Access to Preventive Dental Care among Young Medicaid Children in Allegheny County Report

Authors: Allegheny County Dental Task Force

Dr. Karen Hacker (ACHD), Dr. Michelle Kurta (ACHD), Casey Monroe (ACHD), Lynda Jones (ACHD), Abby Talbert (ACHD), Joseph Mastalski (Gateway Health), Dr. Nicholas Degregorio (UPMC), Dr. Michael Madden (Gateway Health), Debra Caplan (Access Co-Chair), Kyle Craig (ACHD), Dr. Deb Polk (University of Pittsburgh School of Dental Medicine), Dr. Richard Celko (UPMC Health Plan), Melissa Allen (ACHIEVA/The Arc of Greater Pittsburgh), Dr. J. Mark Prybyl (Catholic Charities), Susan Kalson (Squirrel Hill Health Center), Dr. Deborah Moss (UPMC), Dr. Dennis Zabelsky (Allegheny County Dental Society), Shannon Salicci (Catholic Charities), Dr. Robert Weyant (University of Pittsburgh), Dr. Sandra Thompson (ACHD)
Background

Tooth decay is one of the most prevalent chronic conditions among children in the United States. Over 20% of children aged 2–19 years have at least one primary or permanent tooth with untreated decay (1). Poor dental conditions among children contribute to oral pain, difficulty chewing and inadequate nutrition, and in some cases have been linked to failure to thrive (2). Dental decay and tooth loss can also lead to speech-language development issues, poor self-esteem, declining school performance and costly emergency medical services and dental restorations (2). Oral disease can also affect systemic health and lead to long term health effects (3). Poor oral health has been associated with coronary artery disease, and there are clear associations between periodontitis and various systemic illnesses (4). The associations extend to diabetes, rheumatoid arthritis and cardiovascular diseases, and recent studies show associations with various forms of cancer (4).

Preventive services beginning in childhood are essential not only for dental health but also to reduce the burden of later chronic disease. Clinical interventions, including dental sealants and fluoride are effective in preventing and controlling tooth decay. The ADA Council on Scientific Affairs also recommends for at-risk children aged <6 years the professional application of 2.26% fluoride varnish at least twice yearly and for at-risk children aged ≥6 years, the professional application of 2.26 percent fluoride varnish or 1.23 percent fluoride gel at least twice yearly (5). In addition, the U.S. Preventive Services Task Force (USPSTF) recommends that primary care clinicians apply fluoride varnish to the primary teeth of all infants and young children beginning when their first primary tooth comes in (USPSTF Grade B recommendation, which means USPSTF recommends the service); and that they prescribe oral fluoride supplementation at currently recommended doses to preschool children beginning at age 6 months whose primary water source is deficient in fluoride (USPSTF Grade B recommendation) (6).

Preventing tooth decay is enhanced by early identification of children at high risk for the disease and subsequent delivery of effective interventions. The American Academy of Pediatrics (AAP), ADA, the Academy of General Dentistry, and the American Academy of Pediatric Dentistry (AAPD) encourage families to have accessed a dental home by the time their child is 1-year-old to deter the development of tooth decay (7). AAPD recommends that after the first dental visit a child should be seen by a dentist every 6 months or, according to a schedule recommended by the dentist, on the basis of the child's individual needs (7).

Although preventive dental care is effective, the percentage of children using dental care is low (1). Despite the recommendation cited above, the presence of visible caries or dental trauma appear to impel most children’s first dental visit. Compounding this frequent problem-initiated pattern of care seeking, caregivers’ ability to recognize early signs of dental caries in very young children is limited. Healthy People 2020 also recognizes the problem of low use of preventive dental care, especially among those at highest risk, set several oral health objectives (OH) to increase acceptance and adoption of effective preventive interventions (8). They include the following objectives in their oral health strategies: 1) increasing the proportion of children, adolescents, and adults who used the oral health care system in the past year from its baseline value of 44.5% by 10% (objective OH-7, a leading health indicator); 2) increasing the proportion of low-income children and adolescents who received any preventive dental service during the past year from its baseline value of 30.2% by 10% (objective OH-8); and 3) increasing the proportion of children and adolescents who have received dental sealants on their molar teeth by 10% (objective OH-12).
Profound disparities exist in the level of dental services obtained by children, especially for children of low socioeconomic status (1). Prevalence of untreated decay in primary or permanent teeth among children from lower-income households is more than twice that among children from higher-income households (1). Prevalence of untreated tooth decay is also higher among Mexican-American children and non-Hispanic black children than among white non-Hispanic children (1). Of particular concern is the low rate of early detection and preventative care for children three years and younger (1).

