The Hilltop Institute

analysis to advance the health of vulnerable populations

Adult Dental Coverage in Maryland Medicaid

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Adult Dental Coverage in Maryland Medicaid: Executive Summary

The Hilltop Institute at the University of Maryland, Baltimore County (UMBC) provided this report to the Maryland Dental Action Coalition to examine the cost and policy implications of expanding adult dental coverage under Maryland Medicaid. Currently, Maryland is among 15 states that only cover emergency dental benefits for adults, while 17 states provide limited but broader coverage, and 15 states provide extensive coverage, according to the Center for Health Care Strategies. The only exceptions to this coverage limitation in Maryland are dental services for pregnant women and individuals enrolled in the Rare and Expensive Case Management program.

Using data from other states with Medicaid adult dental coverage, Hilltop applied the other states' service utilization rates to the Maryland adult Medicaid population, and estimated the payments to providers based on Maryland's dental fee schedule. Hilltop estimated the costs of three different levels of benefit coverage: a basic benefit for preventive and restorative care, an extensive benefit that covers basic benefits and services such as periodontal and dental surgery, and extensive benefits with an annual expenditure limit of $1,000. Because the state and federal shares of Medicaid expenditures vary for adults according to whether the person was made newly eligible under the Affordable Care Act, a further estimate of the state share of program costs was made by applying the proportions of adult Medicaid enrollees in coverage categories. When applying the other states' utilization rates to Maryland, Hilltop developed the following estimates of the state share of the costs of expanding adult dental coverage in Maryland:

- Under the "basic benefit" option, the estimated state share ranged from $17.8 to $40.5 million, or $2.30 to $5.23 per member per month (PMPM).
- Under the "extensive benefit" option, the estimated state share ranged from $29.1 to $65.9 million, or $3.77 to $8.51 PMPM.
- Under the "extensive benefit" option with a $1,000 fixed annual cap, the estimated state share ranged from $19.8 to $65.9 million, or $2.56 to $8.51 PMPM.

Estimating the costs of expanding dental coverage in Maryland is complicated by the multiple factors that can influence the use of dental services among Medicaid enrollees. Access to care is affected by program design choices, such as whether the benefit is provided by managed care organizations, or is carved out to a dental administrative services organization, as children's dental services are currently. Policymakers can affect costs by choosing the breadth of covered services, the amount of enrollee cost-sharing, degrees of outreach to enrollees, and payment rates to providers. Other factors influencing dental utilization may not be under the control of policymakers, such as the prevalence of dental disease, individual providers' readiness to participate in the program, and consumer demand for dental care.

Adult Dental Coverage in Maryland Medicaid

Introduction

Dental services for adults are optional for state Medicaid programs under federal law but receive federal financial participation if the state offers such coverage. Individual state Medicaid programs have opted to cover dental services for adults to varying degrees. Costs for providing dental services are balanced by improved health outcomes; reduced use of emergency department (ED) services for dental complaints; and savings from reduced expenditures on health services affected by oral health.

This report discusses considerations for expanding Maryland Medicaid to cover dental services for adults. It is intended to provide information to the Executive and Legislative branches for evaluating policy options. Currently, Maryland Medicaid does not cover dental services for adults aged 21 years or older, except for pregnant women, individuals enrolled in the Rare and Expensive Case Management (REM) program, and emergency services for dental problems provided in a hospital ED.

Maryland Compared with Other States

Because of variation in the types of dental services covered, annual limits on those services, cost sharing requirements, and overall benefit expenditure limitations, there are varying ways of categorizing dental benefits among the states. Although these categorizations differ, alternative classifications help to gauge how Maryland's dental coverage compares to other states. According to the Center for Health Care Strategies (CHCS), Maryland is among 15 other states that only cover emergency dental benefits for adults, while 17 states provide limited but broader coverage, and 15 states provide what CHCS classifies as extensive coverage. CHCS defines these categories as:

- No coverage: No dental services covered.
- Emergency services: Services provided for the relief of pain and infection under defined emergency situations.
- Limited services: A limited mix of services, including some diagnostic, preventive, and minor restorative procedures. Any per-person annual expenditure cap is $1,000 or less. Includes coverage of fewer than 100 procedures out of the approximately 600 recognized procedures per the American Dental Association's (ADA's) Code on Dental Procedures and Nomenclature.
- Extensive services: A more comprehensive mix of services, including many diagnostic, preventive, and minor and major restorative procedures. Any per-person annual expenditure cap is at least $1,000. Includes coverage of at least 100 procedures out of the

approximately 600 recognized procedures per the ADA's Code on Dental Procedures and Nomenclature.

Table 1. State Medicaid Coverage of Adult Dental Benefits by Type of Beneficiary Population (Base or Expansion)

Dental Benefits Category	Offered to Medicaid Base Population	Offered to Medicaid Expansion Population
No Dental Benefits	4 states: AL, **AZ, DE**, TN	3 states: DE, AZ, ND
Emergency-Only	15 states: FL, GA, **HI**, ME, **MD**, MS, MO, **MT**, **NV**, **NH**, OK, TX, UT, **WV**, ID	6 states: HI, MD**,** NV, NH, MT, WV
Limited	17 states: **AR**, **CO**, **DC**, **IL**, **IN**, KS, **KY**, LA, **MI**, **MN**, NE, **PA**, SC, SD, **VT**, VA, WY	10 states: AR, CO, DC, IL, IN, KY, MI, MN, PA, VT
Extensive	15 states: AK, **CA**, **CT**, **IA**, **MA, NJ**, **NM**, **NY**, NC, **ND**, **OH**, **OR**, **RI**, **WA**, WI	11 states: CA, CT, IA, MA, NJ, NM, NY, OH, OR, RI, WA

Notes: Bolded states have decided to expand Medicaid eligibility under the Affordable Care Act (ACA). DC is included as a state. Montana offers extensive dental services for adults with disabilities, and emergency-only dental services to all other Medicaid-enrolled adults over age 20. North Dakota offers a different category of benefits to its Medicaid base vs. expansion populations. Idaho offers limited Medicaid dental benefits beyond emergency care to pregnant woman and adults with disabilities and/or other special health care needs. Maryland's contracted managed care organizations provide a limited dental benefit to adult Medicaid beneficiaries who are enrolled in managed care.
Source: Center for Health Care Strategies. (July 2015).

