Health Policy Institute
ADA American Dental Association®

Research Brief

Dental Care Utilization Declined among Low-income Adults, Increased among Low-income Children in Most States from 2000 to 2010

Author: Marko Vujicic, Ph.D.

The Health Policy Institute (HPI) is a thought leader and trusted source for policy knowledge on critical issues affecting the U.S. dental care system. HPI strives to generate, synthesize, and disseminate innovative research for policy makers, oral health advocates, and dental care providers.

Who We Are

HPI's interdisciplinary team of health economists, statisticians, and analysts has extensive expertise in health systems policy research. HPI staff routinely collaborates with researchers in academia and policy think tanks.

Contact Us

Contact the Health Policy Institute for more information on products and services at **hpi@ada.org** or call 312.440.2928.

Key Messages

- *From 2000 to 2010, dental care utilization among low-income children increased in 47 states. For low income adults, utilization declined or remained flat in almost every state.*
- *Only two states – Massachusetts and Virginia – experiences an increase in utilization for both low-income adults and children.*
- *Significant reductions in adult dental benefits in Medicaid programs are one important factor explaining the decline in utilization among low-income adults.*

Introduction

Dental care utilization is changing in the United States. Recent analysis has shown that the percent of the population who see a dentist in a given year has been declining among adults and increasing among children since the early-2000s.[1] Low-income adults experienced the sharpest decline in dental care utilization. This gradual decline among adults has had, among other things, a significant impact on dentist productivity and earnings.[2] More concerning is the potential effect on oral health, general health, and health care costs. Oral health is an important component of general health and routine dental care is an important component of a comprehensive oral health strategy.[3] Access to routine dental care has been associated with increased savings to the health care system through both a reduced need for acute dental care in expensive hospital emergency room settings[4] and reduced overall medical costs[5].

© 2013 American Dental Association All Rights Reserved.

Low-income adults face significant barriers to dental care, and cost is one of the most import ones. Medicaid coverage for adult dental services is optional and a majority of states provide limited or no dental coverage. Several studies have noted the increase in the percent of US adults, especially the poor, who do not seek dental care because they cannot afford it.[6] Fewer data are available for low-income children, but where they do exist, they indicate that financial barriers to dental care are much less severe than for low-income adults.[7]

In this research brief, we review dental utilization patterns for low-income adults and children in every state between 2000 and 2010. This is the first state-by-state analysis we know of that includes both low-income adults and children

Data & Methods

We relied on data from two sources. We used the Centers for Medicare and Medicaid Services (CMS) Medicaid 416 data[8] as a proxy for dental care utilization among low-income children. These data report state-specific numbers of enrolled children and numbers that receive dental visits of various types (e.g., any, preventive, reparative) for children enrolled in Medicaid at any point in time during the year. The reliability of the Medicaid 416 data has been called into question, including by the Government Accountability Office, due to missing and inaccurate data.[9] Nevertheless, these are the best available time-series data on dental care utilization among low-income children at the state level. We used data from 2000 to 2010. For states where data are missing for 2010 we simply used 2009 data in our calculation (CT, HI, KS, ME, OH, OR).

We used data from the Behavioral Risk Factors Surveillance System (BRFSS) to measure dental care utilization among low-income adults at the state level. The BRFSS is a national representative survey of adults aged 18 and above whose information is collected at the state level.[10] Nationwide, about 350,000 adults, one per household, are surveyed each year. The BRFSS collects core information pertaining to demographics, household income, health status and health insurance coverage. In even years, the BRFSS includes a question concerning the utilization of dental care. We used data from the 2002 to 2010 surveys.

The most accurate source of data for dental care utilization among the US population at the national level is from the Medical Expenditure Panel Survey (MEPS).[11] In particular, other sources such as the National Health Interview Survey (NHIS) and the BRFSS tend to provide much higher dental care utilization estimates than MEPS. However, MEPS data are not available publicly for the state level and the sample size is much smaller than the BRFSS. In addition, we were less interested in the dental care utilization rate, as our focus was on changes over time. Moreover, in a separate analysis,[12] we carried out a comprehensive econometric analysis of income inequality in dental care utilization patterns over time across states, controlling for various factors, using the BRFSS data.

We calculated the average for the United States as a straight line average across all states. We do not weight by population or other factors.

