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Percentage with a Dental Visit in the Past 12 Months

To measure dental care utilization among adults and children with private dental benefits, we analyzed data from the 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 3.8 million individuals with private dental benefits in 2005 and 10.7 million in 2013. Based on the latest data from the 2012 Medical Expenditure Panel Survey (MEPS),¹ we estimate that Truven captures about 7.6 percent of individuals with private dental benefits in the U.S.²

In our utilization analysis, we focused on adults and children with at least 90 days of continuous enrollment in a private dental benefit plan. The 2005 Truven database included 2,497,278 adults ages 21 through 64 and 1,086,098 children ages 0 through 20 who were continuously enrolled in a private dental benefit plan for 90 days. The 2013 Truven database included 7,253,702 adults ages 21 through 64 and 2,923,720 children ages 0 through 20 who were continuously enrolled in a private dental benefit plan for 90 days. We substituted 2011 data for Montana as the sample sizes in 2012 and 2013 were not sufficient.

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

The ADA Health Policy Institute (HPI) has Truven data from 2005 through 2013 and this is the period we chose to study.

To measure dental care utilization among children with Medicaid dental benefits, we analyzed data from the Centers for Medicare and Medicaid Services (CMS) Form 416 (CMS-416). The CMS-416 is a form that each state Medicaid program submits to CMS on an annual basis, and it includes children under age 21 eligible for Early and Periodic Screening, Diagnostic and Treatment (EPSDT) services.³ Beginning in 2010, the dental care utilization rate is based on children ages 1 through 20 who had at least 90 days of continuous Medicaid enrollment during the fiscal year. Prior to 2010, the dental care utilization rate was based on children ages 0 through 20 who were enrolled in Medicaid at any time during the fiscal year.⁴

We measured dental care utilization as the total number of children receiving any dental service (Line 12a) divided by the total number of children enrolled in Medicaid (Line 1b). It is important to note that because CMS changed its reporting methods beginning in 2010, we are not able to construct a consistent time series of dental care utilization. In other words, some component of the change in dental care utilization between 2000 and 2013 in the CMS-416 data will be due to the changes in how Medicaid enrollment is reported. There is no way to adjust for this in our analysis.

HPI has CMS data from 2000 through 2013 and this is the period we chose to study.

Officials from Ohio's Medicaid office indicated that 2013 CMS-416 data were not reliable. We substituted 2012 data for the 2013 Ohio utilization rate for children with Medicaid dental benefits. Maine's Medicaid program did not submit CMS-416 data for 2005, so we do not have a utilization rate for children with Medicaid dental benefits for that year.

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Percentage of Medicaid Children Who Received a Sealant on a Permanent Molar in 2013

CMS began collecting data through the CMS-416 on the total number of children ages 6 through 14 receiving a sealant on a permanent molar in 2010. We define the sealant rate as the ratio of the total number of children ages 6 through 14 receiving a dental sealant (Line 12d) to the total number of children ages 6 through 14 enrolled in Medicaid (Line 1b). A dental sealant is an evidence-based service that prevents the onset of caries on healthy tooth surfaces.⁵

Data are available from 2010 through 2014. We analyze the data for 2013 because it is the most complete year of data available.



Oral Health Status, Knowledge and Attitude Index Among Adults in 2015

The HPI team developed a comprehensive index measure for oral health status, oral health knowledge and attitude toward oral health based on various self-reported items among adults. Data were collected through an online survey conducted by Harris Poll on behalf of HPI from June 23, 2015 through August 7, 2015. Harris Poll collected data from a nationally representative sample of 14,962 adults ages 18 and older across all 50 states and the District of Columbia. We analyzed responses to these survey questions by state and household income using appropriate survey weights.

We reported each index for both high-income and low-income adults. We defined high-income as adults with household incomes above 400 percent of the federal poverty level. We defined low-income as adults with household incomes at or below 138 percent of the federal poverty level.

The HPI oral health status index is reported using a 10-point scale where a score of 10 corresponds to excellent oral health (i.e. no oral health problems) and a score of 0 corresponds to poor oral health (i.e. frequent oral health problems). We report this index measure nationally and by state for both high-income and low-income adults.

The HPI oral health knowledge index is reported as the percentage of respondents who were able to answer each of eight general oral health knowledge questions correctly. We report this percentage nationally and by state for both high-income and low-income adults.

The HPI oral health attitude index is reported on a scale of -10 to +10, with negative values indicating negative attitudes toward oral health, zero indicating a neutral attitude, and positive values indicating positive attitudes toward oral health. We report these scores nationally and by state for both high-income and low-income adults.

