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Research Brief

Estimating the Cost of Introducing a Medicaid Adult Dental Benefit in 22 States

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Key Messages

- *As of September 2015, 22 states did not provide any dental benefits to adults in their Medicaid programs beyond emergency procedures.*
- *We estimate that it would cost between $1.4 and $1.6 billion per year to provide dental benefits to Medicaid adults in these 22 states. The state shares represent between 0.4 and 2.1 percent of total Medicaid spending depending on the state.*
- *Providing dental benefits to Medicaid adults may lead to enhanced savings for states in other areas, such as hospital emergency department spending. Further research is needed in this area.*

Introduction

Access to dental care is a growing concern for many segments of the U.S. population. Children, especially low-income children, are experiencing increased dental benefits coverage,[1] increased dental care utilization,[2] and reduced financial barriers to dental care.[3] This is in stark contrast to the situation for adults. Dental benefits coverage and dental care utilization rates are falling among adults,[1,4] more adults are avoiding the dental care they need because of cost,[3] and emergency department use for dental conditions among adults is rising rapidly.[5]

Medicaid provides health insurance coverage for some of the nation's most vulnerable populations, including children, low-income adults, pregnant women, the elderly and individuals with disabilities.[6] While states have great flexibility in how they administer their Medicaid programs, all states are required to comply with the Early and Periodic Screening, Diagnostic and Treatment (EPSDT) benefit.[7] The EPSDT benefit provides comprehensive and preventive health care services for children under age 21 that are enrolled in Medicaid, including dental care services.

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Conversely, there is no corresponding dental care requirement for adult Medicaid beneficiaries. Instead, adult dental benefits are an optional benefit for Medicaid programs. As of September 2015, 28 states and the District of Columbia provided at least limited adult dental benefits in their Medicaid programs.[8] The remaining 22 states provided either emergency-only dental benefits or none. This "tale of two safety nets" in Medicaid is, in large part, what is driving the divergent access to dental care patterns for adults and children.[9]

Evidence clearly shows that providing adult dental benefits through Medicaid has a significant impact on access to and utilization of dental care among low-income adults.[10] Expanding dental benefits to adults also significantly reduces costly emergency department visits for dental conditions.[11] Moreover, new research suggests that there is sufficient capacity within the dental care delivery system to absorb the increased demand for dental care associated with expanded dental benefits coverage for Medicaid adults.[12] Still, many states do not provide Medicaid adult dental benefits often due to fiscal considerations, but also because dental care for adults is not considered "essential" within Medicaid or, more broadly, under the Affordable Care Act.

In this research brief, we estimate the cost associated with implementing an extensive Medicaid adult dental benefit in the 22 states that currently do not provide adult dental benefits.

Results

The estimated annual cost to introducing an extensive adult dental benefit in Medicaid in the 22 states we focused on ranges from $1.4 to $3.0 billion (Table 3). The state portion of this additional expenditure is estimated to range from $496.0 million to $1.1 billion per year. We feel that our upper bound estimate (Scenario 3) is an extreme upper bound as it assumes Medicaid-enrolled adults will visit the dentist with the same frequency as adults with private dental benefits. The most reliable data strongly suggest that this is unlikely.[13] Thus, we feel the estimates of $1.4 to $1.6 billion per year in additional Medicaid expenditures, which translates to $496.0 million and $589.2 million per year in additional state Medicaid expenditures, are more realistic.

The estimated additional state Medicaid expenditure arising from introducing an extensive adult dental benefit ranges 0.7 percent of total state Medicaid expenditure in Missouri and Utah to 1.9 percent in Nevada under Scenario 1. For Scenario 2, it ranges from 0.4 percent of total state Medicaid expenditure in Missouri to 2.1 percent in West Virginia. For Scenario 3, the most costly and, in our view, unrealistic scenario, it ranges from 1.0 percent of total state Medicaid expenditure in Missouri to 4.8 percent in Delaware.

Discussion

To our knowledge, this is the first published analysis estimating the additional expenditure select state Medicaid programs would incur from introducing an adult dental benefit. In carrying out the analysis, we developed a practical, Excel-based model that is available for use by state and federal policymakers upon request. In this research brief, we present results based on several sets of assumptions we feel are reasonable, but the model can be used to simulate many alternative policy scenarios.

