

Research Brief

U.S. Dental Spending Remains Flat Through 2012

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Key Messages

- *National dental care expenditure reached \$111 billion in 2012, roughly the same as the previous year when adjusted for inflation.*
- *Taking into account both inflation and population growth, there was little change in national dental expenditure from 2011 to 2012, continuing a trend that began in 2008. Dental spending has not rebounded since the end of the Great Recession.*
- *Dental spending began to slow in the early 2000s, well before the onset of the Great Recession. While overall health spending also began to slow in the early 2000s, the slowdown in the dental sector was much more pronounced.*
- *There were also no significant changes in inflation-adjusted per-patient dental expenditure from 2010 to 2011, continuing a trend that began in 2009. The elderly continue to have the highest level of per-patient dental expenditure.*

Introduction

Dentistry is at a crossroads. In a recent comprehensive analysis,¹ the American Dental Association identified several structural changes that have occurred in the past decade that are influencing the dental care sector. From 2000 through 2011 dental care utilization steadily declined among working age adults,² the percentage of individuals with private dental benefits has declined,³ and adult dental benefits through state Medicaid programs have eroded.⁴ Furthermore, the implementation of the Affordable Care Act will expand dental benefits coverage for children, both public and private, but will not address access to care issues, particularly among adults.⁵ In addition, changes in dental practice organization⁶ and increased student debt⁷ will be major forces bringing significant change to the profession.

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In terms of dental care spending, previous research we conducted using data through 2011 showed that inflation-adjusted per-capita dental spending in the United States has been flat since 2008 and began to slow in 2002, well before the Great Recession⁸. We also showed that the source of financing for dental care spending also shifted, with public financing accounting for an increased share. Here too the trend emerged before the economic downturn. In separate research, we examined average per-patient dental expenditure (i.e. among those that actually use dental care) and showed that important changes occurred between 2000 and 2010 for various age and income groups⁹. Similarly, we found the trends were well established prior to the economic downturn.

In this research brief, we update both of these analyses. We use newly released data to examine national dental expenditure patterns through 2012, the most recent year for which data are available. We also update our analysis of average per-patient dental expenditure through 2011, the most recent data available. We conclude with a discussion of policy implications.

Data & Methods

We analyzed national health expenditure data from the Centers for Medicare and Medicaid Services (CMS). We focused on the period 1990 to 2012, the most recent year for which data are available (data for 2012 were released January 6, 2014). We analyzed national expenditures in nominal dollars, inflation adjusted dollars, and per capita inflation adjusted dollars. As recommended by the Agency for Healthcare Research and Quality (AHRQ) we used the gross domestic product (GDP) deflator to adjust for inflation.^{10,11} We adjusted for population growth using population data from the U.S. Census Bureau. We also analyzed the breakdown of dental expenditure by source of

financing and compared this to the breakdown of total health expenditure by source of financing.

We then shift our analysis to per-patient dental expenditure, where we analyzed data from the Medical Expenditure Panel Survey (MEPS) that is managed by the Agency for Healthcare Research and Quality (AHRQ). We focused on the period 2000 to 2011, the most recent year for which patient-level data are available (data for 2011 was released in October 2013). Here too we update previous work.

Per-patient dental expenditure estimates capture dental spending for those who actually visit the dentist during the year. For example, we computed average dental expenditure in 2011 among those with at least one dental visit during 2011. This includes expenditures on dental services provided by all dentists including general practice dentists, orthodontists and other dental specialists. Annual per-patient dental expenditure estimates are based on all sources of payment including private and public dental benefits, as well as out-of-pocket payments. Public dental benefits include Medicaid and CHIP (Children's Health Insurance Program).

