



# Examining Oral Health Care Utilization and Expenditures for Low-Income Adults

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## IN BRIEF

Access to oral health care for low-income adults is a persistent challenge in the United States. Poor oral health can lead to increased risk for long-term chronic conditions, lost workdays and reduced employability, and preventable dental-related hospital visits for adults enrolled in Medicaid. To better understand how adult Medicaid beneficiaries are using dental services, the Center for Health Care Strategies (CHCS), with support from the DentaQuest Foundation, analyzed 2011 dental service use and cost data for non-elderly Medicaid-enrolled adults by a number of individual-, community-, and state-level factors. Findings from this analysis can help federal and state policymakers, Medicaid agencies, public health departments, health and dental plans, providers, advocates, and other oral health stakeholders identify opportunities to improve access to care and, ultimately, achieve sustainable oral health improvements for low-income adults.

The analysis is part of CHCS' ***Faces of Medicaid data series***, which examines high-cost Medicaid populations to provide stakeholders with important insights to inform program design, service delivery, and cost-effectiveness.

## FINDINGS

- The comprehensiveness of **a state's dental benefit package was a major predictor of dental service use and costs**. The highest levels of outpatient dental service, or preventive dental service use specifically, were in states with more comprehensive coverage.
- While the percentage of beneficiaries using emergency departments (ED) for dental needs was low, emergency services are costly, and in most cases, **individuals' dental-related needs could be addressed in community settings**.
- **Hispanic beneficiaries had the lowest utilization rates of any racial/ethnic group**, but that disparity declined significantly when controlling for state dental benefits category, degree of urban influence, and dental provider-to-resident ratio.
- **Beneficiaries with intellectual/developmental disabilities and those residing in nursing homes were more likely to use dental services** than the general Medicaid adult population.
- **Older non-elderly adult Medicaid beneficiaries, ages 45-64, had higher mean dental costs** than younger adults, likely driven by their use of more expensive services.
- **Communities with more dentists per resident had higher outpatient use** and lower ED use for dental services among Medicaid-enrolled adults.
- **Areas that were more urban saw lower dental service use** in both outpatient settings and EDs when compared to more rural areas.

*\*June Glover is a former program officer at CHCS.*



## Introduction

Adequate oral health care coverage and access for low-income adults, including those enrolled in Medicaid, remain elusive in most states. Because the federal government classifies dental coverage for adults as an optional Medicaid benefit, it is often among the first benefits to be trimmed in tight fiscal times. As of November 2017, only 34 states covered services beyond medically necessary care in emergency circumstances, and only 17 offered an extensive benefit (see Key Terms, page 3).<sup>1</sup> This presents a significant barrier to oral health for low-income adults, who often cannot afford to pay out-of-pocket for services, and thus have no options for oral health care other than charity dental services, which are inconsistently available. When compared to those with higher incomes, low-income adults are 40 percent less likely to have had a dental visit in the past 12 months and are two-and-a-half times as likely to have untreated tooth decay.<sup>2</sup> Accordingly, they are affected disproportionately by oral health problems — elevating their risk for chronic conditions such as diabetes and heart disease; lost workdays and reduced employability;<sup>3</sup> and preventable use of acute care.<sup>4</sup> These challenges have also led to an increase in dental-related hospital visits and overall uncompensated care over the past several years — costs that are ultimately paid for by taxpayers.<sup>5</sup>

The situation is even direr for older adults because: (a) oral health needs tend to increase with age; (b) there is no Medicare dental benefit except in the case of dental services needed for the treatment of medical conditions; and (c) optional Medicare Advantage benefits are often limited. Not surprisingly, roughly one-quarter of the elderly have lost all of their teeth.<sup>6</sup>

As state Medicaid stakeholders explore how to meet the oral health needs of their adult population and consider benefits expansion, they could benefit from a better understanding of the utilization and expenditure patterns of adult beneficiaries, especially high-risk populations. This Center for Health Care Strategies (CHCS) analysis, made possible through support from the DentaQuest Foundation, is designed to help federal and state policymakers, Medicaid programs, health/dental plans, providers, advocates, and other oral health stakeholders identify opportunities to improve oral health care access and outcomes. Using 2011 Medicaid data from 44 states, the study examined dental service costs and utilization for adult beneficiaries, based on individual-, community-, and state-level factors. It is part of CHCS' *Faces of Medicaid* data series, which examines high-cost Medicaid populations to provide stakeholders with important insights to inform program design, service delivery, and cost-effectiveness.

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## STUDY DESIGN

Findings from this study<sup>7</sup> are based on analyses<sup>8</sup> of Medicaid Analytic eXtract (MAX) data from 2011, which include data for fee-for-service (FFS) and managed care claims from 44 states.<sup>9</sup> Demographic and eligibility information was derived from the MAX person summary files. Community characteristics<sup>10</sup> (region, degree of urban influence, high poverty) and health resources (number of primary physicians per 1,000 residents, number of dentist per 1,000 residents, and number of federally qualified health centers per 1,000 residents) were extracted from the Area Health Resources Files (AHRF) 2015 file<sup>11</sup> and linked to MAX data by state and county code. Information on state Medicaid adult dental coverage in 2011 — showing that 11 states had no coverage, 12 had emergency-only coverage, 15 had limited coverage, and 12 plus the District of Columbia (D.C.) covered an extensive set of services — was gathered from published sources.<sup>12,13</sup> (See Appendix for a full description of the methodology and study limitations.)

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## KEY TERMS

- **State dental benefits categories:** For this study, states' oral health care benefits were grouped by the comprehensiveness of their oral health care benefits for Medicaid-enrolled adults in 2011. Categories included:
  - » **No coverage:** No benefits are offered, including in emergency situations.
  - » **Emergency-only:** Care is only covered for relief of pain under defined emergency situations.
  - » **Limited:** Benefits cover fewer than 100 diagnostic, preventive, and minor restorative procedures recognized by the American Dental Association (ADA). Per-person annual expenditures are capped at less than \$1,000.
  - » **Extensive:** A comprehensive mix of services is covered, including more than 100 diagnostic, preventive, and minor and major restorative procedures approved by the ADA. Per-person annual expenditure are capped at greater than or equal to \$1,000.
- **Ambulatory care-sensitive (ACS) dental needs:** Dental needs for which appropriate ambulatory or outpatient care prevents or reduces the need for care in a hospital.
- **Non-traumatic dental conditions (NTDC):** A range of oral health needs that arise from common dental conditions, such as tooth decay and periodontal disease, and ordinarily do not require care in an emergency department.
- **Degrees of urban influence:** Urban Influence Codes make up a classification scheme that distinguishes metropolitan counties by population size of their metro area, and non-metropolitan counties by the size of their largest city or town and by their proximity to metro areas.<sup>14</sup>