For more information on these three measures, please see our detailed methodological description.⁶

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Percentage of Population on Community Water Systems Receiving Fluoridated Water in 2012

Data on water fluoridation rates are from the Centers for Disease Control and Prevention (CDC).⁷ Estimates are based on data reported by each state to the CDC Water Fluoridation Reporting System as of December 31, 2012. The CDC utilized population estimates for 2012 from the U.S. Census Bureau.



Change in Private Dental Benefit Plan Charges Between 2003 and 2013

We drew on previous research to summarize changes in private dental benefit plan charges for adult and child dental services.⁸ We constructed separate price indices for 2003 and 2013 for each state and the District of Columbia using private dental benefits charges data from the FAIR Health Dental Benchmark Module.⁹ The full methodology on the construction of these indices is available in an earlier publication.¹⁰ In summary, we constructed a weighted average charge rate for a group of common dental procedures and used the Dental Services Consumer Price Index (CPI)¹¹ to convert 2003 levels to 2013 dollars.

Our data source, FAIR Health, contains fees charged by providers before network discounts are applied. It does not contain data on actual reimbursement to providers. Based on anecdotal information, we feel that providers often submit fees they expect to be paid rather than their true non-discounted fees. However, we have no basis to evaluate this data limitation empirically.

HPI has FAIR Health data from 2003 through 2013 and this is the period we chose to study.



Medicaid Fee-for-Service Reimbursement as a Percentage of Private Dental Benefit Plan Charges for Child Dental Services

We drew on previous research to summarize changes in Medicaid dental reimbursement rates for child dental services.¹⁰ We constructed separate fee indices for each state and the District of Columbia based on fee-for-service (FFS) Medicaid reimbursement schedules for child dental services. These fee schedules were collected from each state's Medicaid program webpage. We constructed an index that measures FFS reimbursement rates in Medicaid relative to commercial dental benefits charges. We feel this is a useful measure as it takes into account Medicaid reimbursement relative to "market" conditions. The full methodology on the construction of this index is available in an earlier publication.¹⁰ We tracked changes over time in inflation-adjusted Medicaid reimbursement using the Dental Services Consumer Price Index (CPI).¹¹

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Our analysis of reimbursement has important limitations that are outlined in previous work.¹⁰ A main limitation is that our Medicaid reimbursement data are based on FFS rates taken from state Medicaid fee schedules while a significant segment of the Medicaid population in many states may receive dental care through a managed care program. Managed care providers are not necessarily subject to established Medicaid FFS schedules and, as a result, our data may not necessarily capture typical fees paid to dental care providers.

Additionally, we were not able to obtain Medicaid reimbursement data for 2003 for six states: Maine, New Jersey, North Dakota, South Dakota, Vermont and Wyoming. For these states, therefore, we were unable to calculate the change in Medicaid reimbursement rates for child dental services between 2003 and 2013.

HPI has Medicaid reimbursement data from 2003 through 2013 and this is the period we chose to study.



Number of Dentists per 100,000 Population

To measure the supply of dentists, we analyzed the ADA Masterfile.¹² The ADA Masterfile contains the most up-to-date information on dentists in the United States. The Masterfile is a database of all dentists, practicing and non-practicing, ADA members and non-members, and is updated through a variety of methods including reconciliation with state licensure databases, detailed records, various surveys and censuses of dentists carried out by the ADA. We only included professionally active dentists in our calculation (e.g. retirees are not included) and we used U.S. Census Bureau data for population counts.^{13, 14}

HPI has comparable dentist supply data from 2001 through 2013 and this is the period we chose to study.



Percentage of Dentists Participating in Medicaid for Child Dental Services in 2014

To calculate the percentage of dentists participating in Medicaid for child dental services, we analyzed data from Insure Kids Now.¹⁵ Insure Kids Now is a website containing information about Medicaid and the Children's Health Insurance Program (CHIP), including covered dental services for children and a dentist locator tool. The dentist locator tool is supported by a database of dental providers that are enrolled in the Medicaid program. It is overseen by the U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services. One of the objectives of Insure Kids Now is to help families locate a dentist that accepts Medicaid and CHIP insurance. Additionally, Insure Kids Now is meant to connect interested organizations with the Connecting Kids to Coverage National Campaign.¹⁶

The Health Resources and Services Administration (HRSA) and CMS jointly provided HPI with Insure Kids Now provider rosters for the months of August, October and