The Medicaid and CHIP Payment and Access Commission (MACPAC) also analyzed state adult dental coverage by types of service and classified states somewhat differently than CHCS (Table 2).

Table 2. Types of Adult Dental Services Covered for Non-Pregnant, Non-Disabled Adults under Medicaid, 2015

Benefit Type	Description	Number of States
Emergency-Only	Emergency extractions, other procedures for immediate pain relief	18
More Extensive		33
Preventive	Examinations, cleanings, and sometimes fluoride application or sealants	28
Restorative	Fillings, crowns, endodontic (root canal) therapy	26
Periodontal	Periodontal surgery, scaling, root planing (cleaning below the gum line)	19

Dentures	Full and partial dentures	26
Oral surgery	Non-emergency extractions, other oral surgical procedures	25
Orthodontia	Braces, headgear, retainers	2

Source: Medicaid and CHIP Payment and Access Commission. (June 2015).

These tables provide an overview of the extent of dental benefits among state Medicaid programs. Details regarding benefit design, including the scope of services covered, frequency of benefits, and annual caps can vary among states because of the absence of federal guidelines. In considering the potential costs and benefits of expanding Maryland Medicaid adult dental coverage, varying the scope of these dimensions can potentially limit the financial liability of the Medicaid program at the cost of restricting access to services for the Medicaid population.

Prior to the implementation of the Maryland Healthy Smiles Dental Program in 2009, dental care was a covered benefit provided by HealthChoice managed care organizations (MCOs). MCOs were required to offer comprehensive dental health services to children through 20 years of age and pregnant women, as well as develop and maintain an adequate network of dentists who could deliver dental health services for children and pregnant women (Maryland Department of Health and Mental Hygiene [DHMH], 2015). Regulations specified capacity and geographic standards for dental networks, including dentist-to-enrollee ratios and maximum driving times (DHMH, 2015).

Created in 2009, the Maryland Healthy Smiles Dental Program carves out children and pregnant women's dental benefits from the MCO benefit packages (DHMH, 2015). The Maryland Healthy Smiles dental administrative services organization (ASO) acts as a single point of contact for providers so that providers do not have to contract with each MCO (DHMH, 2015). The dental ASO handles credentialing, billing, and dental provider issues, which streamlines the process for providers and has been effective in encouraging dentists to participate in the Maryland Medicaid dental network (DHMH, 2015).

Maryland Healthy Smiles also increased provider payments compared to what was offered under MCO coverage, which is an additional factor encouraging provider participation. MCOs still have the flexibility to provide dental services to adults as an optional benefit. However, because the benefit is optional, standards for access and capacity do not apply.

Research on States' Experiences with Medicaid Dental Coverage

Studies of Coverage and Cost Issues in General

Medicaid dental coverage generally leads to greater use of dental services. One study found that adult dental coverage was associated with a 12.9 percentage point increase in the probability of

having had a dental visit in a given year (Decker & Lipton, 2015). The same study found that Medicaid beneficiaries with dental coverage are 9.5 percentage points less likely to have any untreated caries compared with the control group (Decker & Lipton, 2015). In addition, the likelihood of a visit is affected by the Medicaid payment rates to dentists; higher payment rates were linked to an increase in visits and a reduction in the likelihood of untreated caries (Decker & Lipton, 2015). Another study examined the impact of expanding access to dental coverage on the cost and utilization of dental services for adults aged 55 years and older (Manski, Moeller, Chen, Schimmel, Pepper, & St Clair, 2015). Expanding coverage to all 85.4 million older adults is estimated to increase utilization of dental services by 10 percent and increase total expenditures by $32.8 billion (Manski et al., 2015).

States that Expanded Coverage

A study describing the experiences of seven states—California, Colorado, Illinois, Iowa, Massachusetts, Virginia, and Washington—that expanded Medicaid dental coverage found that the states expanded coverage in different ways (Snyder & Kanchinadam, 2015). Illinois, Massachusetts, and Washington introduced extensive dental benefits, while Virginia only expanded dental services for pregnant women (Snyder & Kanchinadam, 2015). California and Colorado expanded dental coverage but included an annual cap on dental services (Snyder & Kanchinadam, 2015). Iowa introduced a tiered "earned benefit" approach, which granted dental benefits only to Medicaid recipients who established a relationship with a dentist they see regularly (Snyder & Kanchinadam, 2015).

States that Removed then Restored Coverage

Studies of coverage restrictions implemented in California and Oregon during the 2000s found that increases in ED utilization for dental services offset some of the savings from eliminating dental coverage (Singhal et al., 2015; Sun et al., 2015; Wallace et al., 2011). Analysis of claims in Oregon showed that, compared with the select Medicaid enrollees who retained dental benefits, those who lost benefits had larger increases in dental-related ED use and expenditures (Wallace et al., 2011). Further, the studies found that the resources available in the ED are unable to treat the underlying dental conditions, resulting in many repeat visits (Singhal et al., 2015; Sun et al., 2015). A study examining the impact of Massachusetts' reinstatement of Medicaid dental benefits after previously eliminating dental coverage found that it resulted in an increase in dental use, particularly among adults with low income (Nasseh & Vujicic, 2013).

Analysis of Maryland Adult Dental Costs and Utilization in Emergency Rooms and in Voluntary Coverage by MCOs

This section describes the available data on the current cost and utilization of Medicaid dental services. These analyses are based on data from the Maryland Medicaid Management Information System (MMIS2), which includes both fee-for-service (FFS) claims and MCO-

reported encounters. Coverage of dental services in Maryland Medicaid varies among certain eligibility classifications. Table 3 summarizes Medicaid dental coverage in Maryland.

Dental services for children, pregnant women, and persons over age 20 in the REM program are provided by an ASO. The list of covered services and annual limits for certain services are governed under the Code of Maryland Regulations (COMAR). No explicit list of covered dental services for adults over age 20 is provided under COMAR. Instead, severe dental complaints might be treated by hospitals in an ED setting and thereby covered as an emergency medical service. In addition, as noted in Table 4, most MCOs in HealthChoice offer voluntary coverage of dental services. However, because coverage of dental services is voluntary, there is some concern that dental encounters reported in MMIS may not represent the entirety of reported encounters, which may influence the MMIS estimate of current statewide costs of these benefits.