Barriers that can limit a person’s use of preventive interventions and treatments include: limited access to and availability of dental services, lack of awareness of the need for care, cost, and fear of dental procedures (8). Within these individual, structural, financial and geographical factors, a separation should be made between the patient-related determinants and the determinants associated with service providers. While the quality of oral health care in Pennsylvania is generally high, access to care is not as readily available for many individuals, particularly those who are uninsured and those insured by Medicaid, indicating the need for an evaluation of access to preventive care as well as utilization of preventive care. Studies have shown that children from low-income families (those with incomes below 200% of the federal poverty level) are less likely to receive dental care and more likely to have unmet dental needs than children from higher income families (9). Structurally and geographically, fifty-five areas in PA are experiencing a shortage of dental professionals (9). Identifying access barriers to preventive dental services across Allegheny County one of the basic steps to improve the public health (9).

**Work in Allegheny County**

The Plan for a Healthier Allegheny (PHA) is the product of months of collaborative work with an Advisory Coalition of more than 80 stakeholder organizations representing multiple sectors affecting health in Allegheny County. The PHA was designed to complement and build upon other existing plans, initiatives, and coalitions already in place in Allegheny County. It is a guide for health improvement for the next five years that will require multiple partners and a strong commitment of the Advisory Coalition and County residents. The goal of the plan is to identify major health priorities, overarching goals, and specific objectives and strategies that can be implemented in a coordinated way across Allegheny County. Using data collected through a Community Health Assessment (CHA) five critical priority areas were identified: Access; Chronic Disease Health Risk Behaviors; Mental Health and Substance Use Disorders; Environment; and Maternal and Child Health. Each priority area has a series of objectives, accompanied by metrics and actionable strategies, which provide achievable health improvement for the County. Access to preventive dental services was identified as a critical need within Allegheny County. In order to address this need, the Allegheny County Health Department (ACHD) brought together a subgroup under the Access Work Group to begin this work. The subgroup assumed the name of the Allegheny County Dental Task Force and is comprised of professionals from the local managed care organizations (MCOs), University of Pittsburgh School of Dentistry, ACHD Pediatric Dental Program, Children’s Hospital of Pittsburgh, private dental practitioners, Federally Qualified Health Centers, Catholic Charities, and local non-profit organizations.

After a series of initial meetings, the Allegheny County Dental Task Force agreed to address the following issue: Increase the number of Allegheny County residents receiving dental care. Within the first year, the Allegheny County Dental Task Force decided to focus on children aged 1-4 on Medicaid in Allegheny County. To achieve this goal the Dental Task Force will (1) Collect data pertaining to utilization of preventive dental services from Allegheny County providers and report findings (children and adults); (2) Develop interventions based on data collected and identify
targeted populations; (3) Develop educational campaigns with the use of media sources such as public service announcements (PSAs) to encourage use of preventive dental services based on analysis of utilization of preventive services.

Methodology

In order to assess the utilization and distribution of Medicaid members receiving dental care in Allegheny County, Medicaid member information was requested from local managed care organizations (MCOs): UPMC FOR YOU, Gateway Health, Aetna, and United. The MCOs were asked to provide claims data for all of their Medicaid members enrolled for at least 90 continuous days during the 2014 calendar year, who were Allegheny County residents between the ages of 1 and 20 years old (+364 days), and had received at least one preventive dental service during the 2014 calendar year. Preventive services were defined as any procedure code between and including D1000 – D1999, including: D1110, D1120, D1206, D1208, D1310, D1320, D1330, D1351, D1353, D1352, D1510, D1515, D1520, D1525, D1550, D1555, D1999.

Data from the four MCOs were aggregated to calculate the proportion of Medicaid members, ages 1-20 years, receiving at least one preventive care service during 2014. Analyses were then stratified by age, gender, race and ZIP code of residence. Maps showing the spatial distribution of Medicaid members who had received at least one preventive service during 2014 was then generated using the geographic information system ArcGIS.