We examined trends in per-patient dental expenditure for children ages 0 to 20, working-age adults ages 21 to 64 and elderly adults ages 65 and over. We also compared per-patient dental expenditure by dental benefit type. Respondents were considered to have private dental insurance if they reported private dental insurance at any time during the year. Respondents were considered to be covered by Medicaid/CHIP if they were covered by Medicaid/CHIP during any time of the year and not covered by private dental insurance. Those who reported neither private dental insurance nor Medicaid/CHIP during the year were considered to have no insurance.

Unlike children, Medicaid dental benefits for adults are optional and many states either do not provide such

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benefits or place limitations on dental services for adults.¹² Unfortunately, we did not have access to a state variable in MEPS to allow us to identify adults with Medicaid dental benefits. The result is that some adults classified as having public health coverage actually had no dental benefits coverage.

We tested for statistically significant differences between 2000 and 2011 per-patient dental expenditure using t-tests. All estimates were weighted and estimates of standard errors account for the complex survey design used for the MEPS.

Results

Results presented in Figures 1-4 are based on national dental expenditure data for 2000 to 2012 from CMS. Inflation-adjusted estimates are presented in 2012 dollars. Figure 1 summarizes national dental expenditure from 1990 to 2012 in nominal and inflation-adjusted dollars and can be interpreted as a measure of the size of the dental economy. In 2012, national dental expenditure was \$111 billion. This was up slightly from \$110 billion in 2011 (in inflation-adjusted 2012 dollars). In 2012, dental expenditure accounted for 4.0% of overall national health expenditure, down from a peak of 4.5% of national health expenditure in 2000 (within our period of study) but roughly the same level as in recent years.

Figure 2 summarizes inflation-adjusted national dental expenditure per capita. This is a measure that takes account of both inflation and population growth. Inflation-adjusted per-capita dental expenditure remained flat from 2011 to 2012, continuing a trend that began 2008. These data cover three full years of the period since the Great Recession, and suggest very strongly that the dental economy is not rebounding. It is also clear from Figure 2 that the growth rate of per capita dental expenditure changed significantly in the early 2000s.

Figure 3 shows the growth rate of national dental expenditure compared to the growth rate of overall health expenditure in the United States. Between 1990 and 2002, inflation-adjusted per-capita dental expenditure was growing at 3.9% per year, slightly faster than overall health expenditure. For the 2002-08 period, however, the inflation-adjusted per-capita dental expenditure growth rate declined dramatically to 1.8% per year, well below the growth rate for overall health expenditure. Since 2008, inflation-adjusted per-capita dental expenditure has declined – albeit at a very slow rate of 0.3% per year – while overall health expenditure has continued to grow, but at lower than historical rates.

