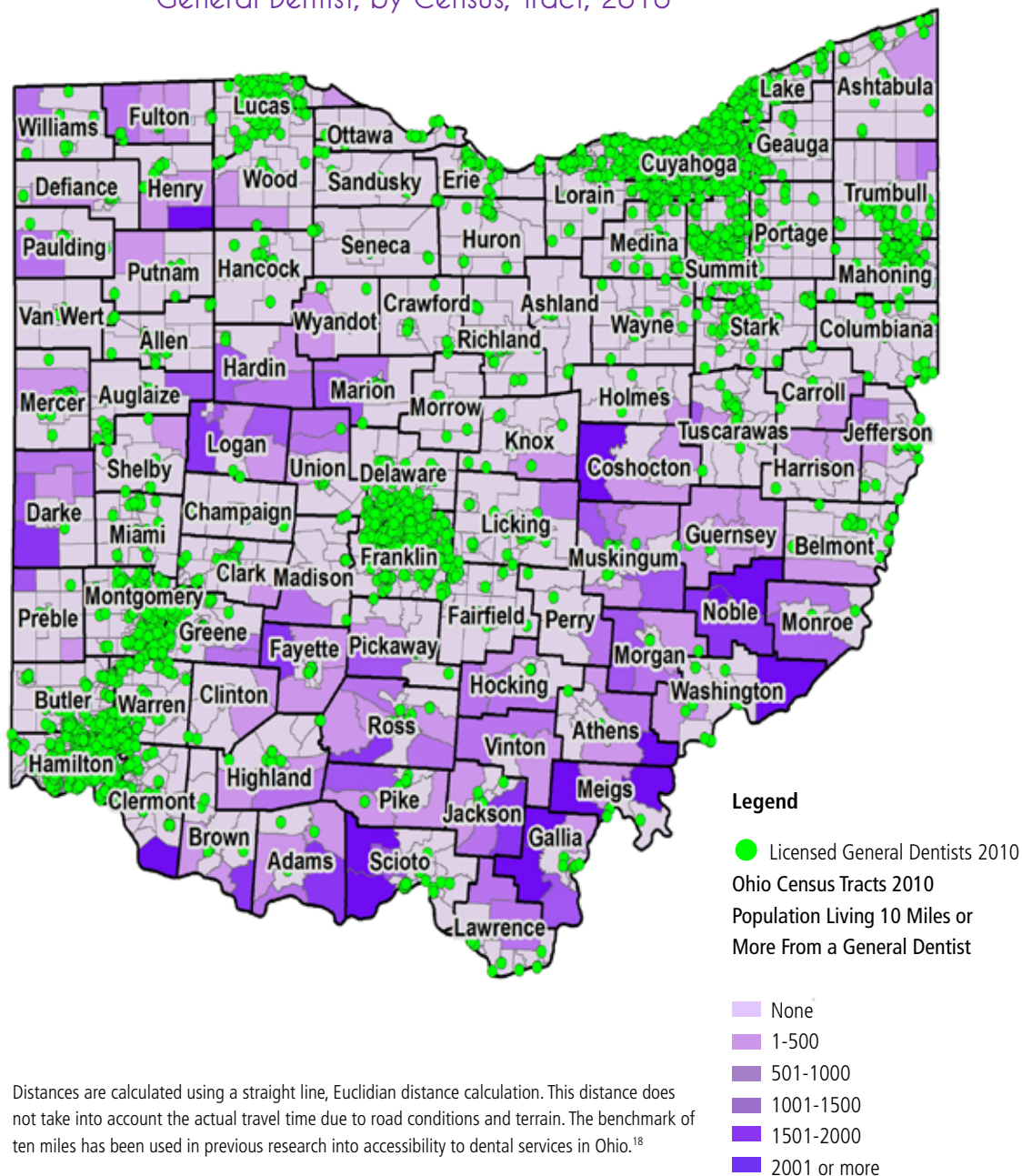
### **Barrier #2: Many people in Appalachia have to travel long distances to get to a dentist.**

Travel distance to a dental provider can be a significant barrier to getting care for people in a rural area, especially for people with lower incomes and where public transportation is limited. Figure 10 shows the location of general dentists in Ohio. Most dental providers are clustered in towns or cities, within a mile or less of each other.<sup>16, 17</sup> The clustering of providers may be convenient for people who live in the same locale, but not for people who live in more remote areas of the region. The map shows that in the Appalachian region, more than in any other region of Ohio, thousands of people live in areas where they must travel ten or more miles to see a dentist.<sup>16, 17, 18</sup> This distance may make getting to the dentist very difficult, if not impossible, for some people.





