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Estimating the Cost of Introducing a Medicaid Adult Dental Benefit in Maine

Authors: Marko Vujicic, Ph.D.; Chelsea Fosse, D.M.D., M.P.H.

Key Messages

- *The fiscal note for Legislative Document No. 1955 of the 129th Maine Legislature estimated the cost to the state of Maine to be \$3.9 million annually for implementation of a Medicaid adult dental benefit. The fiscal note considered the cost of dental care and the associated savings for reductions in emergency dental services.*
- *In this analysis, we estimate additional medical care cost savings stemming from the introduction of an adult dental benefit for Medicaid enrollees with diabetes, cardiovascular disease, and those who are pregnant. Improved oral health is associated with lower medical care costs for these conditions. Taking these additional savings into consideration, we estimate the net cost to the state of Maine to be \$2.7 million annually. This translates to \$1.41 per enrollee per month.*
- *In addition, our analysis estimates the broader impact to the Maine economy from investing in oral health for adult Medicaid enrollees. We estimate the additional economic impact to be \$21.6 million annually. Nearly half of this additional economic impact will occur in rural areas.*

Introduction

Medicaid provides health insurance coverage for some of the nation's most vulnerable populations, including low-income children and adults, pregnant women, older adults, and individuals with disabilities.¹ All states are required to comply with the Early and Periodic Screening, Diagnostic and Treatment (EPSDT) benefit,² which provides preventive and comprehensive health care services, including dental services, for Medicaid-enrolled children under age 21.

There is no corresponding dental care requirement for adult Medicaid beneficiaries; adult dental benefits are optional under Medicaid programs. According to the most recent analysis, Maine is one of 10 states that provide emergency-only adult dental benefits.³

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There are 20 states that provide comprehensive adult dental benefits, 16 that provide limited benefits, and three that provide no dental benefits to the adult population.

Evidence indicates that providing adult dental benefits through Medicaid has a significant impact on access to and utilization of dental care among low-income adults.⁴ Cost is the most significant barrier to obtaining dental care, particularly among low-income adults.⁵ According to 2015 data, three out of four low-income adults in Maine who did not visit the dentist in the past year indicated cost was the reason.⁶ Additionally, 37 percent of low-income adults in Maine indicated that the condition of their mouth and teeth affects their ability to interview for a job,⁶ suggesting that lack of dental coverage negatively affects employability prospects.

In addition, providing comprehensive dental benefits to Medicaid-enrolled adults has the potential to reduce health care spending in other areas. For example, expanding dental coverage to Medicaid adults reduces costly emergency department (ED) visits for dental conditions.^{7,8} There is also emerging evidence that increased access to dental care can lead to lower health care costs among pregnant women and patients with chronic conditions such as diabetes and heart disease.^{9,10} There may be generational effects of increased dental care coverage for adults enrolled in Medicaid. Children who reside in states that have an extensive Medicaid adult dental benefit under which their parents have dental coverage are more likely to have had a dental visit in the past year and less likely to have deferred dental care.¹¹ Thus, investing in a comprehensive dental benefit for Medicaid-enrolled adults will lead to long-term reductions in medical care costs in the Medicaid program.

In this report, we estimate the net cost to the state of Maine of adding a comprehensive adult dental benefit

to MaineCare. Previous analysis estimated the additional costs for dental care services as well as reductions in spending on emergency dental services. We build on this previous analysis by estimating medical care cost reductions associated with increased access to dental care for MaineCare enrollees as well as the broader economic impact associated with improvements in oral health. Throughout our analysis, we collaborated closely with The Bingham Program, Partnership for Children's Oral Health, Maine Equal Justice, the Maine Primary Care Association, and the Maine Dental Association.

Results

Cost of the Dental Benefit and Fiscal Offsets

Table 1 outlines our estimates of the net cost of implementing an adult dental benefit in MaineCare. This includes the additional costs for dental care services and reduced spending on emergency dental services as outlined in the fiscal note^{12,13,14} as well as medical care cost savings.