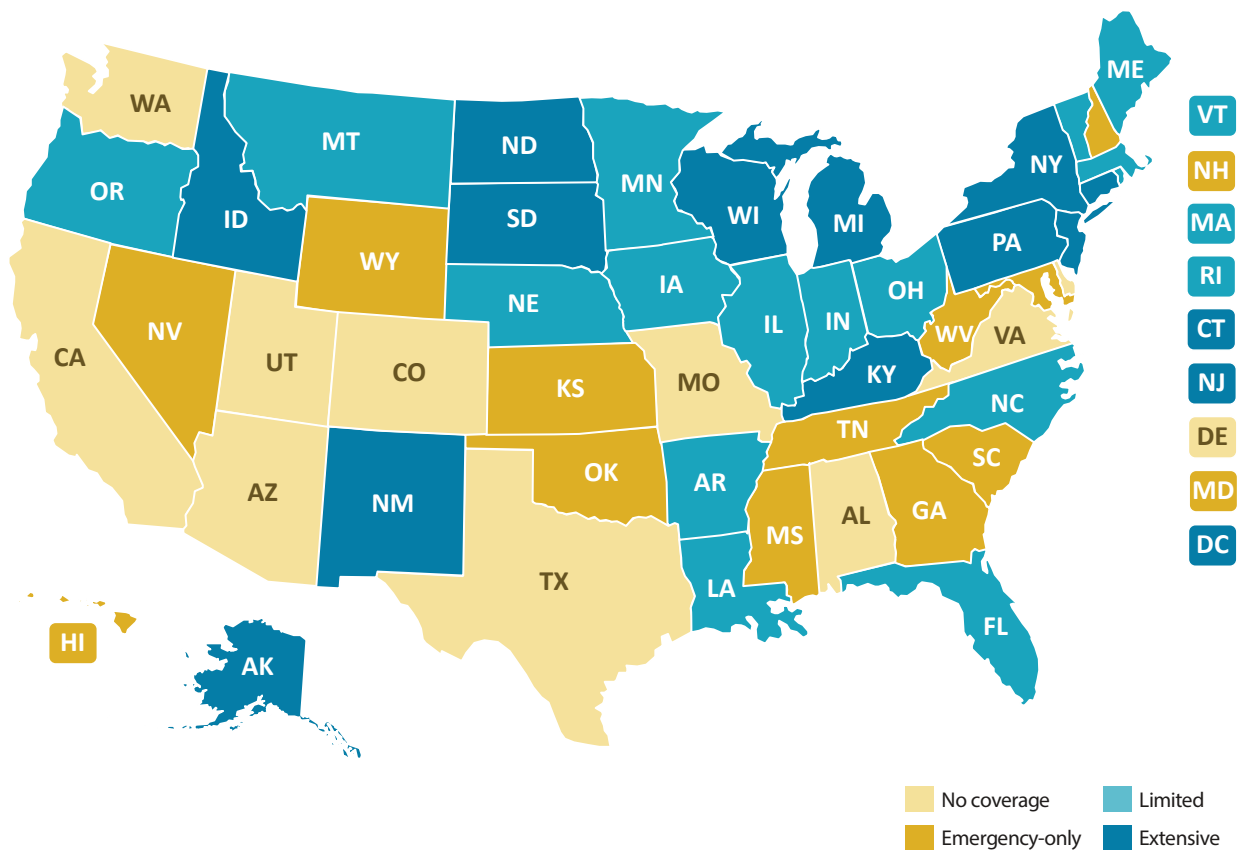
## Findings

**The comprehensiveness of a state’s dental benefit package was a major predictor of outpatient dental service use and costs. The highest average levels of outpatient, or preventive dental service use specifically, were in states with more comprehensive coverage.**

Overall, dental service use among adult Medicaid beneficiaries was low. Among the 16 million adult Medicaid beneficiaries in the study’s general population, only about 2.6 million (16.1%) used any dental service in an outpatient setting. This utilization rate varied greatly by state benefit coverage category.

Thirty-nine states plus D.C. offered some Medicaid coverage of adult dental services in 2011 — emergency-only (12), limited (15), or extensive (13) — and more than half had offered the same benefit coverage for 10 years or more (Exhibit 1).<sup>15</sup>

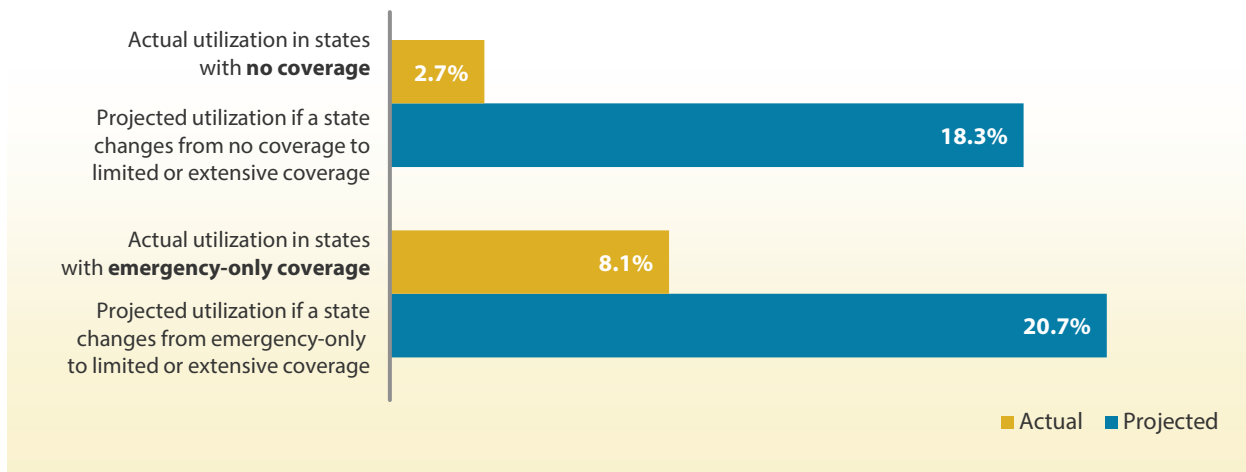
**EXHIBIT 1: Medicaid Coverage of Adult Dental Services, 2011**





Service use was highest in states with limited or extensive dental benefits, an association found to be significant. The study also used a predictive model to project the impact on utilization of a state's potential change from no or emergency-only coverage, to a limited or extensive benefit. In states with no coverage, the projected increase was from 2.7 percent to 18.3 percent; in states with an emergency-only benefit, expanding coverage to limited or extensive was projected to change utilization from 8.1 percent to 20.7 percent (Exhibit 2).