Figure 10: Population Living 10 Miles or More From a General Dentist, by Census Tract, 2010



Distances are calculated using a straight line, Euclidian distance calculation. This distance does not take into account the actual travel time due to road conditions and terrain. The benchmark of ten miles has been used in previous research into accessibility to dental services in Ohio.<sup>18</sup>

The location of each dentist on the Figure 10 map is based on self-reported data by dentists to the Ohio State Dental Board (OSDB). Some dentists work in multiple locations, but report only one office address to the OSDB. Consequently, some counties may appear to have no or very few providers, such as Noble County. Noble County does have a dental clinic; however the dentist that works in the clinic reports an office address outside of Noble County.

### Barrier #3: There are fewer dental providers to serve people with low incomes.

Nearly 35 percent of the population in Appalachia is at or below 200 percent of the Federal Poverty Level;<sup>17, 19</sup> however, there aren't enough dentists to provide care to people with low incomes:

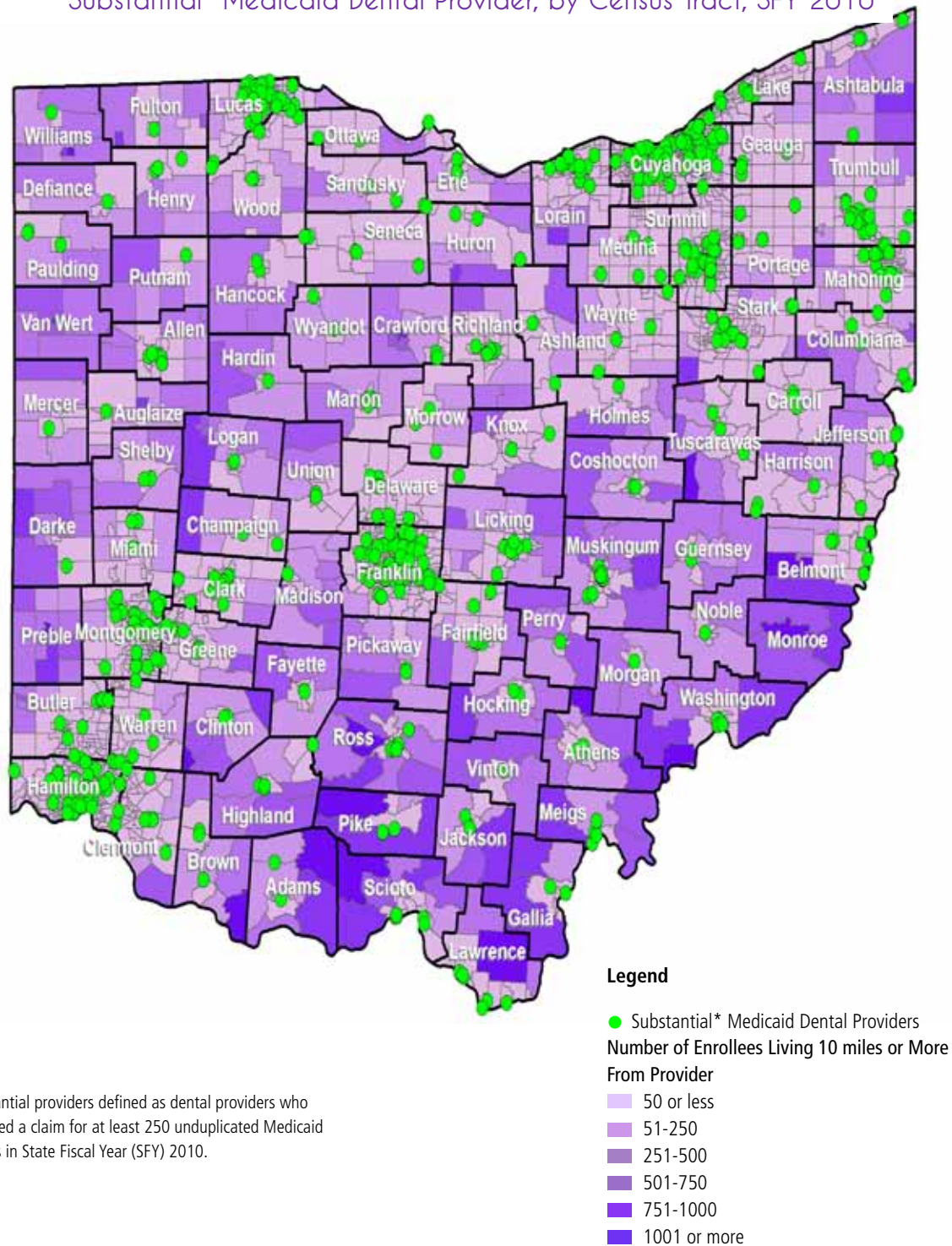
- ◀ 79 percent of dentists in Appalachian Ohio can be classified as serving the Medicaid population (defined as providing care to at least one Medicaid-eligible person).<sup>12</sup>
- ◀ However, only 40 percent serve a substantial number of Medicaid patients (more than 250 unduplicated patients).<sup>12</sup>
- ◀ Across the state, there is one Medicaid dentist for every 1,169 patients on Medicaid.<sup>12</sup> However, in most Appalachian counties, the ratio of Medicaid providers to patients on Medicaid is much higher than the state ratio.<sup>12</sup> Ashtabula, Brown, Gallia and Jackson counties have ratios of more than 2,400 patients on Medicaid for every one Medicaid dentist.<sup>12</sup>
- ◀ Monroe County does not currently have a dentist who serves any patients on Medicaid.<sup>12</sup>