Results

Table 1 presents data on the dental care utilization rate for low-income adults and children in 2000 (or 2002) and 2010 as well as the percent change. Looking at the US average, utilization of dental care for low-income adults decreased from 54% in 2002 to 48% in 2010, equivalent to about a 10% decline. Among low-income children, dental care utilization increased from 27% in 2000 to 41% in 2010, equivalent to about a 53% increase. Clearly, dental care utilization among

low-income adults and low-income children is moving in a very different direction.

Looking at state-by-state results, all but three states experienced an increase in dental care utilization among low-income children between 2000 and 2010. The three states that did not are Florida, Ohio, and Wisconsin. Clearly, the vast majority of states made progress in increasing dental care utilization among low-income children. In fact, some states experienced remarkable increases. In Maryland, the utilization rate among low-income children more than quadrupled, from 11% in 2000 to 48% in 2010. Oklahoma had the next largest increase, with utilization increasing from 15% in 2000 to 45% in 2010. As Figure 1 confirms, there is a negative relationship between the starting value for the utilization rate in 2000 and the increase. In other words, that states that had the largest gains in utilization were the ones that started at very low utilization levels in 2000. This could suggest that there is some upper utilization rate beyond which it is very difficult for states to have substantial increases. Figure 1 also helps identify, in a very simple way, states that experienced above-average increases in utilization among low-income children controlling for the utilization level they started at in 2000. These states lie above the curve, and include Idaho, Maryland, Oklahoma, Texas and Vermont.

Among low-income adults, the experience during the 2000s has been very different. Only two states experienced a statistically significant increase in utilization: Massachusetts and Virginia. Alaska, Delaware, Maryland, New Jersey, New Mexico, Minnesota, and Wyoming had increases, but these were not statistically significant. Nineteen states experienced a statistically significant decrease in utilization, and the remaining twenty-two states experienced either no change or a statistically insignificant decrease in utilization. In some states, the decrease was remarkable over a relatively short 8-year period. For example, utilization among low-income adults fell by around one third in Illinois, Oklahoma and South Carolina between 2002 and 2008. Interestingly, Oklahoma had among the largest gain in utilization among low-income children.

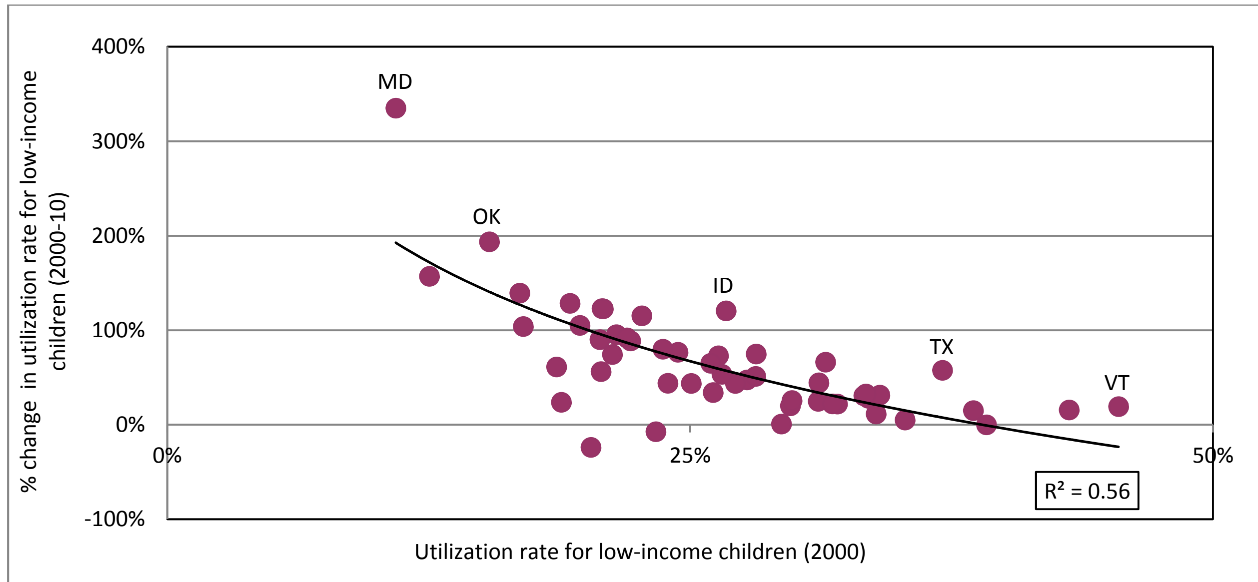
Taking all results together, only two states experienced an increase in dental care utilization among both low-income adults and children (that was statistically significant). Two experienced a decrease among both low-income adults and children (that was statistically significant). The remaining states – the vast majority – experienced an increase in dental care utilization among low-income children and either a decrease or no change among low-income adults. The state-by-state results for both children and adults are summarized in Figure 2. Visualized this way, the majority of states fall in the bottom right quadrant (gains among low-income children, declines among low-income adults). Nationally, utilization in 2010 was 10% lower among low-income adults relative to 2002 and 53% higher among low-income children relative to 2000 (blue dot in Figure 2).