### EXHIBIT 2: Comparing Actual Utilization to Predicted Values with a Change to Limited or Extensive Coverage, 2011



In tandem, actual utilization data showed that more extensive state coverage was associated with higher costs (i.e., Medicaid reimbursement). Expenditures per beneficiary for outpatient services were \$9.20 in states with no coverage, \$31.21 in emergency-only states, and much higher at \$93.91 in limited and \$95.25 in extensive states. Of note, costs in extensive states exceeded those in limited states, but utilization was slightly lower in the former.

**WHAT THE FINDINGS SUGGEST:** Higher utilization of outpatient dental services in states with more than an emergency-only benefit demonstrates the significant impact of coverage on access to care; however, continuing low rates of utilization suggest persistent barriers. These may include: (1) an inadequate provider network to meet demand; (2) logistical barriers to appointments, such as transportation and difficulty taking time off from work; (3) low rates of oral health literacy; and (4) lack of knowledge about Medicaid dental benefits and how to access them. States and other oral health stakeholders should assess what specific factors are affecting access to services in particular geographic areas or sub-populations, and explore interventions (e.g., a culturally sensitive oral health literacy campaign) to address them.

While the potential to dramatically increase service use through benefit expansion is clear, states also need to consider the financial costs and corresponding return on investment (ROI) that would follow. Such projections call for assumptions about use of specific services over time, acknowledging that costs may be higher in the first year (this study did not explore utilization and costs over time). Lower costs in subsequent years could result from a drop in utilization following pent-up demand among newly insured individuals; reductions in costlier treatments for advanced dental disease;<sup>16</sup> and/or reductions in risk for certain chronic illnesses such as cardiovascular disease.<sup>17</sup>



**While the percentage of beneficiaries using EDs for dental needs was low, most visits (87%) were related to ambulatory care-sensitive (ACS) conditions and thus could likely be diverted to community settings. A negligible percentage (0.02%) of those visiting the ED was admitted.**

Only about 200,000 Medicaid beneficiaries (1.4%) were seen in the ED for ACS dental services in 2011, with approximately 3,200 (0.02%) of these individuals admitted subsequently for inpatient services. While the overall percentage of Medicaid beneficiaries using EDs for dental needs was low, those seen in the ED had an average of nearly two visits, and those admitted through the ED for ACS dental conditions averaged 1.22 inpatient stays. Total expenditures for ACS dental-related ED visits exceeded \$21 million across all states. Consistent with other studies,<sup>18</sup> non-traumatic dental conditions (NTDC) accounted for the majority (71%) of ACS dental emergency visits: 53 percent were coded as unspecified disorders of teeth and supporting structure, and 18 percent as dental caries (Exhibit 3). There was no association between ED use and state coverage category.

**EXHIBIT 3: Dental-Related ED Visits by Service Type, 2011**

Service Type	Percentage
 Dental caries	18.4%
 Unspecified disorder of teeth and supporting structure	53.0%
 Periapical abscess without sinus	18.5%
 Inflammatory conditions	0.4%
 Cellulitis and abscess	2.1%
 Other	7.6%

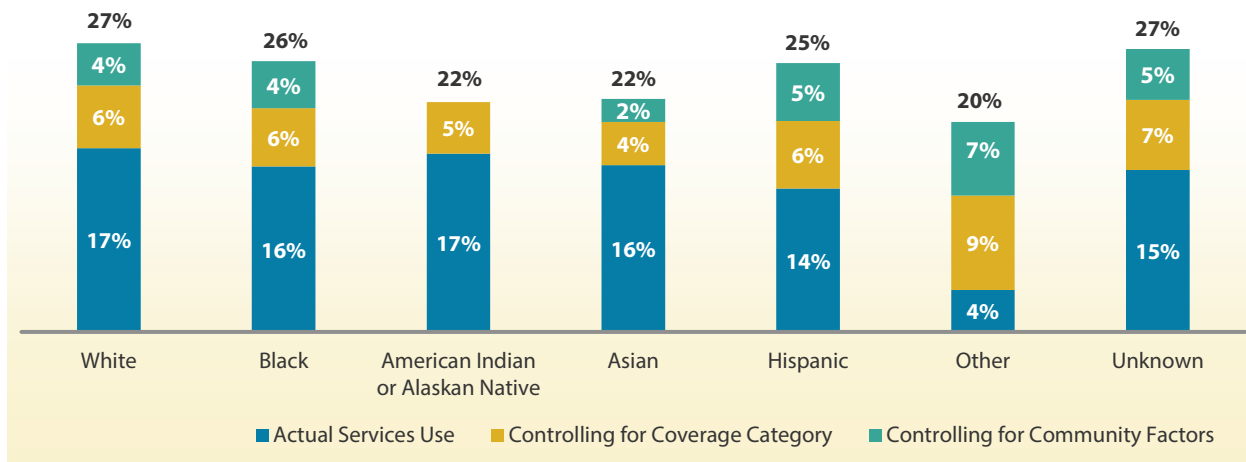
**WHAT THE FINDINGS SUGGEST:** Although utilization for dental-related services in the ED was relatively low, the frequency and nature of these visits suggest an unmet need for preventive services and continuity of care in more cost-efficient outpatient settings. Lack of an association between state dental benefit coverage and dental utilization in the ED was surprising and warrants further investigation. It also underscores the need for concerted efforts to improve access to outpatient dental care even in states with an extensive benefit.



**Hispanic beneficiaries had the lowest utilization rates of any racial/ethnic group (Exhibit 4), but that disparity declined significantly when controlling for state dental benefits category, degree of urban influence, and dental provider-to-resident ratio.**

There were small differences in actual dental service use by racial/ethnic group: Hispanics had the lowest rates — 13.5 percent compared to a range of 15.7 percent to 17.4 percent among other racial/ethnic groups. Notably, regression analyses showed that predicted racial disparities in utilization were significantly reduced when controlling for certain socioeconomic and community factors — such as community poverty level, state dental benefit coverage category, urban vs. rural setting, and geographic location — especially in Hispanic adults (Exhibit 4). In contrast to actual utilization findings, Hispanic beneficiaries have higher predicted likelihood of dental service use.