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November 2014. We combined these data, removed duplicate observations and then matched the Insure Kids Now data with the ADA's roster of dentists who were professionally active as of October 30, 2014 based on the ADA Masterfile. Insure Kids Now providers who could not be matched were excluded. In situations where the Insure Kids Now database included an address only but no dentist information, we count all dentists practicing at that address as participating in the state's Medicaid program. We recognize this could lead to an over-count of participating providers, depending on the extent of large group practices within a particular state. We cross-referenced practice addresses with a contemporaneous list of Federally Qualified Health Centers (FQHCs) and included all dentists practicing at FQHCs as Medicaid participants irrespective of whether they are listed in the Insure Kids Now database. We count all dentists listed in Insure Kids Now as participating in Medicaid even if they indicated they were not accepting new patients. We divide the number of dentists who are Medicaid providers by the total number of professionally active dentists in each state, yielding our measure of the percentage of dentists participating in Medicaid in each state.

It is important to note that Insure Kids Now is limited to those dentists that treat children and may not accurately capture dentists that treat Medicaid adults.

HPI collaborated with HRSA and CMS to explore the accuracy and the validity of the Insure Kids Now data. HPI undertook two separate analyses in 2014. First, HPI selected a random sample of 398 dental offices included in the Insure Kids Now database and called each office to ascertain whether the dentist listed did in fact practice at that location and whether he or she did in fact accept Medicaid. Second, a random sample of 287 dental offices not included in the Insure Kids Now database were called to ascertain the same information – whether the dentist listed practiced at the location and whether he or she accepted Medicaid. These non-Insure Kids Now dentists were drawn from the ADA Masterfile.

HPI staff obtained responses from 156 of the 398 dental offices contacted (39 percent). Among respondents, the target dentist was reported to work at the office in only 52 percent of cases (81 of 156). During an initial round of calling these offices, when front office staff were asked whether the dentist accepted "Medicaid," only 44 percent responded affirmatively. HPI staff subsequently re-contacted the offices which responded negatively and asked if the dentist accepted the specific Medicaid plan name listed in the Insure Kids Now database (e.g. Florida Healthy Kids Argus; Delta Dental; or Medicaid and CHIP United Healthcare). The vast majority of those re-surveyed indicated that the dentist did in fact accept the specified Medicaid plan, and the two groups – those initially responding affirmatively and those initially responding negatively but then responding affirmatively at the second call – were combined to yield an overall Medicaid acceptance rate of 95 percent. In other words, 95 percent of dentists who were practicing at the location listed in the Insure Kids Now database actually accepted Medicaid. In our view, this is a very high accuracy rate.

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However, as noted, the Insure Kids Now database is less accurate in placing individual dentists in specific office locations. This could be for many reasons. For example, some large group practices list all dentists at all office locations in the Insure Kids Now database, even though it is unlikely that each dentist actually practices at multiple locations. This may be one reason why only 52 percent of dentists HPI contacted actually practiced at the office location listed in the Insure Kids Now database. We had no way of identifying if other dentists at the specific location we contacted accepted Medicaid. This was not part of our surveying protocol.

HPI also contacted a random sample of 287 dentists not listed in the Insure Kids Now database. We found that 11 percent of these dentists actually accepted Medicaid. Thus, there are dentists who are not listed on the Insure Kids Now roster who accept Medicaid.

Our vetting of the Insure Kids Now data indicated that dentists listed in the roster are often not actually present at the office they are listed under, but if they are, it is extremely likely that they do accept Medicaid patients. We also found, however, that there are dentists who are not included in Insure Kids Now who accept Medicaid patients. We also recognize that other research in this area has found that lists of Medicaid dental care providers often contain inaccuracies.^{17,18}

In 2015, HPI also worked directly with Medicaid officials in several states to further validate the Insure Kids Now data. Based on discussions with CMS, states administering their Medicaid dental program through managed care automatically include all participating dentists on the Insure Kids Now roster. However, CMS indicated that 18 state Medicaid programs administer the dental program directly. These states have some additional flexibility and may allow dentists to opt-out of being listed on Insure Kids Now, even though they participate in the Medicaid program. HPI contacted Medicaid officials in each of these 18 states to inquire about their opt-out procedures and to further validate the data. We found that four states allow providers to opt-out of being on publicly available lists, including Insure Kids Now: Alabama, New Hampshire, North Carolina and Oklahoma. At HPI's request, Medicaid officials in these states provided data that included dentists who opted out of being listed in Insure Kids Now but participate in Medicaid and we used these data in our calculations. Medicaid officials in one other state, Maine, approached HPI and indicated the data submitted to CMS in 2014 were inaccurate and they were able to provide supplemental data that corrected inaccuracies. Due to inconsistencies in how data from Maine, New Hampshire and Oklahoma are handled in our data set, these three states are not included in our calculation of the national average.

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