Distance from a Medicaid provider compounds the problem. Figure 11 on page 23 shows that several counties in Appalachian Ohio have more than 1,000 persons enrolled in Medicaid who live 10 miles or more from a substantial Medicaid dental provider.<sup>5</sup>





Figure 1 1: Persons Enrolled in Medicaid Living 10 Miles or More From a Substantial\* Medicaid Dental Provider, by Census Tract, SFY 2010



\*Substantial providers defined as dental providers who submitted a claim for at least 250 unduplicated Medicaid patients in State Fiscal Year (SFY) 2010.

#### Barrier #4: Volunteer dental care programs can't keep pace with the need.

Dental OPTIONS (the **O**hio **P**artnership **T**o **I**mprove **O**ral health through access to **N**eeded **S**ervices) is a program that was started in 1997 by ODH and the Ohio Dental Association. The program links people, mostly adults, in need of dental care with dentists who have volunteered to provide care for lower fees. The program is for persons with a low household income and no dental insurance. Most of the patients are the “working poor” or the elderly living on a fixed income. OPTIONS is not an emergency program, nor is it intended to provide ongoing dental care. With fewer dentists in the Appalachian region to recruit to participate in the program, the OPTIONS program cannot meet the need. Consider that:

- ◀◀ In the Appalachian region, only 23 percent of licensed dentists participate.<sup>5</sup>
- ◀◀ Nine of the 17 counties in Ohio without any OPTIONS dentists are in the Appalachian region: Brown, Coshocton, Gallia, Guernsey, Jackson, Monroe, Noble, Perry and Vinton.<sup>5</sup>
- ◀◀ Seven counties in Appalachia have only one participating dentist: Adams, Harrison, Hocking, Holmes, Meigs, Morgan and Pike.<sup>5</sup>
- ◀◀ As of August 2012, 112 people in the Appalachian region who have been approved to receive dental care through OPTIONS remain on a waiting list.<sup>5</sup>

## Section 4: Conclusion and Recommendations

Worse oral health status. More children and adults with unmet dental needs. Fewer people with private dental insurance; more covered by Medicaid. Fewer dentists and specialists to meet the needs. Inadequate number of, or unevenly dispersed, safety net dental programs and Medicaid providers to serve people with low incomes. All of these do not bode well in improving the oral health of people in Appalachian Ohio.