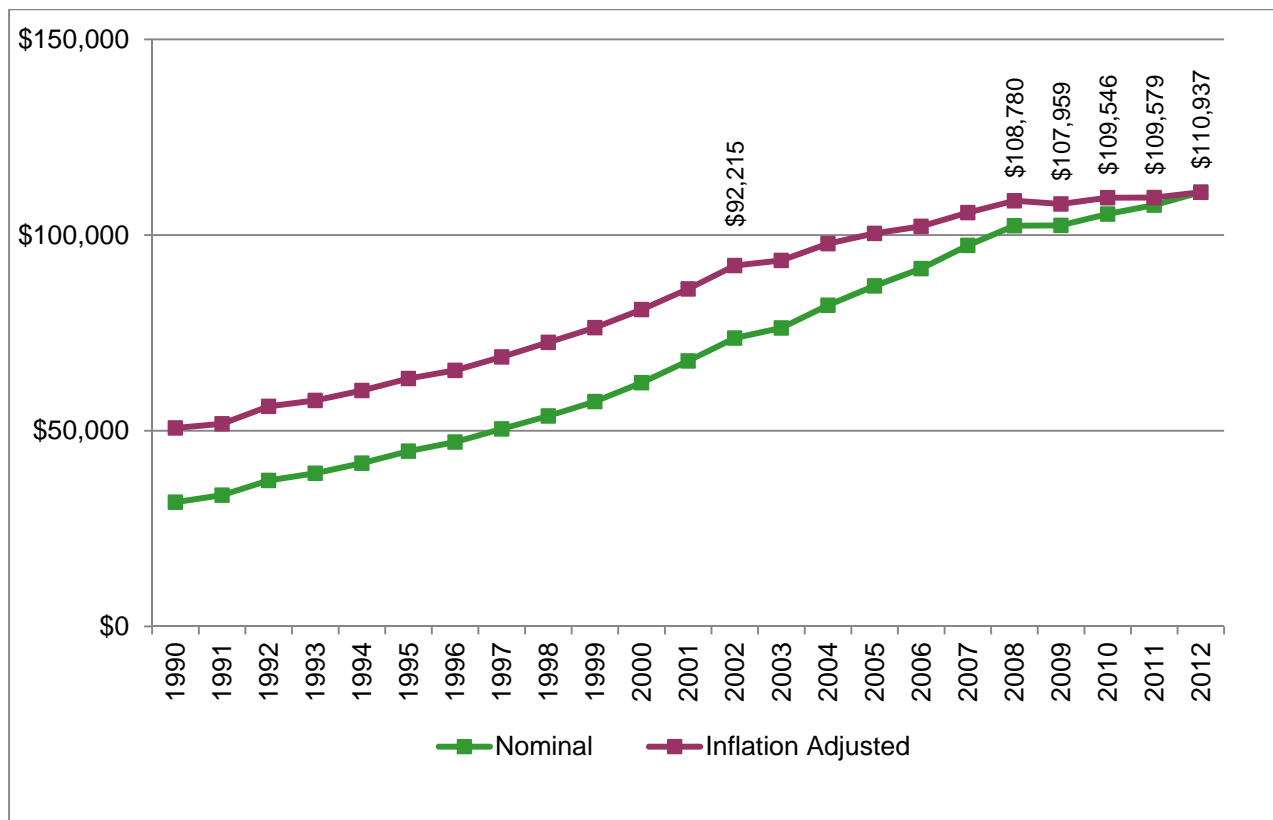
Figure 4 summarizes the breakdown of overall health expenditure by source of financing from 1990 to 2012. Figure 5 does that same for dental expenditure. As shown in Figures 4 and 5, from 2011 to 2012 there was no change in overall health or dental expenditure by source of financing. A key trend since 2000 is an increase in the share of dental expenditure financed by public sources (from 4% in 2000 to 8% in 2012) and a decrease in out-of-pocket spending. This same shift away from out-of-pocket financing toward public financing also occurred for overall health spending, although it started prior to the 2000s. Dental expenditure remains overwhelmingly financed by private dental insurance and out-of-pocket spending, a very different mix than for overall health expenditure.

Average annual per-patient dental expenditure estimates for 2000 to 2011 are presented in Figure 6 through Figure 8. Inflation-adjusted estimates are presented in 2011 dollars. As shown in Figure 6, after rising from \$613 in 2000 to \$683 in 2008, average annual real per-patient dental expenditure fell to \$667 in 2009 and remained at that level through 2011. The increase from 2000 to 2008 was statistically significant. The change from 2008 to 2011 was not.

Figure 7 shows average real per-patient dental expenditure by patient age. Adjusting for inflation, dental expenditure increased from \$570 in 2000 to \$668 in 2008 among adults 21 to 64, followed by a decline to \$649 in 2011. Among the elderly ages 65 and older, they rose from \$666 in 2000 to \$820 in 2008, followed by a decline to \$767 in 2011. For both age groups, the increases from 2000 to 2008 were statistically significant, while the subsequent declines were not. The level of per-patient dental expenditure among children ended up in 2011 where it started in 2000 and the change over that period was not found to be statistically significant. In 2011, the level of per-patient dental expenditure was highest among the elderly and the difference between the elderly and those in the younger age cohorts was statistically significant.