To put our results in context, a recent analysis estimates that $1.6 billion is spent each year on emergency department visits for dental conditions. About $520 million of this is paid for by Medicaid.[5] Diverting this $520 million of inefficient spending toward an extensive adult dental benefit in Medicaid in the 22 states we analyzed would go a long way in covering the estimated $1.4 to $1.6 billion price tag we

feel is most realistic under our modeling. In addition, our analysis does not include other potential cost savings that might accrue from introducing Medicaid adult dental benefits. These could include lower medical care costs[14] or enhanced employability prospects,[15] although it is important to note that these savings may not necessarily accrue to the Medicaid program.

As the health reform agenda moves forward in the U.S., policymakers ought to carefully consider the implications of current dental benefits policies within Medicaid and, more broadly, within the essential health benefits package under the Affordable Care Act.

Table 1: Assumptions for Alternative Medicaid Adult Dental Benefit Expenditure Scenarios

Assumptions	Scenario 1	Scenario 2	Scenario 3
Percentage of Medicaid adults with a dental visit	Average across states that currently provide an extensive adult dental benefit in Medicaid (2012 MSIS)		Percent of privately insured adults with a dental visit in the state (2013 Truven)
Dental expenditure per year per Medicaid dental care user	Average dental expenditure per Medicaid-enrolled individual with a dental visit in states that currently provide an extensive adult dental benefit in Medicaid (2012 MEPS)		
Medicaid reimbursement rate for adult dental care services	60% of typical private dental benefits plan charges (2013 HPI)	Medicaid reimbursement relative to private dental benefit plan rates for child dental care services (2013 HPI)	

Table 2: Summary of the Assumptions Under the Three Modeling Scenarios

State	Adult Medicaid Enrollment	Utilization Rate (% with a dental visit)			Spending per Dental Care User per Year ($2015)			State Share of Medicaid Expenditure
		Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3	
Alabama	234,582	24.9%	24.9%	49.8%	$818.47	$731.16	$731.16	31.1%
Arizona	770,936	24.9%	24.9%	56.4%	$818.47	$746.17	$746.17	27.5%
Delaware	126,982	24.9%	24.9%	60.6%	$818.47	$1,106.30	$1,106.30	39.2%
Florida	1,240,715	24.9%	24.9%	56.1%	$818.47	$499.27	$499.27	40.6%
Georgia	562,247	24.9%	24.9%	54.8%	$818.47	$736.62	$736.62	33.0%
Hawaii	169,366	24.9%	24.9%	41.5%	$818.47	$642.50	$642.50	40.0%
Idaho	83,821	24.9%	24.9%	65.0%	$818.47	$611.12	$611.12	28.2%
Kansas	146,962	24.9%	24.9%	64.4%	$818.47	$643.86	$643.86	42.9%
Louisiana	275,620	24.9%	24.9%	46.7%	$818.47	$832.11	$832.11	36.9%
Maine	137,895	24.9%	24.9%	63.0%	$818.47	$594.75	$594.75	37.6%
Maryland	482,218	24.9%	24.9%	58.3%	$818.47	$652.05	$652.05	43.7%
Mississippi	317,153	24.9%	24.9%	45.0%	$818.47	$649.32	$649.32	26.2%
Missouri	301,540	24.9%	24.9%	58.1%	$818.47	$548.37	$548.37	37.2%
Montana	76,040	24.9%	24.9%	55.6%	$818.47	$721.62	$721.62	31.8%
Nevada	262,401	24.9%	24.9%	52.7%	$818.47	$660.23	$660.23	25.5%
New Hampshire	69,724	24.9%	24.9%	67.0%	$818.47	$538.82	$538.82	47.7%
Oklahoma	241,673	24.9%	24.9%	51.4%	$818.47	$743.44	$743.44	34.9%
Tennessee	700,988	24.9%	24.9%	53.0%	$818.47	$735.26	$735.26	34.4%
Texas	1,140,821	24.9%	24.9%	53.3%	$818.47	$811.65	$811.65	39.5%
Utah	76,324	24.9%	24.9%	60.0%	$818.47	$579.75	$579.75	29.6%
Virginia	307,583	24.9%	24.9%	62.1%	$818.47	$646.59	$646.59	49.2%
West Virginia	306,859	24.9%	24.9%	51.1%	$818.47	$953.51	$953.51	24.4%

Source: ADA HPI analysis of CMS Medicaid enrollment, spending and dental care utilization data; MEPS spending data; state Medicaid program adult dental benefit and reimbursement rate data; and Truven private dental benefits utilization data. **Notes:** We substituted 2012 Truven utilization data for Montana as the sample size in 2013 was not sufficient.