Table 1: Percent with a Dental Visit by State, 2000-2010

	Low-income Children			Low-income Adults			
State	**2000**	**2010**	**% change**	**2002**	**2010**	**% change**	
Alabama	21%	46%	123%	48%	41%	-15%	**
Alaska	34%	43%	28%	45%	56%	26%	
Arizona	21%	46%	123%	50%	45%	-10%	
Arkansas	19%	23%	24%	48%	37%	-22%	**
California	30%	36%	20%	58%	52%	-10%	**
Colorado	34%	45%	31%	44%	44%	-2%	
Connecticut	31%	39%	25%	65%	65%	-1%	
Delaware	21%	39%	90%	54%	56%	4%	
DC	24%	43%	77%	67%	62%	-8%	
Florida	23%	22%	-7%	52%	43%	-17%	***
Georgia	21%	42%	95%	49%	43%	-11%	
Hawaii	28%	41%	47%	64%	57%	-10%	
Idaho	27%	59%	121%	57%	51%	-11%	*
Illinois	26%	46%	73%	60%	44%	-27%	***
Indiana	29%	30%	1%	53%	46%	-14%	**
Iowa	32%	39%	22%	61%	58%	-4%	
Kansas	20%	40%	105%	53%	49%	-6%	
Kentucky	33%	44%	31%	47%	43%	-8%	
Louisiana	26%	43%	65%	51%	42%	-17%	**
Maine	35%	37%	5%	50%	43%	-15%	*
Maryland	11%	48%	335%	54%	55%	2%	
Massachusetts	31%	45%	44%	63%	69%	10%	*
Michigan	21%	32%	56%	52%	46%	-12%	
Minnesota	32%	39%	22%	60%	66%	11%	
Mississippi	22%	42%	89%	46%	43%	-6%	
Missouri	19%	30%	61%	45%	37%	-19%	*
Montana	24%	34%	44%	54%	43%	-21%	**
Nebraska	39%	44%	15%	70%	51%	-27%	***
Nevada	17%	35%	104%	50%	50%	0%	
New Hampshire	31%	52%	66%	56%	47%	-15%	*
New Jersey	17%	40%	139%	55%	57%	3%	
New Mexico	23%	49%	115%	52%	53%	2%	
New York	25%	36%	44%	60%	61%	0%	
North Carolina	22%	42%	92%	48%	45%	-6%	
North Dakota	13%	32%	157%	61%	54%	-12%	
Ohio	39%	39%	0%	62%	50%	-20%	***
Oklahoma	15%	45%	194%	49%	33%	-33%	***
Oregon	26%	35%	34%	52%	52%	-1%	
Pennsylvania	21%	37%	74%	55%	51%	-6%	
Rhode Island	34%	38%	11%	61%	57%	-8%	
South Carolina	28%	49%	75%	54%	37%	-32%	***
South Dakota	24%	43%	80%	65%	55%	-15%	**
Tennessee	28%	43%	51%	49%	46%	-7%	
Texas	37%	58%	58%	47%	40%	-16%	***
Utah	27%	39%	44%	62%	57%	-8%	
Vermont	45%	54%	19%	55%	54%	-2%	
Virginia	19%	44%	128%	46%	58%	25%	*
Washington	43%	50%	16%	57%	50%	-13%	**
West Virginia	33%	44%	33%	41%	36%	-11%	
Wisconsin	20%	15%	-24%	62%	59%	-6%	
Wyoming	30%	38%	26%	47%	49%	6%	
United States	27%	41%	53%	54%	48%	-10%	***