The estimated state share of dental care costs minus the savings in emergency dental services is \$4,183,815 in year one following the introduction of an adult dental benefit, and \$3,888,551 in years two and three. Savings from emergency services offered in the existing emergency-only dental benefit and from reduced spending for dental care in hospital emergency departments (ED) are factored into these estimates.¹⁴ The introduction of a dental benefit for adults would enable beneficiaries to seek care in more cost-effective settings.

Our analysis estimates annual reductions in medical care costs among beneficiaries with diabetes, cardiovascular disease (CVD), and among pregnant women. These are three conditions for which there is evidence linking dental care visits and reductions in medical care costs. We predict that these savings will

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not be realized immediately. We estimate savings among beneficiaries with diabetes to be \$1,214,834 in year two, increasing to \$2,429,668 in year three. Among beneficiaries with CVD, the savings are estimated to be \$272,005 in year two, increasing to \$544,010 in year three. Among pregnant beneficiaries, the savings are estimated to be \$510,434 in year two, increasing to \$1,020,869 in year three.

Taking all of these medical conditions combined, the total medical care costs savings are estimated to be \$1,997,273 in year two, and \$3,994,546 in year three. Applying the adjusted Federal Medical Assistance Percentage (FMAP), this translates to an estimated medical care cost savings for the state of Maine of \$579,209 in year two and \$1,158,418 in year three. The remaining cost would be paid for by the federal government per the FMAP as specified by the Centers for Medicare & Medicaid Services (CMS).¹⁵

Combining the estimated increase in dental care costs with the reductions in spending on emergency dental services and medical care cost yields the net cost of expanding dental coverage to MaineCare adult beneficiaries. The net cost to the state of Maine is estimated to be \$4,183,815 in year one, \$3,309,342 in year two, and \$2,730,133 in year three. The reduction in net costs over the three-year timeframe is driven by the fact that it takes some time for the medical care cost savings to accrue.

On a per enrollee per month basis, the net cost to the state of Maine of adding an adult dental benefit is estimated to be \$2.16 in year one, \$1.71 in year two, and \$1.41 in year three.

Impact to the Maine Economy and FQHCs

The estimated impact to the Maine economy stemming from increased dental spending¹² under an adult dental benefit is \$22,721,590 in year one and \$21,583,145 in years two and three (Table 2). This “economic

multiplier effect” results from increased spending on services, facilities, utilities, and other direct and indirect impacts resulting from increased dental spending. Given that nearly 48 percent of adult Medicaid beneficiaries in Maine live in rural areas, we estimate that this economic multiplier effect will result in an increase in economic activity in rural areas of \$10,860,920 in year one and \$10,316,743 in years two and three. The economic impact in urban/suburban areas is estimated to be \$11,860,670 in year one and \$11,266,402 in years two and three. Thus, an annual investment of \$2.7 million (the net cost to the state of Maine of a MaineCare adult dental benefit) is expected to yield an economic return to the Maine economy of \$21.6 million.

We estimate that one-fourth of new dental patients seeking care as a result of the adult dental benefit in MaineCare will obtain their care in federally qualified health centers (FQHCs). Consequently, FQHCs will see additional revenue of approximately \$4,057,427 in year one and \$3,854,133 in years two and three (Table 2), resulting from an increase in MaineCare patient volume of 9,452 patients each year. We note that we have not studied whether the additional revenues are adequate to cover the incremental costs of these services, given other factors affecting FQHC reimbursement. Determining whether current rates would be sufficient to support any necessary increases in capacity is beyond the scope of this study.

The inflow of new patients resulting from the new dental benefit will increase demand for dental team members in private practices and FQHCs, as evidenced by experiences from other states.¹⁶ However, the evidence indicates the increase in demand translates to increased hours worked for dental hygienists rather than hiring of additional staff. While this raises earnings of dental hygienists, this does not lead to expanded hiring. We recognize that the situation could be different in Maine, but we have

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no way of assessing the extent to which the current dental care system has the capacity to absorb additional patients.