Table 3: Estimated Increase in State Medicaid Expenditure from Implementing an Extensive Medicaid Adult Dental Benefit

State	Current Total Medicaid Expenditure	Increase in Expenditure ($)			As Percentage of Total Medicaid Expenditure		
		Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3
Alabama	$1,570,364,045.64	$14,896,360.31	$13,307,415.21	$26,566,789.21	0.9%	0.8%	1.7%
Arizona	$2,752,485,469.80	$43,294,611.61	$39,470,254.25	$89,294,919.37	1.6%	1.4%	3.2%
Delaware	$701,289,018.59	$10,165,930.85	$13,740,949.87	$33,401,586.92	1.4%	2.0%	4.8%
Florida	$7,789,925,704.97	$102,766,682.96	$62,687,676.60	$141,141,567.90	1.3%	0.8%	1.8%
Georgia	$3,045,550,959.34	$37,879,788.47	$34,091,809.62	$74,966,426.13	1.2%	1.1%	2.5%
Hawaii	$772,828,227.14	$13,838,059.97	$10,862,877.08	$18,065,578.96	1.8%	1.4%	2.3%
Idaho	$482,049,224.12	$4,824,465.60	$3,602,267.65	$9,389,304.13	1.0%	0.7%	1.9%
Kansas	$1,118,927,083.27	$12,861,851.19	$10,117,989.61	$26,137,125.17	1.1%	0.9%	2.3%
Louisiana	$2,412,059,966.35	$20,740,788.92	$21,086,468.74	$39,517,040.49	0.9%	0.9%	1.6%
Maine	$1,065,283,472.61	$10,578,223.22	$7,686,842.20	$19,409,816.15	1.0%	0.7%	1.8%
Maryland	$3,847,827,672.80	$43,037,860.10	$34,286,828.54	$80,140,132.34	1.1%	0.9%	2.1%
Mississippi	$1,243,298,827.92	$16,978,460.63	$13,469,578.77	$24,307,916.12	1.4%	1.1%	2.0%
Missouri	$3,411,896,825.25	$22,883,654.10	$15,332,048.25	$35,713,278.85	0.7%	0.4%	1.0%
Montana	$330,532,504.25	$4,928,191.10	$4,345,021.82	$9,690,461.82	1.5%	1.3%	2.9%
Nevada	$725,456,655.98	$13,659,226.28	$11,018,442.53	$23,283,255.22	1.9%	1.5%	3.2%
New Hampshire	$594,431,438.82	$6,782,795.66	$4,465,340.48	$11,991,758.72	1.1%	0.8%	2.0%
Oklahoma	$1,590,694,523.79	$17,207,855.71	$15,630,468.94	$32,220,208.53	1.1%	1.0%	2.0%
Tennessee	$2,938,854,665.16	$49,261,426.79	$44,253,181.73	$94,080,169.75	1.7%	1.5%	3.2%
Texas	$11,330,592,781.02	$91,895,539.01	$91,129,742.86	$194,943,810.13	0.8%	0.8%	1.7%
Utah	$642,839,719.62	$4,607,017.38	$3,263,303.98	$7,855,229.51	0.7%	0.5%	1.2%
Virginia	$3,620,454,452.83	$30,859,295.83	$24,378,843.70	$60,756,420.35	0.9%	0.7%	1.7%
West Virginia	$851,279,941.40	$15,264,678.92	$17,783,350.94	$36,429,832.83	1.8%	2.1%	4.3%
State Total		**$589,212,764.61**	**$496,010,703.36**	**$1,089,302,628.61**			
Federal Total		**$1,049,760,283.98**	**$898,829,468.40**	**$1,956,153,853.21**			
Combined State & Federal Total		**$1,638,973,048.59**	**$1,394,840,171.76**	**$3,045,456,481.81**			

Source: ADA HPI analysis of CMS Medicaid enrollment, spending and dental care utilization data; MEPS spending data; state Medicaid program adult dental benefit and reimbursement rate data; and Truven private dental benefits utilization data. **Notes:** We substituted 2012 Truven utilization data for Montana as the sample size in 2013 was not sufficient.