**EXHIBIT 4: Impact of Controlling for Coverage and Community Factors by Races/Ethnicity, 2011**



**WHAT THE FINDINGS SUGGEST:** Racial/ethnic disparities in oral health are well-established.<sup>19</sup> This study’s findings for Hispanic Medicaid beneficiaries add to existing evidence, illustrating the extent to which location influences health. Half of all Hispanic beneficiaries resided in states with no coverage (47.3%) or emergency-only coverage (2.6%) — compared to white beneficiaries, who primarily resided in states with limited (33.5%) or extensive (29.7%) coverage. Other racial groups were distributed similarly to whites, or even overrepresented in some instances, in states with limited or extensive Medicaid dental benefits.

Because predicted utilization rates among Hispanics improved when controlling for community characteristics, this study underscores the need for interventions that address the social determinants of health. While such factors as community poverty level, state dental benefit coverage category, and geographic location were included in the analysis, it did not account for individual behaviors and perceptions around oral health and its value. Collecting data on these variables would allow for a more comprehensive examination of the factors that contribute to low dental service use among certain populations and inform development of place-based techniques, targeted strategies, and interventions.

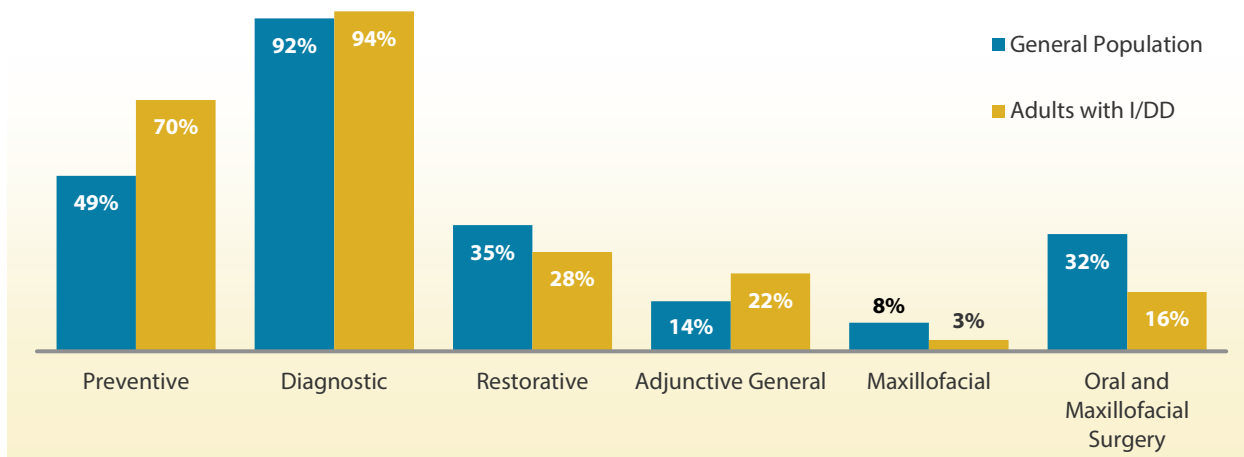




## Nearly 29 percent of adults with intellectual/development disabilities (I/DD) used dental services, compared to only 16 percent of the overall adult Medicaid population — a finding to be reconciled with higher rates of dental disease observed in this sub-group.<sup>20</sup>

Beneficiaries with I/DD had a much higher rate of dental service use than the general Medicaid population — 28.9 percent compared to 16.1 percent. Their use of services rose with age — it was lowest for ages 21 to 34 (26.4% vs. about 30% in the two older age brackets). Among the 18 chronic conditions studied, regression analyses showed I/DD to have the greatest influence, by far, on dental service use, at 13.1 percent.<sup>21</sup> Further, compared to the general adult Medicaid population, adults with I/DD using any service also were 43.3 percent more likely to use preventive services (69.5% vs. 48.5%); half as likely to use oral and maxillofacial surgery (16.4% vs. 32.4%) (Exhibit 5); had mean dental costs per beneficiary that were 22 percent less (\$306 vs. \$391); and were a little more than one-fourth as likely to use the ED for dental-related visits (0.4% vs. 1.4%).

### EXHIBIT 5: Utilization of Specific Services by Beneficiaries Using Any Dental Service: General Population vs. Adults with I/DD, 2011



**WHAT THE FINDINGS SUGGEST:** Relatively high rates of outpatient use and low rates of ED use among adults with I/DD may result from: (1) living in group home settings, which can result in better overall care management; (2) living with family caregivers who ensure that they receive oral health care;<sup>22</sup> (3) a large majority taking medication that can be detrimental to teeth (e.g., causing chronic dry mouth), driving use of oral health care;<sup>23</sup> (4) most being entitled to long-term — some, lifetime — Medicaid enrollment by virtue of disability status, making them more likely to have a dental home;<sup>24</sup> and (5) many pediatric dentists continuing to treat them past age 20 given relationships with the beneficiary and his family.<sup>25</sup>

Their lower mean dental costs may be due to a much greater likelihood of preventive dental service use, presumably preventing costly dental disease, or providers' reluctance to treat their complex care needs.<sup>26</sup> While graduates of accredited dental schools must be competent in *assessing* the treatment needs of individuals with special needs, they are not required to be competent in *treating* them.<sup>27</sup>

Notably, our study's findings may be seen as being at odds with others showing higher prevalence of untreated caries, periodontitis, and edentulism (toothlessness) in the population.<sup>28</sup> However, such studies have focused on disease prevalence rather than service use, and have attributed worse outcomes to lower observed oral health care utilization; cognitive, physical, and behavioral limitations to performing daily oral care and cooperating during visits; and use of medications.<sup>29</sup> Additional research is warranted to reconcile these findings.