Following the initial analyses of preventive services among Medicaid-enrolled children, the DTF identified children under the age of 5 as a high-risk population. Further information was requested from MCOs relating to specific dental practices serving the youngest Medicaid patients. ACHD obtained the name and address of each practice that had submitted at least one claim for at least 1 Medicaid patient, ages 1 - 4 years (+364 days), during the 2014 calendar year from all four participating MCOs. Practices included those that were currently practicing as of December 2015 to reflect the most up-to-date list of dental providers accepting Medicaid and servicing children in this age group. In order to explore factors pertaining to utilization rates, the locations of practices that submitted claims for children were also overlaid on maps with preventive care utilization rates by ZIP code and proportion of the population less than 5 years old.

The DTF met regularly between September 2015 and August 2016 to discuss the results of these analyses. Through extensive discussion, the professionals provided qualitative data on causes of gaps in services and barriers to receipt of preventive dental care among Medicaid children. At their May 2016 meeting, the DTF members conducted a root cause analysis in an effort to identify the barriers to preventive dental care and the people and/or systems that impact these factors. This discussion led to the prioritization of potential interventions to be implemented by the DTF and its individual members.

Results

Medicaid Claims Analysis

Initial analyses included all Medicaid claims for children between the ages of 1 and 20 years, stratified by age, race, and gender. Figure 1 illustrates that the proportion of Medicaid children receiving preventive services did not differ according to gender or race. Age appeared to be the largest factor that determined preventive dental care utilization. The age groups with the lowest
utilization rates were children under the age of 1 through 4 years and those over the age of 16 years. Figure 2 further illustrates that these age groups experience the lowest utilization rates. During the 2014 calendar year, there were a total of 21,669 Allegheny County residents, ages 1-4 years enrolled in Medicaid (Table 1). The lowest utilization rates are among Medicaid children ages 1 and 2 years, with only 4.6% and 16.0% receiving preventive dental care, respectively. This percentage increases for both 3 (33.5%) and 4 (48%) year olds; however the overall percentage for all children in this age group remains low at 24.8%.

Figure 1. Proportion of Medicaid members receiving any preventive service in 2014, by age, race*, and gender.

* Data includes UPMC FOR YOU for You, Gateway Health, Aetna, and United Medicaid claims data from members who were enrolled for at least 90 continuous days. A member was considered to have utilized preventive services if they had at least one preventive CDT claim (CDT codes D1110, D1120, D1206, D1208, D1310, D1320, D1330, D1351, D1353, D1352, D1510, D1515, D1520, D1525, D1550, D1555, D1999) during the 2014 calendar year.

Figure 2. Number of children in Allegheny County enrolled in Medicaid who utilized preventive services, by age (year +364 days), 2014.
Data includes UPMC FOR YOU for You, Gateway Health, Aetna, and United Medicaid claims data from members who were enrolled for at least 90 continuous days. A member was considered to have utilized preventive services if they had at least one preventive CDT claim (CDT codes D1110, D1120, D1206, D1208, D1310, D1320, D1330, D1351, D1353, D1352, D1510, D1515, D1520, D1525, D1550, D1555, D1999) during the 2014 calendar year.

Table 1. Number of Gateway Health, UPMC for You, Aetna and United Medicaid members and proportion receiving at least one preventive care service in 2014 by age

<table>
<thead>
<tr>
<th>Age (Years + 354 Days)</th>
<th>Number of Medicaid Patients</th>
<th>% Received at Least One Preventive Care Service in 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4</td>
<td>21669</td>
<td>24.86%</td>
</tr>
<tr>
<td>1</td>
<td>6079</td>
<td>4.61%</td>
</tr>
<tr>
<td>2</td>
<td>5142</td>
<td>16.04%</td>
</tr>
<tr>
<td>3</td>
<td>5190</td>
<td>33.53%</td>
</tr>
<tr>
<td>4</td>
<td>5258</td>
<td>48.33%</td>
</tr>
</tbody>
</table>

Data includes UPMC FOR YOU for You, Gateway Health, Aetna, and United Medicaid claims data from members who were enrolled for at least 90 continuous days. A member was considered to have utilized preventive services if they had at least one preventive CDT claim (CDT codes D1110, D1120, D1206, D1208, D1310, D1320, D1330, D1351, D1353, D1352, D1510, D1515, D1520, D1525, D1550, D1555, D1999) during the 2014 calendar year.