Table 3. Maryland Medicaid Coverage of Dental Services by Enrollment Group, 2016

Group	Services	Delivery System
Children Under Age 21	Emergency, preventive, diagnostic, and treatment services; Semiannual cleaning, fluoride treatment and examination; Orthodontic care for certain conditions; Consultations; Drugs administered by the dentist; Oral Health assessment by an EPSDT certified provider, and if determined medically necessary, the application of fluoride varnish for children 9 months old through 3 years old; General anesthesia during dental procedures, when it is medically necessary; and Fluoride varnish.	Carved-out from MCO benefit, fee for service payments by DHMH made by dental administrative services organization (Scion Dental)
Pregnant women and REM* enrollees aged 21 and older	Periodic, limited, and comprehensive oral examination; X-ray; Prophylaxis (2 per year); Topical fluoride (2 per year); Amalgam restorations for permanent teeth (1 per tooth per year); Resin restorations for anterior permanent teeth (1 identical restoration per tooth per year); Recementing of crowns, Prefabricated stainless steel crown for permanent teeth; Fillings–sedative, interim or temporary filling; Pin retention–per tooth, in addition to	Carved-out from MCO benefit, fee for service payments by DHMH made by dental administrative services organization (Scion Dental)

Group	Services	Delivery System
	restoration; Pulp capping,; Gingovectomy or gingivoplasty (2 quadrants per year per patient); Periodontal scaling and root planning; Full mouth debridement, (1 per patient per 2 years); Periodontal maintenance–following active periodontal therapy (2 per year); Adjustment of complete maxillary and mandibular denture; Adjustment of partial maxillary and mandibular denture; Recementing of bridge; Extractions of: Coronal remnants for deciduous teeth; and 6rupted tooth or exposed root; Biopsy of oral tissue, hard or soft; Alveoplasty, in conjunction or not in conjunction with extractions; Incision and drainage of abscess intraoral; and Palliative emergency treatment of dental pain that is not associated with recently rendered service.	
Other adults	Emergency treatment of dental complaints; Other services as determined by MCO	Payments to hospital ED at HSCRC approved rates. Payments to MCO network dental providers administered by MCO according to individual contracts for voluntary services covered by MCO.

*Rare and Expensive Case Management
Source: COMAR 10.09.05.04

Because Maryland Medicaid MCO coverage of dental services is optional, there can be a large amount of variation in benefits between MCOs and from year to year. Table 4 provides a description of the dental benefits for Maryland MCO enrollees for 2016. A majority of the MCOs offer access to similar services (e.g., x-rays, oral exams, and cleanings). There is variation in the maximum benefit allowable per calendar year, and some MCOs require enrollees to contribute toward the cost of the services through co-insurance. One MCO, United Healthcare, does not currently offer any dental benefits. However, any of the MCOs may opt to drop coverage or change their coverage provisions and maximum benefit from year to year.

Table 4. Dental Benefits Available to Maryland Medicaid MCO Enrollees, CY 2016

MCO	Service				Maximum Benefit per CY	Coinsurance requirements
	Exam and Cleaning (2/year)	X-Rays	Fillings	Extractions		
Amerigroup	✓	✓	✓	✓	$250	
Jai Medical	✓	✓	✓	✓	$500	
Kaiser Permanente	✓	✓	✓	✓	$750	
Maryland Physicians Care	✓	✓	✓	✓	-	30% Coinsurance - fillings & extractions
MedStar	✓	✓	✓	✓	-	
Priority Partners	✓			✓	-	
Riverside Health	✓	✓	✓	✓	$150	
UnitedHealthcare						

Table 5 presents ED utilization for Maryland Medicaid enrollees aged 21 years and older. In 2014, when Medicaid coverage expansion increased program enrollment, it also increased the number of users of dental services in EDs, as well as the number of ED visits; however, the proportion of ED users among the adult population declined slightly. Small changes in the rate of ED use may occur from year-to-year without signaling an overall change in utilization patterns.

Table 5. Use of ED for Dental Complaints by Adult Maryland Medicaid Enrollees Aged 21 and over, CYs 2013 – 2014

Calendar Year	Total Number of Enrollees	Number of Enrollees with 1 or more Visits	Percentage with 1 or more Visits	Total Number of Visits
2013	611,857	16,195	2.60%	42,609
2014	797,362	19,912	2.50%	53,175

In the analysis of Maryland MMIS2 data shown in Table 6, costs for MCO ED care for dental complaints are estimated payment amounts based on hospitals' charges according to HSCRC-regulated rates. FFS claims use actual paid amounts. Dental complaints are defined by diagnosis codes and procedure codes agreed upon with DHMH. The count of visits includes both ED services for dental complaints that were resolved on an outpatient basis and those that led to an inpatient admission, so these estimates may differ from those made by other groups.

Approximately $15.0 million was spent on Medicaid-covered emergency dental care in 2014, an increase from about $11.7 million in 2013. The per member per month (PMPM) cost is based on estimated expenditures divided by total months of coverage for all enrollees. The PMPM for emergency dental services across all delivery systems was $2.04 in 2014, and the PMPM paid by MCOs was approximately the same at $2.35. The total expenditures for ED visits with a dental diagnosis or procedure code increased in CY 2014. The MCO PMPM cost decreased by $0.64 between CY 2013 and CY 2014.

Table 6. ED Payments for Dental Complaints by Adult Medicaid Participants, CYs 2013 – 2014

Coverage Type	Number of Member Months Total Enrollment		Estimated Total Cost of ED Dental		PMPM	
	2013	2014	2013	2014	2013	2014
MCO	2,819,037	5,118,129	$8,417,790	$12,013,386	$2.99	$2.35
FFS[1]	2,786,696	2,251,536	$1,535,594	$2,991,771	$0.55	$1.33
PAC	872,892	-	$1,796,290	$0	$2.06	-
Total	**6,478,625**	**7,369,665**	**$11,751,687**	**$15,007,171**	**$1.81**	**$2.04**

Non-ED benefits for adult Medicaid enrollees currently include services for all pregnant women and those services offered voluntarily by the MCOs. Utilization of these non-ED services are included in Table 7. For MCO encounters, expenditures are estimated amounts determined by applying Maryland's dental fee schedule to each procedure code reported. MCO spending of $3.05 PMPM is averaged across all HealthChoice enrollment, regardless of the level of services covered by a member's MCO. An estimated $22.3 million—or $3.02 PMPM—was incurred in CY 2014 across both FFS and MCO enrollees (see Table 7).