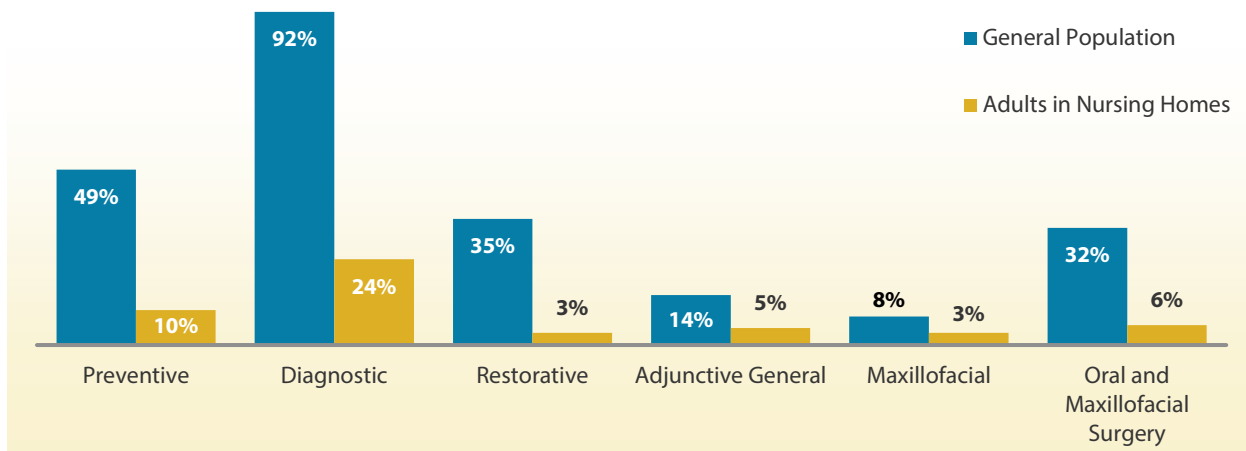


**Roughly 25 percent of non-elderly Medicaid beneficiaries in nursing homes used dental services compared to only 16 percent of the general adult Medicaid population, but the mean number of services used and mean expenditures among service utilizers in those settings were lower.**

About one-quarter of Medicaid beneficiaries residing in nursing homes used any dental service, compared to only 16 percent of the general adult Medicaid population. Among service users in nursing homes, diagnostics were the most common, followed by preventive care, and oral and maxillofacial surgery (Exhibit 6). Less than 0.2 percent used implants, prosthodontics, endodontics, and/or orthodontics. Further, very few nursing home residents (0.14% vs. 1.36% of general adult Medicaid beneficiaries) sought oral health care in an ED.

The mean dental cost per user in a nursing home was 26.8 percent less than the general Medicaid population — \$286 vs. \$391 per service user. Similarly, cost per service used was \$53 in nursing homes vs. \$57 in the general population. Differences in the mean number of services used trended similarly — 5.45 in nursing homes, and 6.91 in the general population. In short, nursing home residents used fewer and less costly services.

**EXHIBIT 6: Utilization of Specific Services by Beneficiaries Using Any Dental Service: General Population vs. Adults in Nursing Homes, 2011**



**WHAT THE FINDINGS SUGGEST:** There are a number of possible explanations for higher outpatient service use among residents of nursing homes. Federal regulations require nursing facilities to provide, or obtain from an outside source, routine dental services (to the extent covered by the state plan) and emergency services. In addition, as services are offered directly to residents on-site, these beneficiaries do not face transportation or other logistical barriers to accessing outpatient services. Further, if an individual in a nursing facility tells someone of oral pain or the staff notice changes in behaviors (eating less, for example), the facility is likely to connect the resident to care. As well, care coordinators may incorporate oral health into the plan of care for each resident. Ultimately, because their oral health needs are being met on-site, nursing home residents are less likely to have emergent dental needs that require a visit to the ED.

As with the I/DD population, the juxtaposition of relatively high utilization rates with lower mean costs raises the need to explore why individuals in nursing homes are not receiving more expensive procedures. Similarly, the relative difficulty and appointment duration time for providing services to this population may deter providers from delivering more complex services,<sup>30,31</sup> suggesting the need for specialized training and/or incentives for care delivery.







## Older non-elderly adults, ages 45-64, have higher mean dental costs per user, likely driven by their use of more expensive services.

Medicaid beneficiaries, ages 45 to 64, using oral health care service users had the highest mean dental costs per user of any non-elderly age category — \$430, compared to \$378 for those 35 to 44, and \$369 for ages 21 to 34. However, meaningful differences in the percentage of beneficiaries using any dental service or in the mean number of services used were not clear among the age groups. Costs per service used were \$62 for the oldest group; \$55 for ages 35 to 44; and \$54 for ages 21 to 34 (Exhibit 7).

Some trends were seen in use of specific service types by age of user. As age increased, use of diagnostic (ranging from 93.0% to 90.8%) and restorative (from 37.2% to 30.8%) services declined, and use of oral and maxillofacial surgery services increased (from 2.5% to 15.7%).

**EXHIBIT 7: Trends in Dental Service Use and Costs by Age, 2011**

	21 to 34	35 to 44	45 to 64	Trend with Increasing Age
 <b>Likelihood of outpatient service use</b>	16.5%	16.7%	15.3%	None →
 <b>Mean number of services per user</b>	6.9	6.9	7.0	None →
 <b>Mean cost per service per user</b>	\$53.65	\$54.77	\$61.63	Rising ↗
 <b>Mean expenditures per user</b>	\$369.48	\$378.00	\$428.57	Rising ↗

**WHAT THE FINDINGS SUGGEST:** Higher costs among older non-elderly adult Medicaid beneficiaries appear to be an area for further exploration. They could be due to changing clinical needs of adults as they age, or to the culmination of years of unmet oral health needs that have escalated to require more complex, and therefore more expensive, care. Generational factors may also be at play: the younger half of the “baby boom” generation — which is in this study’s oldest age category — grew up in an era with little water fluoridation and widespread use of amalgam restorations, which may be breaking down at this point in their lives.<sup>32</sup>

Given the lack of a Medicare dental benefit, addressing oral health for those approaching that program’s eligibility age is critical — particularly in states that lack an extensive Medicaid dental benefit. Multi-pronged programmatic and advocacy efforts, such as Oral Health America’s Wisdom Tooth Project — which includes a consumer-focused web portal, legislative advocacy for a Medicare dental benefit, symposia for health professionals, and a tailored health education curriculum for older adults<sup>33</sup> — could provide value in addressing the population’s complex oral health needs.