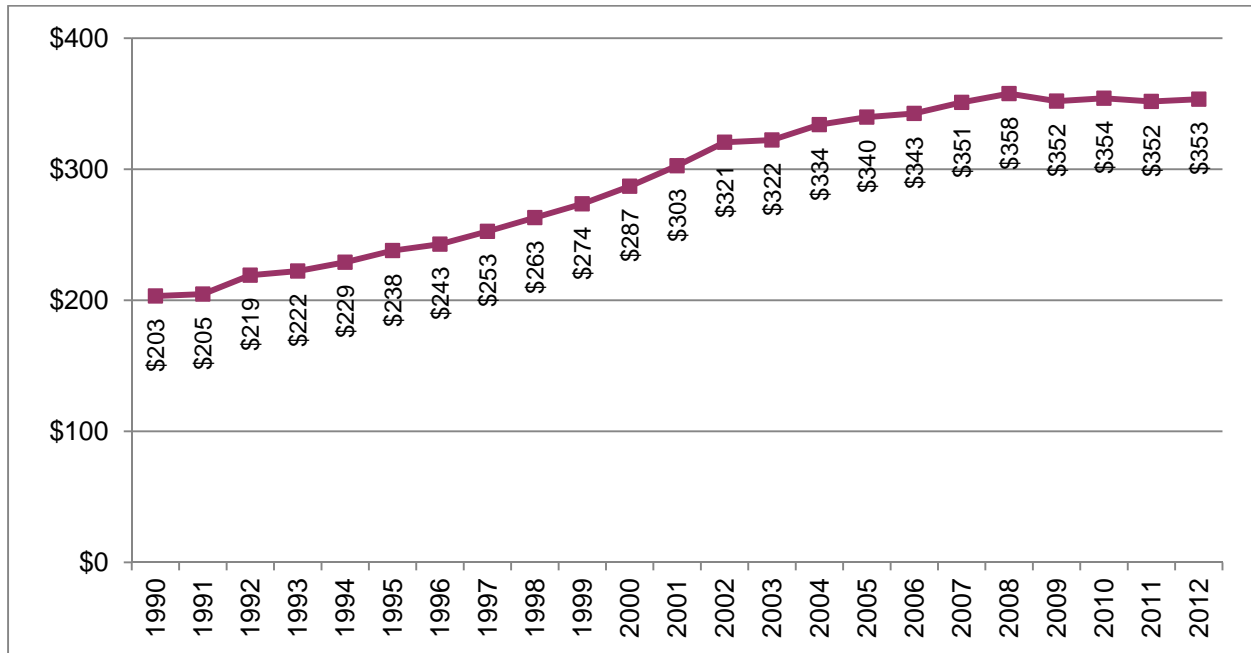
Figure 8 shows inflation-adjusted per-patient dental expenditure by dental coverage status. Per-patient dental expenditure among those with private dental insurance increased from \$678 in 2000 to \$736 in 2008 and this increase was found to be statistically significant. Per-patient dental expenditure also increased among the uninsured, from \$501 in 2000 to \$653 in 2008 and this increase was found to be statistically significant. None of the changes from 2008 to 2011 shown in Figure 8 were found to be statistically significant. By age, the largest increases among the uninsured from 2000 to 2008 were among the elderly and among non-elderly adults and these changes were found to be statistically significant (not shown in Figure 8).