In 2009, ODH convened a task force of key stakeholders to make recommendations on how to increase access to dental care for Ohio's most vulnerable residents. The following recommendations, based on those included in the task force report<sup>20</sup>, show promise in addressing the unique oral health challenges in the Appalachian region:



- ◀◀ Increase the number of trained dentists and dental hygienists willing to work in Appalachia
- ◀◀ Explore and test Medicaid fee differentials for primary care dentists practicing in Appalachia
- ◀◀ Allocate resources to assure support for a sustainable dental safety net in Appalachia
- ◀◀ Expand the use of alternative models of providing oral health care services (e.g., school-based/linked oral health services, mobile/portable dental systems) to increase access in underserved areas of Appalachia
- ◀◀ Increase oral health literacy of the public, grassroots community groups, and policy makers and other key stakeholders to maximize participation in the ODH-funded School-based Sealant Program and other programs that deliver oral health services in Appalachia
- ◀◀ Increase the number of non-dental primary care providers actively involved in improving the oral health of their patients

## Examples of innovative programs in Appalachian Ohio that are improving oral health and access to dental care

The following section highlights programs in the Appalachian region that are improving the oral health of communities in non-traditional ways. These programs can serve as models for others who recognize that the unique challenges for improving the oral health status and access to dental care for people in Appalachia will require creative solutions.

### Zanesville City Schools Dental Program

Since 1950, schoolchildren in Zanesville have been offered free dental care through a program offered by the Zanesville City School District with financial support by Seroptomist International. Using a motorhome fully equipped as a dental office, a dentist and dental hygienist travel to Zanesville schools and provide dental examinations, oral health education, and preventive and treatment services to children, particularly those who are from families with lower incomes and are without dental insurance. Valencia Clark, the dental hygienist who coordinates the program and provides dental hygiene services, thinks that providing dental care at schools is an ideal way of making sure that students maintain their oral health. "Some students miss their dental appointments because they can't get there, and some miss a lot of school because of their dental problems. Parents, teachers and school nurses know that our mobile dental program will be at their children's school every week to take care of the children's needs. Bringing dental care to the schools is the best way to make a difference."

### Smile Station

A similar approach is being used in Mahoning and Trumbull Counties through a program run by Humility of Mary Health Partners. A mobile dental van travels to a variety of locations to provide dental care to children, elderly and adults, particularly those who are uninsured. Nancy Lesniewski, the coordinator of the program, reports that tooth decay, oral pain, dental infection and abscesses are the number one reason for emergency room visits in the area, and the goal of the "Smile Station" mobile dental clinic is to alleviate emergency department volumes from these unnecessary visits. The mobile van visits Youngstown and Warren City Schools, the Rescue Mission (for people who are homeless), the juvenile justice center, an area free clinic, senior citizen day care facilities and Head Start programs. The program has begun to extend services to suburban and rural areas of the counties.



Zanesville Mobile Dental Van



### One Child... One Dental Home

The goal of the “One Child... One Dental Home” program, being conducted through Nationwide Children’s Hospital (NCH) in Columbus with funding from The Central Benefits Health Care Foundation, is to prevent Early Childhood Caries in children ages birth to 5 and place children with dentists. The program is currently underway in six Ohio counties, including two in Appalachia: Coshocton and Ross Counties. Free dental screenings are conducted in Head Start centers by dental health professionals from NCH and The Ohio State University, College of Dentistry. Children receive an oral exam, toothbrush cleaning and a fluoride varnish application and attempts are made to find local providers for treatment. However, in some cases, children with extensive needs are referred to regional care facilities for treatment. Then, children are placed with a dental home where they can obtain comprehensive and continuous oral health care. Parents, children and Head Start Staff are educated about how to properly take care of teeth and gums to avoid oral health problems down the road.