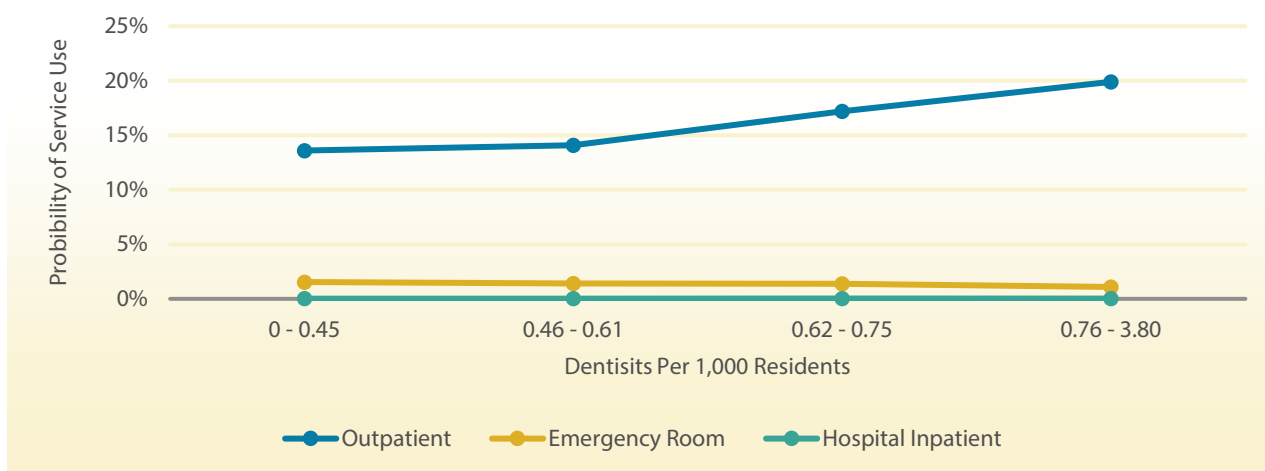


## Communities with more dentists per resident have higher outpatient utilization and lower ED utilization for dental services among Medicaid-enrolled adults.

When all other factors are controlled (through regression analyses), the predicted likelihood of dental service use in an outpatient setting increases as the number of dentists per 1,000 residents rises, ranging from 13.6 percent to 19.9 percent (Exhibit 8). Actual utilization ranged from 14.3 percent at the lowest ratio to 22.3 percent at the highest. Similarly, the probability of dental ED use falls in communities with more dentists per resident, with 73 percent less likelihood in areas with the highest ratios compared to those with the lowest.

Predicted outpatient dental expenditures were correspondingly highest in communities with the best provider-to-resident ratio — \$76 vs. \$57 in communities with the worst ratio. Conversely, predicted expenditures for ED and inpatient use declined as ratios climbed — ranging from \$2.41 at the lowest, to \$1.64 at the highest.

**EXHIBIT 8: Predicted Service Use in Various Settings, by Dentist-to-Resident Ratio, 2011**



**WHAT THE FINDINGS SUGGEST:** Having a particular number of dentists per resident in a region is not an absolute measure of Medicaid provider network adequacy and does not ensure access to care. Network adequacy is also influenced by such factors as how many Medicaid beneficiaries a provider is willing to see; the availability of weekend and evening appointments; and logistical accessibility of those providers in the network. However, having a greater ratio of dentists to residents is an important building block to access, as suggested by these findings and other research revealing lower rates of dental visit completion in urban and rural areas with relatively low numbers of general dentists.<sup>34,35</sup>

Geographic pockets of particularly low dentist-to-resident ratios may help identify opportunities for: (1) targeted ED-diversion programs; (2) use of mid-level providers to deliver certain oral health services;<sup>36</sup> (3) tele-dentistry;<sup>37</sup> and (4) other efforts to improve access. A similar approach might be used to explore ratios of culturally aligned providers to residents to help ensure the use of preventive and lower cost services. In areas where the number of providers from a particular ethnic group is low relative to the number of residents in that group, provider recruitment efforts could be targeted to meet the need.<sup>38</sup>

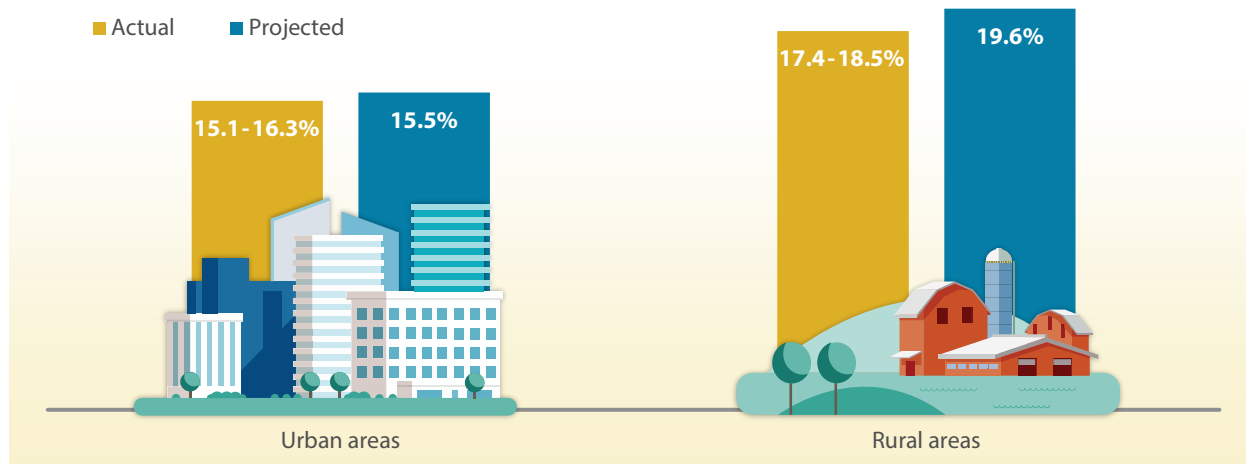


## Dental service use in outpatient settings and EDs is the lowest in areas that are more urban than rural.

With all other factors controlled, this study found that the more urban an area, the lower is its residents' predicted use of outpatient dental services — 19.6 percent in the least and 15.5 percent in the most urban areas. Actual use of outpatient services showed a similar trend, ranging from 17.4 percent to 18.5 percent in the two non-urban categories, and from 15.1 percent to 16.3 percent in the two urban categories (Exhibit 9). The most-urban areas also had the lowest use of the ED for dental services, as shown by actual utilization data and as predicted through regression analysis.

Correspondingly, predicted mean expenditures per user for outpatient dental service, and for total dental services (including ED and inpatient), declined as regions grew more urban, with smaller and subsequently larger drops across the continuum.