Figure 1: National Dental Expenditure (\$ millions)



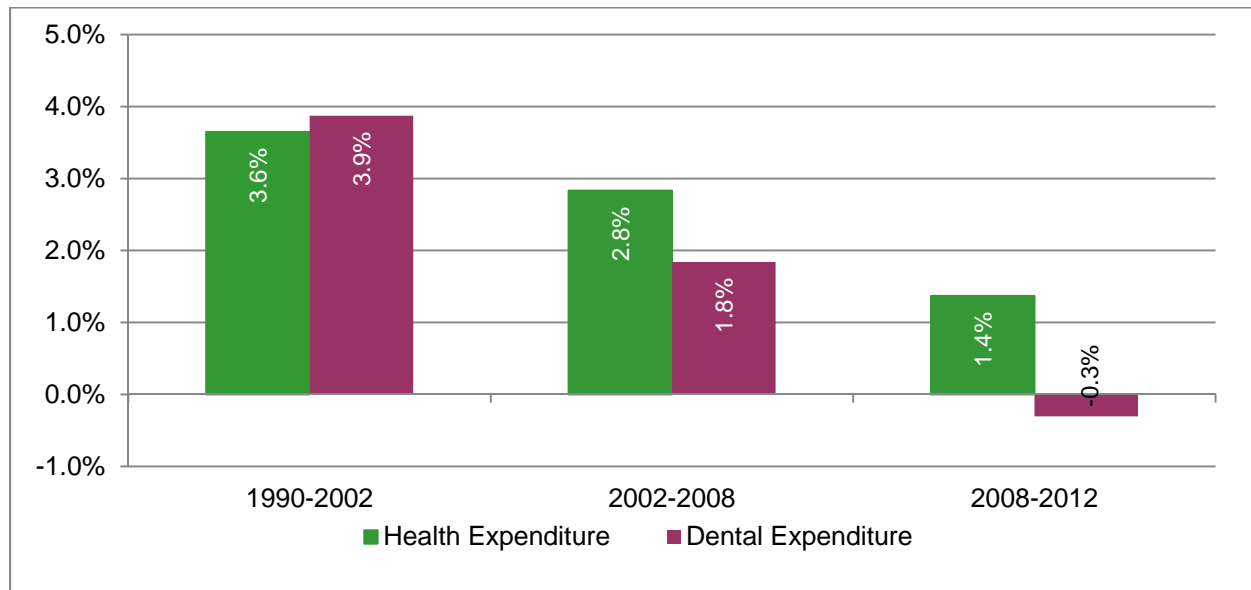
Source: Centers for Medicare and Medicaid Services; U.S. Bureau of Economic Analysis. Note: National dental expenditure adjusted for inflation using the GDP implicit price deflator. Inflation-adjusted figures in 2012 dollars.