We recognize that some newly covered adults will seek care at nonprofit dental centers. While we are unable to estimate the share of patients that will seek care in these settings, we anticipate the new dental benefit will have a positive effect on nonprofit dental center revenues.

Impact on the Employability of Medicaid Beneficiaries

Dental care typically ranks above all other health care services in terms of unmet need due to financial barriers, especially among low-income adults.¹⁶ In Maine, an estimated 37 percent of low-income adults indicate their oral health problems are so severe that they interfere with their ability to interview for a job.⁶ Research shows that improved oral health is linked with increases in the probability of being employed as well as lifetime earnings, particularly among women and low-income populations.^{17,18} One study estimates that water fluoridation contributes to a 4 percent increase in lifetime earnings among women.¹⁹ While an adult dental benefit will lessen cost barriers for Medicaid beneficiaries, it is difficult to quantify the impact on employment. The available evidence focuses on the link between oral health status and employment and earnings. As far as we know, there is no available research examining how expanding dental coverage impacts these outcomes. As a result, we are unable to provide a quantitative estimate on employment, other than simply to state it will be a positive effect.

Discussion

Our analysis estimates that adding comprehensive adult dental benefits in MaineCare will cost the state of Maine \$2.7 million per year by year three of

implementation after taking into account additional spending on dental care and fiscal offsets that include reduced spending on emergency dental services and broader medical care cost savings. This translates to an estimated increase in net costs for the state of Maine of \$1.41 per enrollee per month. We also estimate the investment in dental care for MaineCare adult enrollees will generate an additional \$21.6 million per year in economic activity in Maine.

Data & Methods

For estimated dental care treatment costs as well as estimates for reduced emergency department spending, we rely on the Preliminary Fiscal Impact Statement and Fiscal Impact Detail for Legislative Document Number 1955 of the 129th Maine Legislature, An Act to Promote Cost-effectiveness in the MaineCare Program and Improve the Oral Health of Maine Adults and Children.^{12,13,14} We reviewed the methodology in this fiscal note and feel the modeling assumptions are valid overall, as is the underlying methodology. For example, the fiscal note estimates that under an adult dental benefit, the dental care utilization rate for adult beneficiaries will be 30.8 percent. This is in line with other states with an adult dental benefit where the average utilization rate is 24.9 percent²⁰ and the maximum of any state (Minnesota) is 33 percent. We adopted the yearly cost for the State of Maine (General Fund) as stated in the fiscal note.

The share of MaineCare adults who are currently utilizing the emergency-only dental benefit was provided by the Maine project partners using past claims data.²¹ We estimated the number of adults that would be eligible for the Medicaid dental benefit using MaineCare Case Load Data.²² Project partners specified the eligible aid groups (e.g., low-income parents, pregnant women, childless adults under Medicaid expansion, and others) and estimated the total number of eligible adults to be 161,851.

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Approximately 27.9 percent (45,137) of eligible individuals are in the Medicaid expansion population.

The fiscal note estimates that 40 percent of the costs currently attributed to emergency services for dental care will be avoided with the introduction of an adult dental benefit, phased in over time.¹⁴ The available evidence suggests that up to 78 percent of ED visits for dental conditions nationwide could be diverted to a dentist office or other ambulatory setting.²³ A recent study found a 14 percent reduction in dental-related ED visits one year after expanding adult dental benefits via Medicaid expansion under the Affordable Care Act.²⁴ Data provided to us from the Missouri Medicaid program shows a 9 percent reduction in dental-related ED visits one year after introducing dental benefits to adults in Medicaid. By year two, the reduction was 18 percent and by year three it was 63 percent. The relatively low upper limit used in the fiscal note to calculate ED savings suggests that this is a very conservative estimate given the available research. Thus, we feel confident that the analysis performed for the fiscal note is sound but potentially understates avoidable ED use for dental conditions.