A student receiving dental services in the Zanesville mobile dental van

## References

1. **Oral Health Isn't Optional! A Report on the Oral Health of Ohioans and Their Access to Dental Care, 2011.** Ohio Department of Health. [http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/ohs/oral%20health/ohioreport8\\_9.ashx](http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/ohs/oral%20health/ohioreport8_9.ashx) Accessed 11/7/11.
2. **Oral Health and Access to Dental Care for Ohioans, 2007.** [http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/ohs/oral%20health/oralhealthaccessreport2ndprinting11\\_07.ashx](http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/ohs/oral%20health/oralhealthaccessreport2ndprinting11_07.ashx) Accessed 11/7/11.
3. **Make Your Smile Count! A Survey of the Oral Health of Ohio Schoolchildren, 2004-2005.** Ohio Department of Health. <http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/ohs/oral%20health/oralhealthsurveyreport2004-05.ashx> Accessed 11/7/11.
4. **Access to Dental Care in Ohio, 2000.** Ohio Department of Health and Ohio Department of Job and Family Services. <http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/ohs/oral%20health/access2000-allsectionscombined.ashx> Accessed 11/7/11.
5. Ohio Department of Health data, Oral Health Section data analysis, 2012.
6. **Healthy People 2020.** U.S. Department of Health and Human Services. <http://healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=32> Accessed 5/29/12.
7. 2010 Ohio Family Health Survey. Ohio Department of Job and Family Services, Ohio Department of Mental Health, Ohio Department of Health, Ohio Department of Insurance, Health Policy Institute of Ohio, Health Foundation of Greater Cincinnati, and Cincinnati Children's Hospital, 2011. <http://grc.osu.edu/ofhs/sponsoredresearch/ofhs2010/index.cfm> Accessed 11/30/11.
8. 2008 Ohio Family Health Survey. Ohio Department of Health and the Health Policy Institute of Ohio. [https://ckm.osu.edu/sitetool/sites/ofhspublic/documents/OFHS\\_Forum\\_Presentation.pdf](https://ckm.osu.edu/sitetool/sites/ofhspublic/documents/OFHS_Forum_Presentation.pdf) Accessed 11/7/11.
9. Nationwide Children's Hospital data. Personal communications with Tim Rumfield, Nationwide Children's Hospital, 4/18/12, 5/29/12 and 6/7/12.
10. American Academy of Pediatrics Policy on Oral Health Risk Assessment Timing and Establishment of the Dental Home. <http://pediatrics.aappublications.org/content/111/5/1113.full?sid=2e21f4cd-df0f-4e3f-a70f-d53212ee3994> Accessed 8/8/12.
11. American Academy of Pediatric Dentistry Guideline on Periodicity of Examination, Preventive Dental Services, Anticipatory Guidance/Counseling, and Oral Treatment for Infants, Children, and Adolescents. [http://www.aapd.org/media/Policies\\_Guidelines/G\\_Periodicity.pdf](http://www.aapd.org/media/Policies_Guidelines/G_Periodicity.pdf) Accessed 8/8/12.



12. Ohio Department of Health, Oral Health Section analysis of Ohio Medicaid data, 2011.
13. **Smiles for Ohio—Fluoride Varnish Training for Primary Medical Care Providers Serving Young Children Enrolled in Medicaid.** Ohio Department of Health, 2010. <http://ohiodentalclinics.com/curricula/smiles/index.html> Accessed 4/9/12.
14. 2010 Behavioral Risk Factor Surveillance System. Ohio Department of Health, Chronic Disease and Behavioral Epidemiology Section, Center for Public Health Statistics and Informatics, Office of Performance Improvement. Personal communication on 5/11/11.
15. **Oral Cavity and Pharynx Cancer in Ohio, 2002-2006.** Ohio Department of Health, Ohio Cancer Incidence Surveillance System, 2012. <http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/opi/cancer%20incidence%20surveillance%20system%20ociss/oralcavitypharynxcancerinohio2002-2006.ashx> Accessed 7/31/12.
16. Ohio Department of Health, Oral Health Section analysis of 2010 Ohio State Dental Board data, 2011.
17. Ohio Department of Health, Oral Health Section analysis of 2008 U.S. Census Bureau data, 2011.
18. Horner MW, Mascarenhas AK. **Analyzing location-based accessibility to dental services: an Ohio case study.** *Journal of Public Health Dentistry.* 2007; 67 (2): 113-8.
19. The 2008 HHS Poverty Guidelines. U.S. Department of Health and Human Services. <http://aspe.hhs.gov/poverty/08poverty.shtml> Accessed 8/1/12.
20. **Strategic and Implementation Plans of the Director of Health's Task Force on Oral Health and Access to Dental Care.** Ohio Department of Health, 2009. [http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/ohs/oral%20health/dtffinalreport11\\_04.ashx](http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/ohs/oral%20health/dtffinalreport11_04.ashx) Accessed 5/29/12.

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