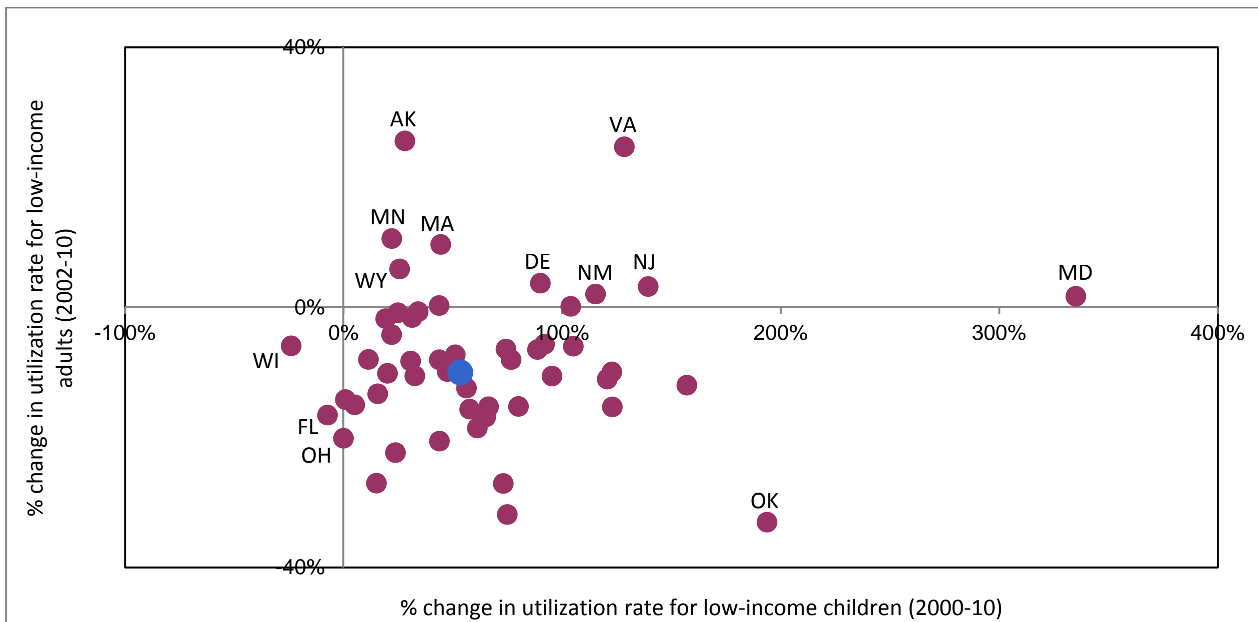
Source: CMS (Medicaid 416) for low-income children; BRFSS for low-income adults **Note:** Change is statistically significant at ***1% level, **5% level, *10% level. Applies only to BRFSS data.

Figure 1: Dental Care Utilization among Low-income Children



Source: CMS (Medicaid 416) **Note:** Utilization is defined as percent with a dental visit the past year. Percent change in utilization is relative to 2000 and is defined as (Rate in 2010 - Rate in 2000) / Rate in 2000. Where 2010 values were missing for low-income children 2009 value was used (CT, HI, KS, ME, OH, OR). Each data point represents one state. Selected states are labeled.

Figure 2: Dental Care Utilization among Low-income Children and Adults



Source: CMS (Medicaid 416) for low-income children; BFRSS for low-income adults. **Note:** Utilization is defined as percent with a dental visit the past year. Percent change in utilization is relative to 2000 and is defined as (Rate in 2010 - Rate in 2000) / Rate in 2000. Where 2010 values were missing for low-income children 2009 value was used (CT, HI, KS, ME, OH, OR). Each data point represents one state. Selected states are labeled. US average is denoted in blue.

Discussion

Our analysis shows, we believe for the first time, the stark difference in dental care utilization patterns over time between low-income adults and children in most states. Our state-by-state analysis is consistent with findings from the national level showing an increase in dental care utilization among low-income children[13] and a decline among low-income adults[14] over the past decade. What could be driving these results?