Figure 2: National Per-Capita Dental Expenditure



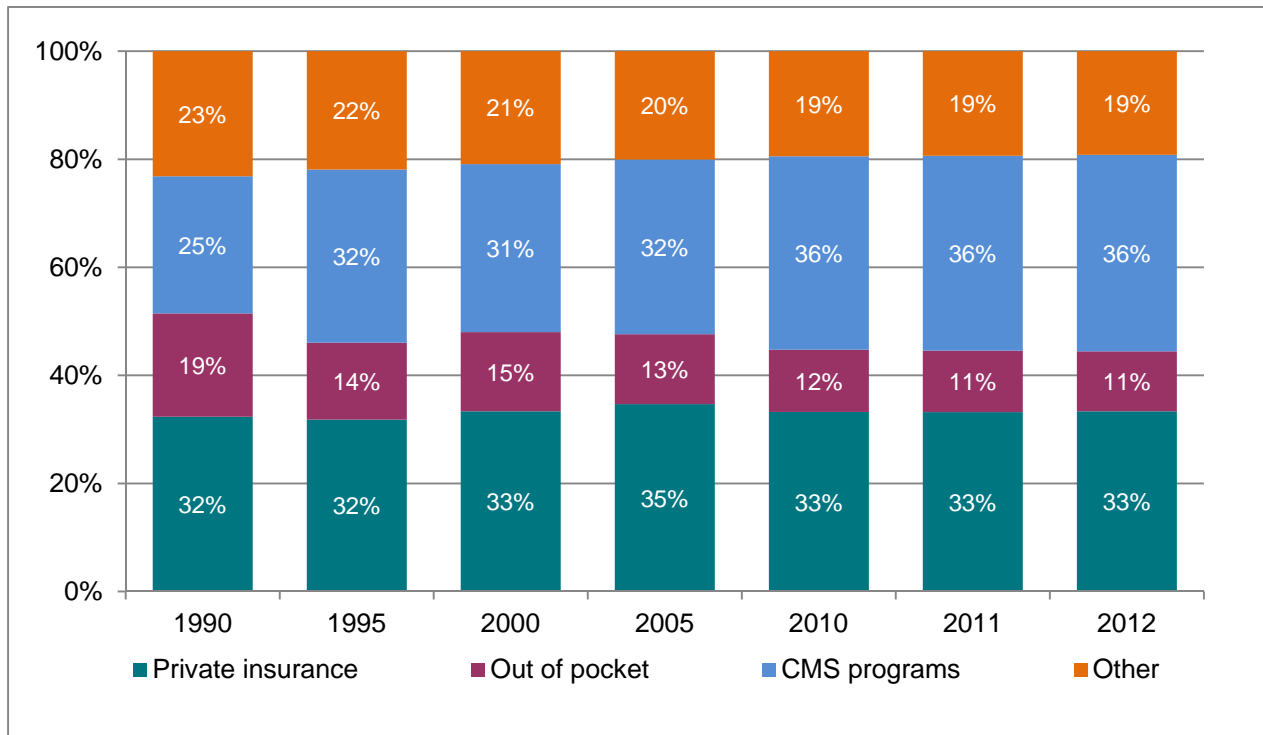
Source: Centers for Medicare and Medicaid Services; U.S. Bureau of Economic Analysis; U.S. Census Bureau. Note: Expenditure adjusted for inflation using GDP implicit price deflator. Per-capita dental expenditure in 2012 dollars.

Figure 3: Average Annual Growth Rate of Overall Health and Dental Expenditure



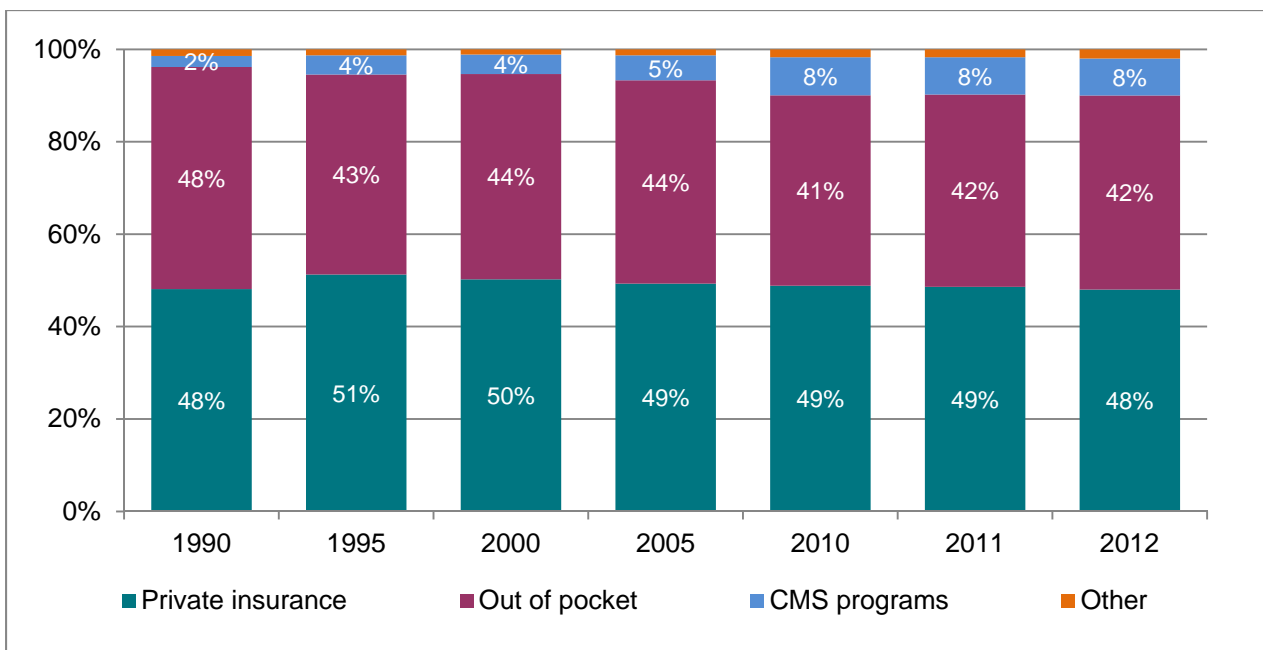
Source: Centers for Medicare and Medicaid Services; U.S. Bureau of Economic Analysis; U.S. Census Bureau. Note: Rate calculated as average annual compounded growth rate.