Data & Methods

We utilized previous methodologies to classify each state's Medicaid adult dental benefit as of September 2015.[8,16] In this research brief, we focused on the 22 states with emergency-only or no Medicaid adult dental benefits. These states include Alabama, Arizona, Delaware, Florida, Georgia, Hawaii, Idaho, Kansas, Louisiana, Maine, Maryland, Mississippi, Missouri, Montana, Nevada, New Hampshire, Oklahoma, Tennessee, Texas, Utah, Virginia and West Virginia.[17]

We obtained total Medicaid expenditure data from the Centers for Medicare & Medicaid Services' (CMS) Form CMS-64 for the fiscal year 2013, the most recent year of Medicaid expenditure data available.[18] Expenditure data include total Medicaid expenditures, federal Medicaid expenditures and state Medicaid expenditures. We used these data to estimate the current level of Medicaid expenditure in our focus states. We used the All Items Consumer Price Index (CPI-U) to inflate 2013 expenditure data to 2015 dollars.[19]

We obtained the most recent Medicaid enrollment figures from CMS.[20,21,22] These data provide monthly enrollment by state, including total Medicaid and CHIP enrollment and total Medicaid and CHIP child enrollment. Because Medicaid enrollment levels can vary month to month, we averaged enrollment data across March, April and May 2015, calculating a three-month average for total and child enrollment in each state. Initially, we attempted to estimate average Medicaid adult enrollment by subtracting the child enrollment average from the total enrollment average for each state. However, child enrollment data were missing for two states in our analysis: Arizona and Tennessee. To address this data shortcoming, we used CMS-416 data for the fiscal year 2014, the most recent year available,[23] as the source for child enrollment estimates. We subtracted the CMS-416 child enrollment from the total Medicaid and CHIP enrollment average to obtain an estimate of Medicaid adult enrollment in each state.

To estimate the additional cost to the Medicaid program of introducing "extensive" adult dental benefits, we estimated how many Medicaid adult beneficiaries would use dental care services in a given year after an adult dental benefit is introduced and how much, on average, each dental care user would spend. The average per user expenditure, in turn, depends on the quantity of dental care services consumed and the reimbursement level to dental care providers. We defined an "extensive" Medicaid adult dental benefit as a benefit that covers 100 or more dental procedures and has an expenditure cap at or above $1,000 per user per year.[24] We recognize there are significant drawbacks to this simplistic definition, but we do not know of an alternative definition that has been published anywhere in the literature.

We created three scenarios for our modeling. The three scenarios have different assumptions for the adult dental care utilization rate and the level of reimbursement to dental care providers. We used a single estimate for dental expenditure per dental care user. Scenarios are summarized in Table 1.

We used two estimates of dental care utilization among Medicaid adults. The first is the average dental care utilization rate among Medicaid-enrolled adults in states that currently provide an extensive Medicaid adult dental benefit. We estimated this utilization rate using 2012 data from the Medicaid Statistical Information System (MSIS). To obtain these data, we submitted a data request to CMS in April 2015 for the total number of adults ages 19 through 64 that were enrolled in each state's Medicaid program for at least

90 continuous days from federal fiscal year 2000 through the current fiscal year. We also requested the total number of Medicaid-enrolled adults with at least one dental service by place of service. We requested these data by state. We received the requested data on May 29, 2015.[25]

Upon receiving the data from CMS, we calculated the dental care utilization rate for each state by dividing the total number of Medicaid-enrolled adults with a dental visit by the total number of Medicaid-enrolled adults. We did not include any dental visits that took place in an emergency department in our numerator. The year with the most complete data in our request is federal fiscal year 2012. We cross-referenced dental care utilization rates with Medicaid adult dental benefit classifications from that year to determine the average utilization rate within those states that provided an extensive Medicaid adult dental benefit in 2012. These states were: Alaska, Connecticut, Iowa, New Mexico, New York, North Carolina, North Dakota, Ohio, Oregon, Rhode Island and Wisconsin. The average percentage of Medicaid adults with a dental visit in a year across these states in 2012 was 24.9 percent.

We also obtained an estimate of dental care utilization among Medicaid adults within these states from the Medical Expenditure Panel Survey (MEPS) maintained by the Agency for Health Research and Quality.[26] We submitted a data request for the utilization rate across these states to Dr. Richard Manski from the University of Maryland and received the requested analysis through personal correspondence in January 2015. The average percentage of Medicaid adults with a dental visit in a year within the states providing extensive adults dental benefits according to the 2012 MEPS data was 27.4 percent. This is very close the MSIS estimate we chose to use.

Under our second assumption, we set Medicaid adult dental care utilization at the dental care utilization rate for adults with private dental benefits in each state. To measure dental care utilization among adults with private dental benefits, we analyzed data from Truven MarketScan® Research Database (Truven). Truven is based on a very large sample of enrollees with employer-sponsored health insurance and dental benefits and included 10.7 million in 2013. Based on the latest data from the 2012 MEPS,[26] we estimate that Truven captures about 7.6 percent of individuals with private dental benefits in the U.S.[27]

We focused on adults with at least 90 days of continuous enrollment in a private dental benefit plan in our utilization analysis. The 2013 Truven database included 7,253,702 adults ages 21 through 64 who were continuously enrolled in a private dental benefit plan for 90 days. We substituted 2012 data for Montana as the sample size in 2013 was not sufficient.