Table 7. Non-ED Dental Services Provided to Adults Aged 21 and Older under Maryland Medicaid, CY 2014

	Estimated Expenditure Based on Fee Schedule Amounts	Number of Dental Services	Number of Dental Patients	Member Months	PMPM
MCO	$15,639,067	305,476	65,098	5,118,129	$3.05
FFS	$6,661,111	70,238	9,696	2,251,536	$2.95
Total	**$22,300,178**	**375,714**	**74,794**	**7,369,665**	**$3.02**

[1] FFS coverage of dental services is limited to pregnant women and REM enrollees, but these can be found in a number of individual Medicaid coverage groups, including the following: Families and Children, Childless Adults, Supplemental Security Income (SSI) Recipients, Temporary Cash Assistance (TCA) Recipients, Pregnant Women, and Parents/Caretaker Relatives.

Model of Adult Dental Coverage Using Other States' Experiences

To estimate the potential fiscal effects of expanding dental services to adults in Maryland Medicaid, Hilltop created a model that estimated Maryland's PMPM and total cost for such services based on the experience of select states. To do this, Hilltop obtained dental service utilization and enrollment data from four other states, which are being kept anonymous.

To calculate the estimated PMPM and total cost, Hilltop calculated an estimated population utilization rate for individual dental procedures codes for persons aged 21 and older within each state. Each state's population-calculated utilization rate for each dental service was then applied to the Maryland Medicaid population aged 21 and older enrolled in CY 2014. This allowed an estimate of the potential frequency of use of each dental code in Maryland, assuming that Maryland's coverage provisions were identical to that of the four example states. Hilltop then multiplied the frequency of the dental procedure codes by the 2015 Maryland Medicaid dental fee schedule in order to estimate total expenditures under each of the example states' coverage rules. Table 8 (below) shows the Maryland estimate of PMPM and total cost for dental services—according to each sample state's experience—by age group. Assuming that the experience is comparable to the sample states, the estimated total cost for adding a dental benefit to Maryland Medicaid for adults aged 21 and older might range from $72 to $163 million annually, or between $9.36 and $21.13 PMPM. Federal financial participation in a Maryland Medicaid dental benefit expansion for adult enrollees would reduce the net cost to the state by one half for regular Medicaid enrollees and is 100 percent (declining to 90 percent by 2020) for enrollees made newly eligible under the ACA. Approximately 75 percent of 2014 adult enrollees' member months consisted of regular enrollees receiving a 50 percent federal match, and 25 percent were newly eligible enrollees, who would receive a 90% federal match in 2020. Using these ratios, we calculate that the state share could range from $29 million to $65 million.

Table 8. Comparison of Estimates of Total PMPM and Total Cost for Maryland Adults Aged 21 and Older, by Sample State Experience

	State 1*	State 2**	State 3*	State 4*
Estimated PMPM	$9.36	$11.19	$21.13	$14.14
Total Estimated Cost	$72,483,045	$86,653,692	$163,635,085	$109,469,374
Benefits Covered by State Plan	• No annual benefit limit • Annual periodic oral or periodontal evaluation • Annual dental prophylaxis • Bitewing images - 1 per 6 months	• No annual benefit limit • Cleanings – covered once every 6 months • Bitewing x-rays – covered 4 times per year • Full mouth x-rays – covered	• $1,000 annual benefit limit • No coverage for cosmetic services • Routine examinations – covered once every 12	• No annual benefit limit • Routine examinations are covered twice per 12 month period • Sealants are only covered for pregnant women and those under

	State 1*	State 2**	State 3*	State 4*
	• Periodontal maintenance – once per year • Fillings • Dentures: Full and partial dentures covered every 8 years, except in very unusual circumstances; relining every 4 years • Orthodontic treatment – not covered for members 21+ • Temporomandi-bular joint therapy • $3 copay per service for adults	once every 3 years • Fillings • Crowns – covered once every 5 years • Dentures: Full dentures covered every 10 years • Partial dentures covered every 5 years	months • Prophylaxis – covered one time per year • Fillings • Re-sealants – covered at most once every two years • Crowns – covered for anterior teeth with pre-authorization • Dentures: Full dentures covered after 6 months after placement of treatment/ interim dentures or as a replacement of existing, unwearable dentures. Partial dentures covered if more than 1 posterior tooth is missing • Orthodontic treatment – not covered for members 21+	21 • Fillings • Periodontal maintenance – covered once every 6 months for pregnant women and members under 21, and once per year for all other members 21+ • Periodontal scaling and root planning – covered once every 2 years for pregnant women and those under 21, covered once every year for all other members 21+ • Dentures: Full dentures covered every 10 years (if dentally appropriate) for pregnant women/members under 21, not covered for other members 21+ Partial dentures covered every 5 years (if dentally appropriate) for pregnant women/members under 21, and every 10 years for other members

	State 1*	State 2**	State 3*	State 4*
				21+ • Stainless steel crowns – covered for anterior primary and posterior permanent/primary teeth for pregnant women/members under 21, not covered for other members 21+ • Orthodontic treatment – only covered for patients diagnosed with cleft palate or cleft lip at birth

*Based on CY 2014 state data; **Based on CY 2013 state data.
Source: Plan coverage data developed from regulatory documents or supplied by data provider.

Cost estimates vary widely in part because of the different dental program designs among the states. Although the estimated cost is based on Maryland's dental reimbursement rates, the selected states may have dental fee schedules that may be more or less likely to attract participation by dentists, and therefore access to services and utilization by enrollees. Access and utilization may be further affected by varying awareness of the benefit by enrollees in the different states. In implementing their adult dental coverage policies, states may have capped total benefits allowed to a fixed dollar amount, limited benefits to certain categories of services, or applied copayments. Finally, each of the states may face different environment and social factors that affect the prevalence of dental diseases. These factors play out such that using the State 3 experience as a model for Maryland shows the highest total and PMPM costs. Exploring the causes for this higher cost, State 3 generally shows higher per person utilization rates per dental service code than State 1 or the State 4, and is relatively similar to State 2. Because State 3 has a relatively small Medicaid population, small increases in utilization are magnified when applied to Maryland's larger population.