As noted in the data and methods section, state-by-state time-series data on dental care utilization among high-income children are not publicly available. However, a recent study at the national level demonstrates that among higher-income groups, dental care utilization among children has been relatively stable over the past decade.[15] As a result, the rich-poor gap in dental care utilization among children decreased between 2000 and 2010, and it is not the case that our findings for low-income children are reflective of a larger systemic trend affecting all children. For adults, at the national level the rich-poor gap in dental care utilization widened between 2000 and 2010, driven by a decline in utilization among low-income adults and relatively stable utilization among upper income groups. A separate study that focuses on dental care utilization among adults at the state level confirms that no state managed to close the rich-poor gap in dental care utilization among adults between 2002 and 2010, once various demographic and economic factors are controlled for[12]. In ten states the gap widened and in the remaining states the gap was stable, according to the sophisticated econometric analysis the authors use. Again, it is not the case that the decline in utilization among low-income adults is reflective of a larger systemic trend affecting all adults.

Several factors might explain the gains in dental care utilization among low-income children. Many argue that increased advocacy efforts, enhanced financial resources, enactment of the Children's Health Insurance Program (CHIP), expansion of the dental safety net, and increased participation in Medicaid programs among dentists are key drivers.[16] The expansion of new, lower cost dental care delivery models has also been put forth as an explanation.[17] Many state-level analyses also point to the impact of improved dentists reimbursement and streamlined administrative processes within Medicaid-CHIP programs as an important factor.[18]

For low-income adults, one of the most important factors that accounts for the decline in dental care utilization is federal and state policy toward dental benefits within Medicaid. The past decade has seen significant reduction and elimination of adult dental benefits in Medicaid programs.[19] The evidence at the state level shows compellingly the negative effect benefit reductions have on access to dental care for low-income adults.[20] For example, eliminating adult dental benefits in Oregon caused a three-fold increase in the level of unmet dental care needs and substantially higher likelihood of emergency room visits for oral health issues.[21] Financial issues are a critical barrier to care for many adults, and the share of adults who have difficulty accessing dental care due to cost has been growing steadily since the early-2000s.[22]

Our results point to some success stories that warrant further research. We identify a set of states that experienced contemporaneous gains in dental care utilization for both low-income adults and children. These states – Massachusetts and Virginia – could provide useful insight into understanding the factors underlying a 'decade of success' in dental care utilization for the poor. An additional seven states had gains among children and adults, but the gains among adults were not statistically significant. For some of these states, there is sufficient research to allow policy makers to glean important lessons learned. For

example, evidence from Maryland demonstrates that the state government used a multi-pronged strategy that included using a single vendor dental provider program, carving out Medicaid dental services, streamlining administrative processes, increasing dental reimbursement rates, establishing a public health level dental hygienist to provide services without a dentist present, systematically providing dental screenings in public schools, and establishing a dental home for children.[23] In Massachusetts, a separate analysis demonstrates that the comprehensive health reform of 2006 – which was very similar to the Affordable Care Act but included dental care for poor adults in the benefits package – played a key role in increasing access to dental care among adults.[24] However, many other states have not been studied at all and case studies are needed to improve the evidence base and supplement other state-level studies.[25]

At the same time, our results identify states where dental care utilization has decreased for both low-income adults and children. These states – Florida, Ohio (statistically significant) and Wisconsin (not statistically significant) – warrant analysis to understand the lessons learned. Focusing on low-income adults, our analysis more broadly also identifies several states that experienced very large declines in utilization (e.g., Oklahoma, South Carolina). What can be learned from the experiences in these states?

Whether our findings are a result of deliberate policy decisions at the state and federal level, or simply a byproduct of a less coordinated approach, we feel they warrant urgent attention from policy makers. The improvement in dental care utilization among low-income children the past decade – in almost every state – is something the oral health community can celebrate. Challenges remain, however, and it remains to be seen if the progress is sustained or stalls. Where our analysis ought to raise concern is with the downward trend in dental care utilization among low-income adults. The available evidence suggests that a large part of this decline is due to increased financial barriers to dental care, driven in large part by eroding dental benefits and reimbursement levels for adults within Medicaid programs. As a result, now more than ever, it is crucial for dentists, the public, educators, and policy makers to work together to reduce barriers to dental care to ensure all Americans have the opportunity to be mouth healthy for life.