We measured dental care utilization as the proportion of enrolled individuals who have at least one dental claim in a year.

We used a single estimate for dental expenditure per user per year among dental care users for all three scenarios. We based our estimate on an analysis of MEPS data from 2012. Specifically, we used average total dental expenditure among Medicaid-enrolled adults with a dental visit within the past year, averaged across states that provided an extensive adult dental benefit in Medicaid. These states included Alaska, Connecticut, Iowa, New Mexico, New York, North Carolina, North Dakota, Ohio, Oregon, Rhode Island and Wisconsin. The 2012 MEPS data yield an average expenditure level of $556.91 per dental care user per year. Dr. Richard Manski from the University of Maryland provided this analysis through personal correspondence in July 2015.

We adjusted this dental expenditure estimate to be state-specific by taking into account state-level

Medicaid reimbursement levels. We generated two assumptions for reimbursement rates. The first assumption is that Medicaid will reimburse dental care providers at 60 percent of typical private dental benefits plan charges. We chose this cutoff as it is the highest level that any state is currently reimbursing providers for Medicaid adult dental care services.[28] The second assumption is that Medicaid will reimburse adult dental care providers at the same level as child dental care providers in the state. For this assumption, we use 2013 child dental care services reimbursement rates by state that were previously calculated by the ADA Health Policy Institute.[28]

To apply a reimbursement rate of 60 percent of typical private dental benefits plan charges, we first had to determine the average Medicaid reimbursement rate implicit in the average expenditure estimate of $556.91 per Medicaid adult dental care user per year. To do this, we referenced previous analyses that calculated the ratio of Medicaid adult dental reimbursement rates relative to typical private dental benefits plan charges by state in 2013.[28] We found that the average reimbursement rate in these states was 42.1 percent.

We used this average reimbursement rate to convert $556.91 to a private dental benefits plan charge, inflating our average expenditure per user per year figure to $1,323.68. We then calculated 60 percent of this new total, yielding an average spending amount of $794.21. In other words, if Medicaid paid 60 percent of typical private dental benefits plan charges, the average spending per user per year for an adult with extensive Medicaid adult dental benefits would be $794.21. We used this estimate for all states under this assumption.

Our second assumption for reimbursement rates set the Medicaid adult dental reimbursement rate at the same level as each state's child dental reimbursement rate. Each state has a unique Medicaid child dental care reimbursement rate. To determine the corresponding spending level for Medicaid adult dental services in each state, we repeated the arithmetic above using each state's unique child dental reimbursement rate.

In summary, to calculate the total incremental expenditure of implementing an extensive Medicaid adult dental benefit, we used the following formula for each state:

*Expenditure = Enrollment * Utilization Rate * Spending per User * Reimbursement Rate Adjustment*

This yields an estimate in 2012 dollars which we then inflated to 2015 dollars using the All Items Consumer Price Index (CPI-U).[19] For a breakdown of this formula by scenario and by state, see Table 2.

In all three scenarios, we assume that all expenditures related to implementing an extensive adult dental benefit are paid for by the Medicaid program. We did not account for the possibility of patient copays or coinsurance in these scenarios.

To determine the potential federal and state shares of these estimated expenditures, we used the most recent medical assistance expenditure cost-sharing data available from CMS: the *Total Medical Assistance Expenditures VIII Group Break Out Report* for the quarter ending September 30, 2014.[29] This report includes spending for expansion-eligible populations where applicable and reports both total Medicaid spending and total federal share of Medicaid spending. Using these data, we approximated the percentage of federal versus state spending and applied these percentages to each scenario to estimate the cost to the federal government and to state governments of implementing an extensive Medicaid adult dental benefit. Because these data are as of September 2014, they may not reflect the cost-sharing for Medicaid expenditures that is in place today,

particularly for those states that have expanded Medicaid eligibility. We recognize this as a potential shortcoming.

Finally, we estimated the additional expenditure from introducing an extensive adult dental benefit as a proportion of each state's total Medicaid expenditure. We do this for each expenditure scenario. We divide the estimates from our model by total Medicaid expenditure in each state as reported on the CMS-64.[30]

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