We modeled increased dental care costs and offsetting medical care savings over a three-year timeframe. This accounts for the fact that the impact of introducing adult dental coverage in Medicaid is not immediate. Awareness among enrollees takes time, providers require time to adjust, and medical care cost reductions are not realized immediately. The best available evidence suggests that health cost savings start to appear as early as year two,¹⁰ consistent with our assumptions. We thus assumed that the dental care utilization rate will increase linearly and will reach its “steady state” value by year three.

In 2019, 11.9% of adults enrolled in Medicaid in Maine were diagnosed with diabetes.²⁵ We assumed adults with diabetes will behave similarly in terms of their

dental care seeking behavior when a dental benefit for adults is introduced into Medicaid. In other words, their dental care utilization rate will increase by the same amount as adult beneficiaries in general. Based on the available evidence, estimated medical costs would reduce between \$900⁹ and \$2,840¹⁰ per year per patient with diabetes who receives periodontal treatment. We believe the most accurate estimate is toward the lower end of this range. Thus, we assumed a medical care cost reduction of \$900 per year for each new dental patient with diabetes once in “steady state.” As noted, in year one we assumed no cost savings and in year two we assumed half the “steady state” amount.

In 2019, 2.2 percent of adults enrolled in MaineCare were diagnosed with cardiovascular disease (CVD).²⁵ We assumed patients with CVD will behave similar to other adult enrollees in terms of their dental care seeking behavior when a dental benefit for adults is introduced into Medicaid, meaning their utilization rate will increase by the same amount as other adults. The available evidence suggests that medical cost savings among adults with CVD who receive periodontal treatment are \$1,090 per year.¹⁰ Again, in year one we assumed no cost savings, in year two we assumed half of this amount, and in year three we assumed the full amount.

In 2018, there were approximately 4,886 pregnant adult women enrolled in MaineCare at some point in the year.^{26,27} We assumed that pregnant women will behave similarly in terms of their dental care seeking behavior when a dental benefit for adults is introduced into Medicaid, meaning their utilization rate will increase by the same amount as other adult beneficiaries. Based on the available evidence, the estimated medical cost savings are between \$1,500 (second pregnancy) and \$2,400 (first pregnancy) per year per pregnant woman receiving periodontal treatment.¹⁰ For our modeling, we choose the low end

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of this range and assumed a medical cost reduction of \$1,500 per year per pregnant woman.

We assumed that 60 percent of adult Medicaid enrollees in Maine have some form of periodontal disease. This estimate is based on the most recent national data on the prevalence of periodontal disease among low-income adults in the U.S.²⁸ This 60 percent estimate also applies to pregnant women.²⁹

In summary, the medical care spending offsets for these various conditions is estimated using the following formula:

*Medical Care Offset = Enrollment * Share of Enrollees with Condition * Share with Condition with Periodontal Disease * Change in Utilization Rate * Medical Care Costs (phased in over time)*

We use the Federal Medical Assistance Percentage (FMAP), or federal matching shares, to distribute these medical care cost offsets across state and federal programs. The FMAP for Maine is 63.7 percent, making the state's share of expenditure responsibility 36.3 percent.¹⁵ There is an increased FMAP of 90 percent for the enrollees in the Medicaid expansion population.³⁰ Of the total enrollment of 161,581 individuals, 116,444 or 72.1 percent are in the traditional Medicaid population and 45,137 or 27.9 percent are in the Medicaid expansion population.²² This yields a weighted average FMAP of 71 percent, making the state's share 29 percent. Thus, the state share of medical care cost savings is 29 percent of the total.

For the estimated economic impact, we rely on previous research summarizing the impact to the local economy associated with increased dental care utilization and spending.^{31,32} This research estimates the impact of the opening of an additional dental practice on the local economy. The underlying analysis can also be used to estimate an "economic multiplier"

effect from increased dental spending rather than new dental offices opening, which is more relevant for our analysis. This multiplier effect is estimated at 1.42 based on the available research. In other words, for every additional \$1 spent on dental treatment, an additional \$1.42 in other spending (e.g., real estate, transportation) is generated. We apply this multiplier effect to the estimated increase in dental care spending to calculate the broader impact to the Maine economy of adding dental benefits for adults to the Medicaid program.