To provide an alternative estimate of expected costs and to simplify the comparison among the policy choices, we estimated costs of covering three hypothetical coverage packages. One option is a limited adult dental benefit covering only diagnostic, preventive, and restorative services. The second option is an expansive benefit, covering most dental services except orthodontia for adults. The final hypothetical package covers extensive services with an annual cap of $1,000. The ranges of utilization factors from each of the four sample states are used to generate the

predicted frequency of utilization in Maryland. State 3 has a $1,000 annual cap on services despite being the source of highest cost when applying its experience to other states.

Individual person spending levels were not available for this report, so the proportions of total spending under a per-person cap cannot be calculated directly for the particular states. Individual data from the MMIS on Maryland FFS dental services for adults were used to calculate the proportion of spending for those beneficiaries whose annual per person expenditure exceeded $1,000. Pregnant women are the primary users of these services under the current Maryland program, so their experience may not be representative of the services used by all adults under an expanded coverage program. Nevertheless, the proportion of spending under the $1000 cap, about two-thirds, is the best that can be determined with data currently available. So the models estimating coverage costs with a $1,000 hard cap in Table 9 applies a one-third reduction in costs to the extensive benefit model.

Table 9 compares potential cost ranges for each of the coverage packages, in total Medicaid program outlays and in terms of PMPM costs. The basic benefit package ranges from $44 to $100 million or about $6 to $13 PMPM. Because the states used as examples have extensive benefits, there is little difference in estimated costs between the extensive benefit cost scenario and the estimates in Table 8. Total program costs would range from about $72 to $163 million, or a PMPM rate of $9.36 to $21.13. Excluding the example of State 3, capping annual dental benefits per person would reduce spending to $49 to $74 million. This is equivalent to a PMPM cost of $6.36 to $9.61.

Table 9. Estimated Total Costs of Alternative Dental Benefit Packages for Maryland Medicaid in 2015 Based on Sample State Utilization

	State 1**	State 2***	State 3****	State 4**
Basic Benefits*				
Estimated PMPM	$5.71	$5.83	$12.98	$8.63
Total Estimated Cost	$44,225,242	$45,119,209	$100,492,254	$66,812,551
Extensive Benefits				
Estimated PMPM	$9.36	$11.19	$21.13	$14.14
Total Estimated Cost	$72,467,328	$86,652,029	$163,625,446	$109,461,508
Extensive Benefits with $1,000 Fixed Annual Cap				
Estimated PMPM	$6.36	$7.61	$21.13	$9.61
Total Estimated Cost	$49,256,043	$58,897,384	$163,625,446	$74,400,987

*Basic dental services include diagnostic, preventive, and restorative dental services (D0100-D2999). Extensive dental services includes all dental service categories except Orthodontics and Dentofacial Orthopedics (D8000 - D8999)

**Based on CY 2014 data from state.

***Based on CY 2013 data from state.

****State estimates include effects of a $1,000 annual benefit cap in all scenarios.

Using the same method as in Table 8 to estimate federal financial participation, Table 10 estimates the state share of costs for each of the scenarios. The basic benefit package ranges from $18 to $40 million in estimated state funds, the extensive benefit package ranges from $29 to $66 million in state funds, and the extensive benefits with a cap ranges from $20 to $66 million.

Table 10. Estimated State Costs of Alternative Dental Benefit Packages for Maryland Medicaid in 2015 Based on Sample State Utilization

	State 1**	State 2***	State 3****	State 4**
Basic Benefits*				
Estimated State Share PMPM	$2.30	$2.35	$5.23	$3.48
State Share Estimated Cost	$17,810,389	$18,170,408	$40,470,241	$26,906,751
Extensive Benefits				
Estimated State Share PMPM	$3.77	$4.51	$8.51	$5.69
State Share Estimated Cost	$29,184,042	$34,896,505	$65,895,240	$44,082,339
Extensive Benefits with $1,000 Fixed Annual Cap				
Estimated State Share PMPM	$2.56	$3.06	$8.51	$3.87
State Share Estimated Cost	$19,836,394	$23,719,154	$65,895,240	$29,962,765

*Basic dental services include diagnostic, preventive, and restorative dental services (D0100-D2999). Extensive dental services includes all dental service categories except Orthodontics and Dentofacial Orthopedics (D8000 - D8999)

**Based on CY 2014 data from state.

***Based on CY 2013 data from state.

****State estimates include effects of a $1,000 annual benefit cap in all scenarios.

Potential Policy Impacts, Assuming Coverage Rules Similar to Other States

The cost of ED care for dental conditions is included when calculating the capitation payment rates for Maryland MCOs. Therefore, reductions in the utilization of EDs for dental care may reduce the allowances for total emergency services and contribute to controlling managed care payment rates. Estimates from the research literature on states that eliminated coverage saw that ED use for dental services nearly doubled. Because of unavoidable ED use such as trauma, or limits to access that lead enrollees to delay seeking dental care, ED dental services will not be eliminated if Maryland expands adult dental coverage. However, policymakers might expect reductions in ED utilization for dental services under coverage expansions. Other savings might occur as a dental coverage program reduces the necessity for grants supporting dental clinics that provide free or low-cost services to the uninsured and current Medicaid-covered adults. Over the longer term, reductions in Medicaid costs for other health conditions that have been found to be highly related to oral health might be expected, such as diabetes, maternal and child health, and

inflammatory diseases like cardiovascular disease and rheumatoid arthritis (Snyder, 2015; Berrin, 2015).

Similarly, because dental services are offered to pregnant women under FFS, current non-ED expenditures for dental services could be subtracted, in part, from the total costs of coverage estimated in Tables 8, 9, and 10. If adult dental coverage is made a mandatory benefit, MCOs may not continue to offer voluntary coverage of limited dental services. Maintaining MCOs' current levels of service would require special incentives or additional payments. A related policy question is whether expanded adult dental coverage would be administered through HealthChoice MCOs or carved out to a third-party dental administrator, as is currently done for children's dental coverage. To facilitate the analysis of policy options to cover adult dental services under HealthChoice, estimated costs are expressed in PMPM amounts. As has been shown, these PMPM values could vary between $5 and $22 by varying the assumptions of the model and applying different states' experiences with dental service utilization. Should policymakers decide to proceed with adult Medicaid expansion, whether administered through the MCOs or an ASO, more precise actuarial estimates of costs would be needed based on specific age ranges and classification of enrollees according to pre-existing health conditions.