This Research Brief was published by the American Dental Association's Health Policy Institute.

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

For more information on products and services, please visit our website, www.ada.org/hpi.

References

[1] Wall TP, Vujicic M, Nasseh K. Recent trends in the utilization of dental care in the United States. J Dent Educ. 2012;76(8):1020-1027.; Kenney GM, McMorrow S, Zuckerman S, Goin DE. A decade of health care access decline for adults holds implications for changes in the Affordable Care Act. Health Aff (Millwood) 2012;31(5):899-908.

[2] Vujicic M, Lazar V, Wall T, Munson B. An analysis of dentists' incomes, 1996-2009. JADA 2012;143(5):452-460.; Vujicic M, Wall T, Nasseh K, Munson B. Dentist incomes slow to recover. Health Policy Institute Research Brief. American Dental Association. December 2012.

[3] IOM (Institute of Medicine) and NRC (National Research Council). *Improving access to oral health care for vulnerable and underserved populations*. 2011. Washington, DC: The National Academies Press.; U.S. Department of Health and Human Services (HHS). *Oral Health in America: A report of the Surgeon General*. Rockville (MD): HHS, National Institute of Dental and Craniofacial Research, National Institutes of Health.

[4] Helen HL, Lewis CW, Saltzman B, Starks H. Visiting the emergency department for dental problems: trends in utilization, 2001 to 2008. AJPH 2012;102(11):77-83.; Cohen LA, Manski RJ, Hooper FJ. Does the elimination of Medicaid reimbursement affect the frequency of emergency department dental visits? JADA 1996; 127(5):605-609.

[5] Cigna. *Improved health and lower medical costs: why good dental care is important*. 2010. Available from: http://www.cigna.com/assets/docs/life-wall-library/Whygooddentalcareisimportant_whitepaper.pdf.

[6] American Dental Association, *Breaking Down Barriers to Oral Health for all Americans: the Role of Finance*. 2012. Chicago: American Dental Association. Available at http://www.ada.org/breakingdownbarriers.aspx; Kiyak HA, Reichmuth M. Barriers to and enablers of older adults' use of dental services. J Dent Educ 2005;69(9):975-986.

[7] For example, see *Medi-Cal at a Crossroads: What Enrollees Say About the Program*. California Healthcare Foundation. May 2012. Available at http://www.chcf.org/publications/2012/05/medical-crossroads-what-enrollees-say

[8] For a full description of the Medicaid 416 data see http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Early-Periodic-Screening-Diagnosis-and-Treatment.html

[9] U.S. Government Accountability Office. *Concerns Remain about Sufficiency of Data for Oversight of Children's Dental Services*. Testimony before the subcommittee on domestic policy, committee on oversight and government reform, House of Representatives. Available at http://www.gpo.gov/fdsys/pkg/GAOREPORTS-GAO-07-826T/pdf/GAOREPORTS-GAO-07-826T.pdf

[10] For a full description of the BRFSS data see http://www.cdc.gov/brfss/technical_infodata/surveydata/2010/overview_10.rtf

[11] Macek MD, Manski RJ, Vargas CM, Moeller, J. Comparing oral health care utilization estimates in the U.S. across three nationally representative surveys. Health Serv Res 2002; 37(2):499-521.

[12] Nasseh K, Vujicic M. Income disparities among adults for dental care utilization growing in many states. *Unpublished Manuscript.* American Dental Association. November 2012.

[13] Hakim RB, Babish JD, Davis AC. State of dental care among Medicaid-enrolled children in the United States. Pediatrics 2012;130(1):1-10; Edelstein B. Dental visits for Medicaid children: analysis and policy recommendations. Children's Dental Health Project Research Brief. June 2012. Available at http://www.cdhp.org/

[14] Wall TP, Vujicic M, Nasseh K. Recent trends in the utilization of dental care in the United States. J Dent Educ. 2012;76(8):1020-1027.; Kenney GM, McMorrow S, Zuckerman S, Goin DE. A decade of health care access decline for adults holds implications for changes in the Affordable Care Act. Health Aff (Millwood) 2012;31(5):899-908.

[15] Wall TP, Vujicic M, Nasseh K. Recent trends in the utilization of dental care in the United States. J Dent Educ. 2012;76(8):1020-1027.