### EXHIBIT 9: Actual vs. Predicted Outpatient Dental Service Use in Urban vs. Rural Areas,<sup>39</sup> 2011



**WHAT THE FINDINGS SUGGEST:** These findings were surprising. Other research has yielded different conclusions, with higher dental service use (and higher dentist supply) in urban compared to rural areas (many of which have no Medicaid-contracted dentists at all). However, such research has generally not been specific to Medicaid-enrolled adults.<sup>40, 41</sup> This study's findings are further surprising given that a greater percentage of rural versus urban residents (18% vs. 15%) are enrolled in Medicaid,<sup>42</sup> putting more pressure on the often inadequate network of oral health care providers in rural areas.

Potential reasons for these results include the fact that while there may be an inadequate number of dentists (or in some cases, none) in a given rural area, there may be more mid-level dental providers available to deliver some services, contributing to the utilization seen in this study. Another factor may be that providers in urban areas can sustain their practices by restricting the number of Medicaid beneficiaries on their patient panels more easily than rural dentists can, due to greater service demand from privately insured or self-paying patients in cities. A provider in a rural county that has a large percentage of Medicaid beneficiaries may face difficulty "filling chairs" if she limits the number of publicly insured patients she serves.<sup>43</sup> Further research could potentially explore the influence of urban settings on access to oral health care in Medicaid, and to reconcile these findings with the literature.



## Discussion

Findings from this study indicate several policy opportunities to improve access to oral health services for Medicaid beneficiaries and, ultimately, their oral health outcomes.

### Consider the business case for an extensive dental benefits package for Medicaid-enrolled adults

**Expanding adult dental benefits — the most statistically significant factor for dental service use — offers evidence-based potential to positively influence access to care.**<sup>44</sup> Predicting a state's projected return on investment (ROI) — a measure built on assumptions about access and utilization and their subsequent impact on disease outcomes and related costs — is a key step in building the business case for expanding dental benefits. One recent study, for example, estimated the cost of adding an extensive benefit to states with no or an emergency-only benefit by calculating assumptions around the percentage of Medicaid-enrolled adults with a dental visit, the dental expenditures per user per year, and the Medicaid reimbursement rate.<sup>45</sup>

Assessing the impact of expanded dental coverage on medical outcomes and costs is another potentially valuable, albeit challenging, calculation to pursue. For example, a 2016 Milliman analysis<sup>46</sup> examining the cost of comprehensive<sup>47</sup> adult dental coverage in Medicaid projected reductions in medical costs related to diabetes, cardiovascular disease, chronic obstructive pulmonary disease, and stroke — all conditions with links to oral health. The analysis demonstrated potential offset amounts to dental benefits costs ranging from nine to 35 percent.

ROI calculations may also consider savings from reduced ED use, which decline significantly with dental benefits expansion.<sup>48</sup> Improved access to care and reductions in dental disease may also lead to further projected savings, both in the health care system and across a community. Advanced dental disease and corresponding pain, infection, and a deteriorated appearance, have been shown to reduce workplace productivity<sup>49</sup> and employability.<sup>50</sup> Plus, poor oral health can lead to serious and costly health conditions such as cardiovascular disease, stroke, and adverse pregnancy outcomes,<sup>51</sup> and is also associated with opioid abuse.<sup>52</sup>

While building the case for benefits expansion is fundamental, continued low utilization in states with limited or extensive benefits makes clear that coverage alone is not a panacea for access. Rather, it is a critical starting point for engaging beneficiaries in care, through strategies such as those described below.

### Pursue emergency department diversion and stronger linkages to community-based care

**The study's finding that ED use for dental care was not associated with the extent of dental benefits underscores the insufficient role that coverage plays in access to outpatient, preventive care.** Other barriers to access in Medicaid clearly persist — including geographic mal-distribution and shortages of dentists accepting Medicaid; lack of transportation to a dentist's office; and inadequate knowledge of Medicaid dental benefits and appropriate use of the ED for dental care.<sup>53</sup> Accordingly, the most recent data show that for the first time, more ED visits for dental needs are paid for by Medicaid agencies than by patients,<sup>54</sup> and use of the setting for dental needs by Medicaid beneficiaries continues to rise.

Other research has shown that up to 79 percent of ED visits for dental needs could be diverted to community settings.<sup>55</sup> The fact that individuals who use the ED for dental needs returned for an average of one additional visit highlights that initial use of the ED does not necessarily spur effective referrals to community-based follow-up care. Diversion of preventable and inappropriate use of the ED for dental care has important clinical and financial implications: it increases the likelihood that disease will be prevented and/or treated earlier and promotes continuity of care — improving outcomes, pain, and long-term costs.<sup>56</sup> One study projected that



Maryland, which has an emergency-only benefit, could save up to \$4 million annually by preventing unnecessary use of the ED for dental-related issues.<sup>57</sup> Diversion programs being piloted in several states offer promising approaches:

- In Maine, patients presenting to the ED with dental pain receive one prescription for a painkiller and an antibiotic along with a referral to a local clinic or surgeon to avoid repeat ED visits for the same problem. This has led to a 70 percent reduction in ED visits for dental pain and infection at some hospitals.<sup>58</sup>
- Virginia employs a range of approaches that include oral health education for triage and call nurses; direct referrals to nearby community dental clinics; use of a data infrastructure to track referrals and follow-up; and identification of community supports.<sup>59</sup>
- A program in Michigan reduced ED visits for dental pain by 72 percent by making referrals to a network of volunteer dentists.

Inappropriate use of the ED for dental needs also fuels the growing epidemic of opioid abuse. Virtually every ED visit for a non-traumatic dental condition (NTDC) results in at least one prescription for antibiotics or pain medication,<sup>60</sup> and multiple ED visits for NTDC increase the risk of prescription drug overdose.<sup>61</sup> Educating ED providers about the dangers of opioid abuse by the patients and promoting use of prescription drug monitoring programs can be useful approaches. Guidelines specifying the prescribing of pain medication for a limited period of time — for example, up to 24 hours so that patients are more likely to keep immediate follow-up appointments for care in community settings, as undertaken in Virginia<sup>62</sup> — may be effective at reducing the likelihood of subsequent opioid misuse or abuse.

### Address key social determinants of health

**A key finding related to race/ethnicity was that predicted racial disparities in utilization for Hispanic adults were significantly mitigated when controlling for socioeconomic and community factors such as community poverty level, state dental benefit coverage category, urban vs. rural setting, and geographic location.** This underscores the need to examine social determinants of health, particularly in regions with relatively low utilization. Social determinants — such as access to healthy food, housing, employment, cultural norms, available transportation, and education — can shape risk behaviors, environmental exposures, and use of health care.<sup>63</sup> They disproportionately affect individuals marginalized by socioeconomic status, race and ethnicity, geographic location, or some combination of these factors.<sup>64</sup>

Culturally responsive dental providers and services provide a “welcome mat” to access and can activate and empower patients who may have coverage, but are less engaged in their health care. States may consider policies to mandate cultural sensitivity education in dental school curricula or explore cultural barriers to care that exist among certain populations and create pilot interventions that address these barriers.