In an effort to determine whether all areas of the county had access to a dental practice that accepts children ages 1-4 years enrolled in Medicaid, the DTF collected the location of practices that had submitted at least one preventive dental claim for this population during the 2014 calendar year from each of the four MCOs. Figure 3 shows the geospatial
distribution of these practices. As illustrated, there are areas of the county that did not have any dental practices that had provided preventive services to this age group, and were identified as “dental deserts.” for young children with Medicaid. The majority of these areas include municipalities that are located at the perimeter of the county. The location of these practices were then plotted on a map of the total number of Medicaid residents, ages 1-4 years (Figure 4). Areas shown as red and white are the areas with the largest populations of Medicaid children ages 1-4 years. There are several areas of the county that have a large populations with few or no dentists who submitted a preventive dental claim for this population. These areas are primarily located near the outer limits of the county, with some exceptions such as: Franklin Park, Ohio Township, Carnegie, and Collier municipalities.

Figure 3. Location of practices that accepted at least one Medicaid patient between the ages of 1 and 4 years (+364 days) during the 2014 calendar year.

Figure 4. Population of Medicaid members between ages 1 and 4 years (+364 days) and the location of practices that accepted at least one of these members during the 2014 calendar year.

* Data includes UPMC FOR YOU for You, Gateway Health, Aetna, and United Medicaid claims data from members who were enrolled for at least 90 continuous days. A member was considered to have utilized preventive services if they had at least one preventive CDT claim (CDT codes D1110, D1120, D1206, D1208, D1310, D1320, D1330, D1351, D1353, D1352, D1510, D1515, D1520, D1525, D1550, D1555, D1999) during the 2014 calendar year.
Figure 5 illustrates our effort to determine whether the location of dentists who provided at least one preventive service to a Medicare patient between the ages of 1-4 years impacted the percentage of patients in the area who received preventive dental care services. Areas shown in white and red have the lowest percent utilization among young Medicaid children. While there are exceptions, the majority of areas with the lowest utilization rates have fewer dental practices who had seen at least one Medicaid child ages 1-4 years. An increased number of dentists accepting young Medicaid patients may increase utilization rates. The areas shown in green have the highest utilization rates, ranging from 29%-100%. Within these areas the majority had less than 50% of Medicaid children ages 1-4 years who had received preventive dental care in 2014.

Figure 5. Percent utilization of preventive care among Medicaid members between ages 1 and 4 years (+364 days) and the location of practices that accepted at least one of these members during the 2014 calendar year.
Data includes UPMC FOR YOU for You, Gateway Health, Aetna, and United Medicaid claims data from members who were enrolled for at least 90 continuous days. A member was considered to have utilized preventive services if they had at least one preventive CDT claim (CDT codes D1110, D1120, D1206, D1208, D1310, D1320, D1330, D1351, D1353, D1352, D1510, D1515, D1520, D1525, D1550, D1555, D1999) during the 2014 calendar year.

Table 2 provides the ZIP codes with at least 500 Medicaid members [range: 512-1,122], ages 1 through 4 years. The location of these ZIP codes are highlighted in Figure 6. The majority of these are located within or near the city of Pittsburgh with the exceptions of the McKeesport, Robinson/Kennedy/Stowe, and Brentwood/Whitehall areas (Figure 6). There are significant disparities in preventive care utilization rates among Medicaid residents of the most populous ZIP codes, with a range of 18.9% and 34.0%.

Table 2. Zip codes with at least 500 Gateway, UMPC, Aetna and United Medicaid members between the ages of 1 and 4 years (+364 days)

<table>
<thead>
<tr>
<th>Zip Code</th>
<th>Number of Medicaid Members, 1-4 Years</th>
<th>Percent Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>15227</td>
<td>684</td>
<td>18.9%</td>
</tr>
<tr>
<td>15222</td>
<td>614</td>
<td>26.1%</td>
</tr>
<tr>
<td>15235</td>
<td>886</td>
<td>26.7%</td>
</tr>
<tr>
<td>15210</td>
<td>1028</td>
<td>27.5%</td>
</tr>
<tr>
<td>15212</td>
<td>939</td>
<td>29.7%</td>
</tr>
<tr>
<td>15136</td>
<td>630</td>
<td>29.8%</td>
</tr>
<tr>
<td>15214</td>
<td>582</td>
<td>30.2%</td>
</tr>
</tbody>
</table>
The analysis of Medicaid claims data revealed that age appears to be the largest determinant of receiving preventive services among Allegheny County’s children. The same utilization trends by age were observed regardless of gender and race. Medicaid children ages 1 through 4 were among those with the lowest rates and were identified as a vulnerable population. Geospatial analyses of preventive care utilization rates, Medicaid population for the 1-4 age group, and the location of...
dental practices submitting at least one dental claim for a Medicaid child under the age of 5 identified geographic disparities. Areas with the fewest number of practices also tended to have among the lowest utilization rates. However, it is important to note that utilization rates were low throughout the county with the majority of ZIP codes having rates of lower than 50%.