We estimate how much of the economic impact will accrue in rural areas by estimating how much of the additional dental care spending resulting from the introduction of an adult dental benefit in Medicaid will occur in rural areas. We do this simply on a per beneficiary basis. According to the most recent data, 47.8 percent of adult Medicaid beneficiaries live in rural areas.^{33,34} Thus, we estimate that 47.8 percent of the additional dental spending as well as 47.8 percent of the economic impact will accrue in rural areas.

We estimate how much of the additional dental spending will accrue in FQHCs as opposed to private dental practices. This enables us to estimate the financial impact on revenues of FQHCs. There are 18 multi-site FQHCs and each has at least one location offering dental services.³⁵ Maine FQHCs served 45,868 children and adult dental patients over the course of more than 150,000 dental visits in 2019. Clinical costs for dental services were approximately \$16.4 million in 2019. Maine FQHCs employed the full-time equivalent of about 130 dental personnel, including 31 dentists, 34 dental hygienists, and 70 other dental personnel.³⁶ We assume adult Medicaid beneficiaries will rely on FQHCs versus private dental offices for dental care visits in the same proportion as child Medicaid beneficiaries do currently. According to the latest data, 25 percent of all dental visits for Medicaid insured children in Maine occur in FQHCs.³⁷

While an adult dental benefit will lessen the cost barrier for Medicaid beneficiaries, it is very difficult to quantify the impact on employment. For the estimated impact on employment prospects of adult Medicaid beneficiaries resulting from improved oral health, we draw on broad research that quantifies the link as well as our own Maine-specific data.⁶ In the analysis, low-income was defined as below 133% of the federal poverty level. There is no research to draw on that

links the provision of adult dental benefits directly to employability. However, there is research linking oral health with probability of being employed and earnings, and this research indicates that women and low-income populations benefit.^{16,19} Thus, it is reasonable to assume that introducing an adult dental benefit in the Maine Medicaid program will result in improved job prospects for beneficiaries.

Table 1: Estimated Cost of Adding a Comprehensive Adult Dental Benefit in Medicaid in Maine

	Year One	Year Two	Year Three
Medicaid enrollment, adults	161,581	161,581	161,581
Dental care utilization rate, baseline	7.4%	7.4%	7.4%
Dental care utilization rate, post reform	30.8%	30.8%	30.8%
Additional enrollees with a dental visit	37,810	37,810	37,810
State share of dental care costs minus savings in emergency dental services	\$4,183,815	\$3,888,551	\$3,888,551
Estimated reduction in health care costs for those...			
with diabetes	\$0	\$1,214,834	\$2,429,668
with cardiovascular disease	\$0	\$272,005	\$544,010
who are pregnant	\$0	\$510,434	\$1,020,869
Estimated total medical care cost savings	\$0	\$1,997,273	\$3,994,546
State share of cost savings	\$0	\$579,209	\$1,158,418
State share of net cost of adult dental benefit	\$4,183,815	\$3,309,342	\$2,730,133
Per enrollee per month	\$2.16	\$1.71	\$1.41

Table 2: Estimated Economic Impact and FQHC Revenue Due to Additional Dental Spending

	Year One	Year Two	Year Three
Additional Dental Spending	\$16,229,707	\$15,416,532	\$15,416,532
Additional Economic Activity in Maine	\$22,721,590	\$21,583,145	\$21,583,145
Rural	\$10,860,920	\$10,316,743	\$10,316,743
Urban	\$11,860,670	\$11,266,402	\$11,266,402
Additional Revenue for Dental Care Flowing to FQHCs	\$4,057,427	\$3,854,133	\$3,854,133

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211 E. Chicago Avenue
Chicago, Illinois 60611
312.440.2928
hpi@ada.org

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