Many other factors that cannot be measured directly in this model will affect the actual utilization and costs of extending Medicaid dental coverage to adults in Maryland. The relative reimbursement rates for dental services will influence the willingness of dentists to participate in providing services to Medicaid enrollees and therefore affect enrollees' access to dental services. Knowledge of the coverage expansion may increase enrollees' demand for dental services and increase utilization rates in the short term, as more enrollees might seek care for delayed dental needs. The initial months of coverage might result in enrollees seeking care for postponed dental services, and this "pent-up demand" may increase short-run coverage costs until dental utilization returns to a steady state. Evidence is not available to estimate how large an increase in utilization from pent-up demand might be.

Some of the uncertainty in the cost of expanded coverage could be reduced by limiting dental benefits to an annual capped dollar limit, with or without allowances for exceeding the cap when clinically necessary. This is known as a "soft cap," a policy that has been adopted in California and introduced in Delaware's current expansion legislation. Three of the states providing utilization data for the model have no dollar limits on coverage, although they limit the frequency of some covered services. The other state limits coverage to $1,000 annually.

Another approach is to offer more extensive benefits to persons meeting certain qualifying criteria intended to encourage preventive services. Iowa provides dental benefits through a demonstration waiver allowing such benefits if beneficiaries complete a periodic exam within 6 to 12 months of their first visit, and additional enhanced dental benefits if beneficiaries continue periodic exams every 6 to 12 months (Kaiser Family Foundation, 2015).

Narrow provider networks may also be valuable to limit potential costs of expanded Medicaid dental benefits. Narrow provider networks may be structured to provide rewards for performance targets such as higher quality, improved patient experience, and/or lower overall costs. For example, while all willing and qualified providers may be allowed to participate in a traditional FFS Medicaid dental program, a narrow network of selected providers could be developed to provide capitated dental care to defined populations. Quality, access, satisfaction, and cost targets could be negotiated and, if met, would allow for gain-sharing between the network providers and Medicaid. Such conditions would need to be carefully designed so that access to services is not restricted by the narrow network.

Conclusion

The complexity of dental benefit program designs makes it difficult to categorize and describe differing state approaches to adult dental coverage in a simple way. By offering full dental coverage only to select populations and relying on MCOs to voluntarily provide benefits to other groups, Maryland's coverage of adult dental services ranks among the less expansive states.

Below we summarize multiple utilization factors to be considered in estimating the cost of adding a Medicaid dental benefit. Projecting the precise cost of a new standardized package of dental benefits for adults in the Maryland Medicaid program is complicated by these many factors. Moreover, the policy choice to offer a more or less extensive benefit expansion would certainly affect the dental health of enrollees, as studies in other states have shown. However, the degree to which health would be affected cannot be predicted because these factors influence both dental needs and service utilization.

Factors intrinsic to each state and unlikely to be directly affected, in the short term, by a new or expanded benefit in Maryland include:

- Population-based prevalence of dental conditions, which are in turn related to socio-economic and environmental factors.
- Provider "culture" regarding willingness to participate in Medicaid, particularly with respect to adults.
- Geographic distribution of providers, particularly in rural areas.
- Consumer awareness of the need for regular dental care.

Factors involving policy choices that can influence the relative utilization of services include the following:

- The types of benefits covered and at what frequency per enrollee.
- The amount of enrollee cost sharing.

- Caps on covered benefits, including whether there is a "soft cap" that can be exceeded under specified conditions.
- The fee schedule for services, which, in addition to setting the reimbursement rates for services delivered, affects provider participation if the fees are not perceived as reasonable.
- The administrative ease with which providers can be credentialed, bill, and otherwise participate in the program.
- The use of actuarially sound capitated or risk-bearing reimbursement models instead of FFS payment.
- The degree of outreach activities to encourage Medicaid enrollees to make use of dental services.

In addition to these factors influencing utilization and ultimately program costs, there are multiple sources of cost offsets. For example, potential savings may be achieved from the following:

- Reductions in the use of EDs for dental complaints as enrollees receive dental care from a regular, non-ED dental provider.
- Reductions in the severity of dental complaints as enrollees utilize preventive dental services and avoid the need for restorative services.
- Reductions in the use of safety net dental providers, such as local health department dental clinics, federally qualified health centers (FQHCs), and other sources of free or reduced-cost care.
- Reductions in utilization and severity of health conditions related to oral health.

At the same time, adopting an adult Medicaid dental benefit will incur certain increased costs:

- The direct costs of the new benefits, whether administered through an ASO as a carve-out to HealthChoice or as a covered benefit within MCO rates.
- The possibility that MCOs will discontinue providing a voluntary tier of dental benefits once a basic dental plan is adopted.

Using other states as examples takes into account the interaction among these factors within specific states, which thereby creates variation in every state's experience with covering dental care for adults. The estimated ranges of coverage costs in this report are intended to capture the range of uncertainty of policy costs and outcomes because of these various factors, most of whose effects on costs and outcomes cannot currently be measured. The choice of a specific plan design in Maryland would help narrow the estimated range of costs, but fiscal uncertainty would remain.

Appendix A. Research on States' Experiences with Dental Coverage

Studies of Coverage and Cost Issues in General

Do Medicaid Benefit Expansions Have Teeth? The Effect of Medicaid Adult Dental Coverage on the Use of Dental Services and Oral Health (*Journal of Health Economics*, 2015) Decker, S. L., & Lipton, B. J.

The authors examined the effect of Medicaid adult dental coverage on the use of dental services and dental health outcomes accounting for variation among states in the breadth of dental coverage during 2000–2012. A multivariate statistical model was developed to distinguish the effects of different coverage and payment policies on dental care. While measuring variation in dental benefits across and within states over time, the authors created a within-state control group of low-income adults not enrolled in Medicaid to compare the effect of Medicaid coverage. Medicaid payment rates to dentists for select years were also used to explore the relationship between payment to providers and access to care among beneficiaries with dental coverage.