**ACHD Dental Clinics**

In addition to the analysis presented above, ACHD’s pediatric dental clinics provided data on patients seen at their 3 clinics (McKeesport, Mount Oliver, and the Hill District) during 2014. Patients served are financially compromised between the ages of 1 and 20. Overall, the demographics of patient utilization of preventive services mirrored data provided by the MCOs. Distribution of visits by age appeared similar to MCO data, with a larger number of school-age children receiving preventive dental care. Distribution of ACHD clinic patients by gender was also equal; however, African Americans had higher utilization compared to Caucasians and patients with unknown race. Through the data analysis presented above and group discussion, the Task Force concluded that there are age and geographic disparities in preventive dental care among Allegheny County residents. The group determined that Medicaid children ages 1-4 were a vulnerable population within Allegheny County for receiving preventive dental care and decided to focus their efforts on improving the rates among this population. The group identified several areas in the county that were considered “dental deserts” because they lack dental offices with easily accessible locations serving young Medicaid members. The group also acknowledged that this was likely one of many factors affecting low utilization.

**Dental Task Force Root Cause Analysis of Barriers to Preventive Service Utilization**

In order to identify the barriers for young Medicaid children to receive preventive dental care, the group completed a root cause analysis at their May 2nd 2016 meeting (Appendix A). They categorized factors contributing to children 1-4 on Medicaid not receiving preventive dental care. The identified root causes could be attributed to caregivers, dental providers, and the healthcare system. Barriers preventing parents to take their children to the dentist included being unaware of the need for young children to receive preventive dental care, a personal fear of dentists, and a lack of intervention by other child services such as pediatricians and early childhood programs. Dental practices may contribute to poor utilization in the following ways: poor adherence to guidelines, unwillingness to see young patients, not enough dentists, poor accessibility to practice locations, and too few dental practices in high-need areas. Barriers were also identified within the healthcare system, they included: a lack of coordination between pediatricians and dentists, low reimbursement rates for services, poor awareness among obstetricians and gynecologists to educate new mothers on the importance of early childhood dental care, and a burdensome credentialing process for practices to accept Medicaid children.

**Next Steps**

Based on the root cause analysis, individuals in the DTF are working with their organizations to identify potential points where they can influence these barriers. Initiatives that are being launched include

- Efforts to recruit additional dentists who will take Medicaid in areas identified as “dental deserts”
- Efforts to convince and educate current Medicaid dentists who are not seeing young children, to accept them as patients

September 16, 2016
• Education of pediatricians to both conduct screening (which is now covered by insurance) and to refer to a dentist to establish a dental home for the patient and family.
• Increasing the use of dental public health hygienists in primary care offices and in WIC or other public health related environments
• Explore opening additional ACHD pediatric dental clinics
Works cited


Appendix A. Allegheny County Dental Task Force – Root Cause Analysis May 2, 2016

**Dentists not following guidelines**
- It is new
- Broad spectrum of need
- Don’t agree
- Lack of connecting the dots
- Not aware of guidelines

**Dental competency with young children**
- Not trained
- Don’t like them
- Requires more time
- If they find something, they don’t know what to do

**Coordination of care between pediatrics and dentists**
- No reimbursement for care coordination
- Mismatch between physical and dental care

**Fear of dentists**
- It hurts
- Past experiences

**Child services unaware of need for services**
- Lack of ties to providers
- Lack of knowledge of guidelines

**Unbilled dental care going on**
- Problem with consent
- Problem with need for parental permission
- No electronic means of sharing information

**Decreased awareness of need in part of family**

**Number of dentists**

**Transportation to dentist**

**Reimbursement for services**

**Pediatric awareness (OB-GYN)**

**Credentialing process**

Getting 1-4 year olds on medicaid to use preventive dental care