[16] Formicola AJ, Myers R, Hasler JF, Peterson M, Dodge W, Bailit HL, Beazoglou T, Tedesco LA. Evolution of dental school clinics as patient care delivery centers. J. Dent. Educ., 2006; 70(12):1271-1288.; Bailit, HL. Dental schools and access disparities: What roles can schools play? J. Amer. College Dent, 2008; 75(4):20-23.; American Dental Association, *Breaking Down Barriers to Oral Health for all Americans: the Role of Finance*. 2012. Chicago: American Dental Association. Available at http://www.ada.org/breakingdownbarriers.aspx;

[17] Edelstein B. Dental visits for Medicaid children: analysis and policy recommendations. Children's Dental Health Project Research Brief. June 2012. Available at http://www.cdhp.org/; Laffer A. *Dental service organizations: a comparative review*. 2012. Nashville: Laffer Associates.

[18] Hughes RJ, Damiano PC, Kanellis MJ, Kuthy R, Slayton R. Dentists' participation and children's use of services in the Indiana dental Medicaid program and SCHIP: assessing the impact of increased fees and administrative changes. J Amer Dent Assoc. 2005 Apr; 136(4):517-23.; Shulman JD, Ezemobi EO, Sutherland JN, Barsley R. Louisiana dentists' attitudes toward the dental Medicaid program. Pediatr Dent. 2001 Sep-Oct; 23(5):395-400.; Blackwelder A, Shulman JD. Texas dentists' attitudes toward the Dental Medicaid program. Pediatr Dent. 2007 Jan-Feb; 29(1):40-6.; Decker SL. Medicaid payment levels to dentists and access to dental care among children and adolescents. JAMA 2011; 306(2):187-93.; Eklund S, Pittman J, Clark S. Michigan Medicaid's Healthy Kids Dental Program – an assessment of the first 12 months. J Amer Dent Assoc, 2003;134(11):1509-1515.

[19] PBS Newshour. The Rundown: How Have Medicaid Dental Benefits Changed in Your State? Nov 2011. Available at http://www.pbs.org/newshour/rundown/2011/11/how-have-medicaid-dental-benefits-changed-in-your-state-1.html.

[20] Choi MK. The impact of Medicaid insurance coverage on dental service use. J Health Econ. 2011;30:1020-1031.; *Eliminating Adult Dental Benefits in Medi-Cal: An Analysis of Impact*. 2011. California HealthCare Foundation.; Wallace NT, Carlson MJ, Mosen DM, Snyder JJ, Wright BJ. The individual and program impacts of eliminating Medicaid dental benefits in the Oregon health plan. AJPH. 2011; 101(11): 2144-2150.

[21] Wallace NT, Carlson MJ, Mosen DM, Snyder JJ, Wright BJ. The individual and program impacts of eliminating Medicaid dental benefits in the Oregon health plan. AJPH. 2011; 101(11): 2144-2150.

[22] American Dental Association, *Breaking Down Barriers to Oral Health for all Americans: the Role of Finance*. 2012. Chicago: American Dental Association. Available at http://www.ada.org/breakingdownbarriers.aspx.

[23] Thuku MN, Carulli K, Costello S, Goodman HS. Breaking the cycle in Maryland: oral health policy change in the face of tragedy. J Pub Health Dent. 2012; 72:S7–S13.; Vargas CM, Casper JS, Altema-Johnson D, Kolasny CR. Oral health trends in Maryland. J Pub Health Dent. 2012; 72:S18–S22.

[24] Nasseh K, Vujicic M. Health reform in Massachusetts increased adult dental care utilization, especially among the poor. *Unpublished Manuscript.* American Dental Association. November 2012.

[25] Centers for Medicare and Medicaid Services. *Innovative State Practices for Improving the Provision of Medicaid Dental Services: Summary of Eight State Reports.* 2011. Centers for Medicare and Medicaid Services. Available at http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Dental-Care.html

Suggested Citation

Vujicic M. Dental care utilization declined among low-income adults, increased among low-income children in most states from 2000 to 2010. Health Policy Institute Research Brief. American Dental Association. February 2013. Available from: http://www.ada.org/sections/professionalResources/pdfs/HPRCBrief_0213_3.pdf