More broadly, states may consider a framework for assessing and addressing the social determinants of health in a community — including identifying their impact, mapping and mobilizing available community resources through partnerships, selecting approaches to take action, and evaluating implementation and impact.<sup>65</sup> This stepwise approach can be useful for driving targeted and place-based interventions, and ultimately improving access for vulnerable populations.

### Consider alternative payment models and well-aligned incentives

**Typical Medicaid dental service reimbursement models are fee-for-service-based, with higher rates for more complex treatment services compared to preventive care. Because this approach promotes procedures, rather than outcomes, it does little to incentivize regular preventive and value-based care.** It also fails to encourage providers to deliver services to populations with more complex needs (e.g., adults with I/DD or individuals in nursing homes). Low overall reimbursement rates further deter dental provider participation in Medicaid.



Alternative payment models that reflect risk stratification and create incentives for value-based care are worthy of state consideration. Examples include:

- Increasing reimbursement rates for high-value services (e.g., those with an evidence base for improved outcomes);
- Including oral health in a capitated arrangement or global budget, rather than paying a fee for each service;
- Incorporating oral health into bundled payments that reimburse for an episode of care delivered during a defined period of time for a particular dental condition; and
- Providing consumer incentives (e.g., access to an expanded set of benefits, as done by Iowa's Dental Wellness Plan<sup>66</sup>) to beneficiaries to complete preventive and other recommended care.

Oregon's Coordinated Care Organization (CCO) model is an example of how states can include dental services in their efforts to create entities that are fully accountable for all of the health-related needs and outcomes of Medicaid beneficiaries. Each of the state's 16 CCOs is a regional accountable care entity responsible for delivering physical and behavioral health services to Medicaid beneficiaries under a single budget. As one of the only states with an ACO-type model that includes dental services, Oregon withholds three percent of the funding it provides to each CCO to form an incentive pool around metrics that include oral health. This drives the CCOs, each of which contracts with dental care organizations (DCOs) to serve its members, to collaborate with the DCOs on improvement efforts.<sup>67</sup>

### Invest in care coordination for high-need, high-cost populations

**Higher rates of dental service use among adults with I/DD or in nursing homes are likely due, in part, to the care coordination or case management that they often receive to address the full continuum of health needs.** These models can be applied to other populations of Medicaid beneficiaries that are at greater risk for oral disease — such as individuals with diabetes, who are three times as likely to have periodontal disease than non-diabetics.<sup>68</sup> Periodontal disease is, in turn, associated with insulin resistance and poor glycemic control,<sup>69</sup> suggesting that two-way care coordination between medical and oral health providers may have benefits for this population.

Similarly, dental disease is associated with adverse pregnancy outcomes. Pregnant women who suffer from periodontal disease are eight times more like to delivery prematurely, or to have a low-birthweight baby.<sup>70</sup> Investing in care coordination or case management models that engage prenatal care providers (e.g., obstetricians and nurse midwives) to identify signs of oral disease and encourage patients to seek dental care may be valuable.

Along with consideration of care coordination that includes oral health, states may want to consider a procedure code that provides reimbursement for this service, the reimbursement amount(s), and what types of professionals (e.g., primary care providers, dentists, medical assistants, dental hygienists, community health workers, or patient navigators) are eligible to receive it.

### Employ dental education and professional training channels

**The higher rates of dental service use among adults with I/DD and those in nursing homes — alongside lower use of more complex procedures — may suggest that providers are not comfortable treating the advanced dental needs of these populations.** Attention to dental school curricula and subsequent continuing education focused on meeting these needs may be useful in addressing that potential barrier to access. For example, the Virginia Oral Health Coalition established a program in 2014, funded by the Virginia Board for People with Disabilities, to increase the number of dental providers with the necessary skills to treat adults with I/DD. The program provided more than 60 dental providers and students with specialized, hands-on training and educated them on the complexities of treating this population.<sup>71</sup>





## Conclusion

This analysis of 2011 Medicaid oral health care utilization and expenditures examines both challenges and potential opportunities to improve the oral health of adults served by publicly financed care. An overarching conclusion is that very low rates of service use — even in states with a limited or extensive benefit — demonstrate that coverage itself, while fundamental, is only a first step in achieving adequate oral health care access. The various barriers and facilitators of access highlighted in this study — including social determinants, geographic location, supply of Medicaid-contracted dentists, chronic conditions, nursing home residency, and age — all need to be explored when considering opportunities to improve oral health. States, plans, and other oral health stakeholders have to examine how factors such as these are affecting specific areas and populations, then consider how best to address them.

Takeaways from the experiences of populations or regions with relatively higher rates of utilization, as found in this study, are also useful. For example, care coordination that may be benefiting adults with I/DD or those in nursing homes may be adapted to other Medicaid populations. Access-advancing efforts that may be in place in certain rural areas could be adopted by others. Finally, interventions focused on social determinants of health, particularly for Hispanic or other racial/ethnic minority populations, may be valuable. A multi-pronged approach that employs policy and programmatic solutions — through payers, providers, and beneficiaries — will likely be the most effective pathway to improve meaningful access to oral health care services. Data analysis can clearly play an important role in both informing and evaluating the impact of these other interventions to improve oral health among low-income populations.

### ABOUT THE CENTER FOR HEALTH CARE STRATEGIES

The Center for Health Care Strategies (CHCS) is a nonprofit policy center dedicated to improving the health of low-income Americans. It works with state and federal agencies, health plans, providers, and consumer groups to develop innovative programs that better serve people with complex and high-cost health care needs. For more information, visit [www.chcs.org](http://www.chcs.org).

### ADDITIONAL RESOURCES

Since 2000, CHCS' *Faces of Medicaid series* has shed light on the prevalence of specific conditions among Medicaid beneficiaries, patterns of service use, and costs. By better understanding the Medicaid population, states and health plans can identify new opportunities to improve care, enhance health outcomes, and control spending. To learn more, visit [www.chcs.org/faces-of-medicaid/](http://www.chcs.org/faces-of-medicaid/).

To explore CHCS' full portfolio of work related to oral health, visit [www.chcs.org/topics/oral-health/](http://www.chcs.org/topics/oral-health/).



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