The findings imply that dental coverage is associated with an increase in the likelihood of a recent dental visit. Medicaid coverage is associated with an increase of 12.9 percentage points in the probability of having had a dental visit in the past year, relative to the control group. The authors hypothesized that Medicaid expansions that have occurred under the provisions of the ACA could lead to an additional 1.2 million annual dental visits based on the increase in enrollment as of April 2015. There were significant effects on both self-reported oral health outcomes and clinical health outcomes (e.g. untreated caries). Medicaid beneficiaries with dental coverage are 9.5 percentage points less likely to have any untreated cavities compared with those without coverage, based on an oral exam performed by a dentist or trained health technologist. In addition, the authors found that the likelihood of a visit is affected by the Medicaid payment rates to dentists with higher payment rates being linked to a greater increase in visits.

Dental Use and Expenditures for Older Uninsured Americans: The Simulated Impact of Expanded Coverage (*Health Services Research:* February 2015) Manski, R. J., Moeller, J. F., Chen, H., Schimmel, J., Pepper, J. V., & St Clair, P. A.

Over time, research has found that having access to dental benefits is a critical factor in an individual's decision to engage in dental treatment. Dental coverage is also a factor in locating a provider who is willing to provide treatment to an individual. However, a majority of older adults do not have access to dental coverage. The extent to which other factors affect dental utilization and expenditures is unknown. The authors sought to study the impact of expanding access to dental coverage on the cost and utilization of dental services for adults aged 55 years and older (older adults).

The authors used data from the Health and Retirement Survey (HRS) of 2008 and the Medical Expenditure Panel Survey (MEPS) of 2006 to conduct a simulation of expanding dental benefits to older adults by estimating dental use, out-of-pocket payments, third party payments, and then adjusting for inflation to 2015 real dollars. The costs were divided by the older adults' public and private coverage, with public coverage assigned to individuals at or below 133 percent of the federal poverty level (FPL). The authors found that expanding coverage to all 85.4 million older adults would increase utilization of dental services by 10 percent, and increase total expenditures by $32.8 billion. Expenditures for public coverage would increase by $7.8 billion. Older adults' out-of-pocket costs for dental services would decline by five percent or $3.3 billion. Mean dental expenses for older adults with an expense would increase by 13 percent from $2,049 to $2,321. Under the simulation, the 15 million older adults who would become newly insured would still have lower use rates of dental services and lower mean expenditures than the previously insured older adults. This is likely due to the lower income, wealth, and educational levels, the worse health and the higher age groups of uninsured older adults compared to previously insured older adults.

States that Expanded Coverage

Adult Dental Benefits in Medicaid: Recent Experiences from Seven States (*National Academy of State Health Policy*, July 2015) Snyder, A., & Kanchinadam, K.

The authors conducted interviews of state officials and stakeholders in seven states that recently expanded dental coverage, and summarized the policy lessons and themes identified regarding the states' decision to expand coverage and their methods. The seven states were California, Colorado, Illinois, Iowa, Massachusetts, Virginia, and Washington.

In May 2014, California reinstated most dental benefits for all Medicaid-enrolled adults through the enactment of the state budget. California included a $1,800 "soft cap" for dental services that can be exceeded if medical necessity is proven. Additional dental services were provided for pregnant women. In April 2014, Colorado expanded Medicaid coverage through the state budget to provide dental benefits for all Medicaid-enrolled adults. A $1,000 annual cap on dental services was included with an exemption for dentures. In July 2014, Illinois reinstated dental benefits for all Medicaid-enrolled adults through the state budget, including additional preventive services for pregnant women. Iowa introduced a tiered "earned benefit" approach to the newly eligible Medicaid expansion population in May 2014 through a Section 1115 Medicaid waiver. Under this approach, dental benefits are granted only if Medicaid recipients establish a relationship with a dentist whom they see regularly. Massachusetts incrementally reinstated dental benefits for Medicaid-enrolled adults through the annual state budgets from 2013 to 2015. Additional dental services would be provided to individuals determined eligible by the state Department of Developmental Services. Virginia introduced dental benefits for adult pregnant women over the age of 21 years through the Governor's Health Virginia Plan enacted in 2014. Washington reinstated extensive dental benefits for all Medicaid-enrolled adults through the fiscal year 2013 to 2015 biennial operating budget which was passed in January 2014.

The authors found that all states except for Colorado used general funds to finance the expanded dental benefits. Colorado used a portion of a trust fund formerly used for the state's high risk insurance pool which ended in 2014 after the creation of the health benefit exchanges under the ACA. Dental benefits are a small part of the Medicaid portion of the state budget. States that chose to expand Medicaid under the ACA used matching funds to finance the dental benefits for newly enrolled adults. The states did not consider the decrease in overall healthcare spending that may result from expanded dental benefits in their budgeting decisions because it is hard to demonstrate short-term savings in annual budgets. However, there was general support for long-term savings. The states expressed concern over the lasting quality of the dental benefits since the dental benefit has a vulnerable "optional status," meaning that they are not a required benefit under the federal Medicaid program. The states that used an incremental approach did so due to budgetary constraints and concern over a "pendulum swing" effect, in which expansive benefits would be enacted and then eliminated.

Three states—Iowa, Virginia, and Colorado—built on the successes they had in improving Medicaid-enrolled children's access to dental care over the last decade when adopting policies for their adult dental Medicaid benefit. Iowa used their I-Smile children's dental program to connect with Title V-funded county-based dental care coordinators. This way, adults have the ability to establish connections with dentists who they can see regularly to obtain the "earned" benefit. Virginia built off their Smiles for Children program to expand benefits to pregnant women. Smiles for Children has developed strong dentist participation since its creation in 2005 due to simple administration and higher reimbursement rates. Colorado used their CHIP benefit, which uses a specialized dental vendor, as a model for its transition to a new administrative service organization (ASO).

States that Removed then Restored Coverage

Health Reform in Massachusetts Increased Adult Dental Care Use, Particularly Among the Poor (*Health Affairs*, 2013) Nasseh, K., & Vujicic, M.

Massachusetts eliminated dental benefits in 2002, which only resulted in savings of one percent of total MassHealth spending. In 2006, Massachusetts reinstated dental benefits to adults aged 19 to 64 years with household income at or below 100 percent of the FPL, as part of statewide health reform. The authors examined the impact of the reinstatement of dental benefits and found that it resulted in an increase in dental care use among the Massachusetts adult population. There was a 2.9 percentage point increase in dental care use statewide for nonelderly adults compared to the pre-reform period. For poor adults, there was an 11 percent increase in dental care use above the increase among the state's non-poor residents. The authors concluded that there is evidence that expanding dental benefits to poor adults through Medicaid can improve dental care access and use.

Eliminating Medicaid Adult Dental Coverage in California Led To Increased Dental Emergency Visits and Associated Costs (*Health Affairs*, 2015) Singhal, A., Caplan, D. J., Jones, M. P., Momany, E. T., Kuthy, R. A., Buresh, C. T., Isman, R., & Damiano, P. C.

California eliminated its dental benefit in July 2009 as a result of budget constraints. Due to concerns regarding the lack of access to care, ED costs, and improper diagnosis or treatment from the ED, the dental benefits were reinstated in 2014. The authors examined the quantitative measurement of the effects of the elimination of the dental benefits in California.

The authors measured ED visits for dental services before and after the dental benefit was eliminated using an interrupted time-series design. Data were collected from the State Emergency Department Database for California for six years (2006-2011). The study population was those aged 21 years or older who were enrolled in Medicaid and were deemed "Medi-Cal certified eligibles" at any time during the study period. Outcomes were measured as the number of ED visits per month with a primary diagnosis of dental disease per 100,000 Medicaid adult enrollees.

The elimination of Medicaid adult dental coverage in July 2009 (the 43rd month out of 70 observed months), was tested by linear regression to examine changes in the rate of ED visits with a primary diagnosis of dental disease. Average yearly costs associated with dental ED visits increased by 68 percent after the policy change in 2009. There were more ED visits for dental health than would have been expected if the policy had not been changed for all racial/ethnic groups, except non-Hispanic whites.

Savings to Medicaid due to the elimination of the dental benefit exceeded the increased costs of ED visits; however, the authors contend that these ED costs offer almost no benefit in terms of actual resolution of the enrollees' dental problems. The total costs of the policy change are difficult to measure, because ED visits are only one way to assess costs of the elimination of the benefit. The authors concluded that the results provide evidence that eliminating Medicaid adult dental coverage leads to an increase in ED dental visits and associated costs.

Emergency Department Visits for Non-traumatic Dental Problems: A Mixed-Methods Study (*American Journal of Public Health*, 2015) Sun, B. C., Chi, D. L., Schwarz, E., Milgrom, P., Yagapen, A., Malveau, S., Chen, Z., Chan, B., Danner, S., Owen, E., Morton, V., & Lowe, R.

Oregon eliminated dental benefits in 2003 for adults with household income up to 100 percent of the FPL under a coverage expansion waiver, while maintaining dental benefits for the statutorily eligible adults, i.e. enrollment because of eligibility for temporary assistance for needy families (TANF) or Aged, Blind, and Disabled coverage.

The authors used a two-pronged approach to explore the characteristics and causes of ED visits for non-traumatic (i.e. not resulting from accident or other physical traumas) dental issues in Oregon. First, they analyzed ED claims gathered from Oregon's All Payers All Claims (APAC)

database and from a sample of 45 hospitals in Oregon in 2010 (Sun et al., 2015). Second, the authors completed 51 semi-structured interviews with a purposive sample of stakeholders including: ED patients, ED providers, hospital leadership, dental society leaders and dentists, and members of non-profit health program executives.

The quantitative analysis revealed that 2.5 percent of ED visits in the sample were for non-traumatic dental diagnoses, which is higher than the national average. Particular sub-groups were more likely to experience an ED visit for non-traumatic dental care. For example, patients aged 20 to 39 years were more than 8 times more likely to have an ED visit for a non-traumatic dental diagnosis when compared to younger age groups. Patients who were uninsured or receiving Medicaid were also more likely to have an ED visit associated with dental issues when compared to groups with other insurance types.

The data collected from the APAC found that dental procedures were rare, with the most common being for facial nerve block, which comprised 7 percent of ED visits. The data also showed that more than 25 percent of patients who had an ED dental visit in 2010 had at least one additional visit within the calendar year.

Themes that emerged through the analysis of the qualitative data were that ED dental patients felt they could not obtain adequate dental treatment in the ED, and were only treated for pain. Furthermore, patients felt that their inability to pay was a significant barrier to receiving treatment from a dentist. These participants identified expanding Medicaid dental benefits as a method to reduce ED dental visits. Among non-patient stakeholders, some ED providers were unaware that dental care was not a benefit for Medicaid participants. Providers also expressed that resources for patients were not well publicized and under-utilized. Expanding the size of the dental work force was mentioned by all stakeholder groups.

ED dental visits disproportionately affected socioeconomically vulnerable patients and are costly for the healthcare system, which were estimated at $11 million per year in Oregon. The resources available in the ED are also unable to treat the underlying dental conditions resulting in many repeat visits. Qualitative results suggest that addressing patient, community and policy-level factors may reduce ED utilization for dental visits.

The Individual and Program Impacts of Eliminating Medicaid Dental Benefits in the Oregon Health Plan. (*American Journal of Public Health*, 2011) Wallace, N. T., Carlson, M. J., Mosen, D. M., Snyder, J. J., & Wright, B. J.

As with the previous study, Oregon's elimination of dental benefits in 2003 for selected Medicaid-eligible groups offered an opportunity for a comparative study of the effects of the policy change. This study examined how the elimination of dental benefits among adult Medicaid beneficiaries in Oregon affected their access to dental care, Medicaid expenditures, and the use of medical settings for dental services. The researchers used Medicaid claims data (n = 22,833) before and after Medicaid dental benefits were eliminated for certain Medicaid enrollees

in 2003 and survey data for continuously enrolled Oregon Health Plan (OHP) enrollees (n=718) covering three years after benefit cuts.

Analysis of claims showed that, compared with enrollees who retained dental benefits, which included individuals eligible for OHP on the basis of federal statutory criteria, those who lost benefits among the optional expansion population had larger increases in dental-related ED use and expenditures, and in all ambulatory medical care use and expenditures. Survey results indicated that enrollees who lost dental benefits had nearly three times the odds of unmet dental need, and only one third the odds of getting annual dental checkups relative to those retaining benefits. The authors concluded that the elimination of dental benefits resulted in significant unmet dental health care needs, which led to increased use of medical settings for dental problems.

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