Figure 4: Distribution of Overall Health Expenditure by Source of Financing



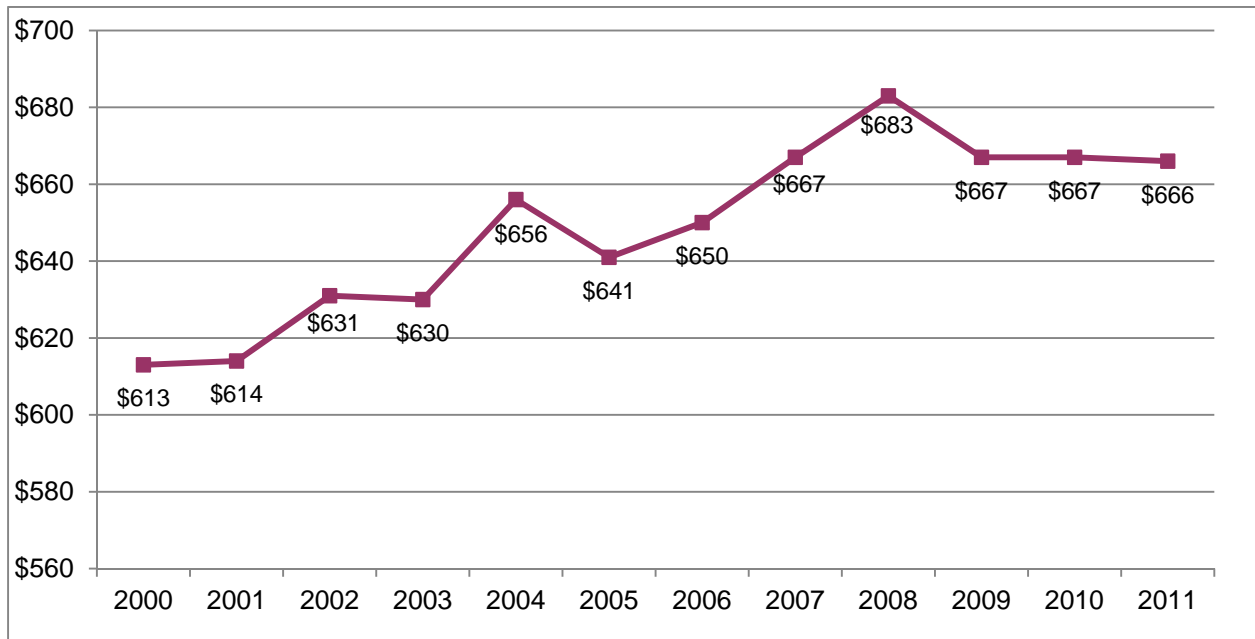
Source: Centers for Medicare and Medicaid Services. Note: CMS includes Medicare, Medicaid and CHIP.

Figure 5: Distribution of Dental Expenditure by Source of Financing



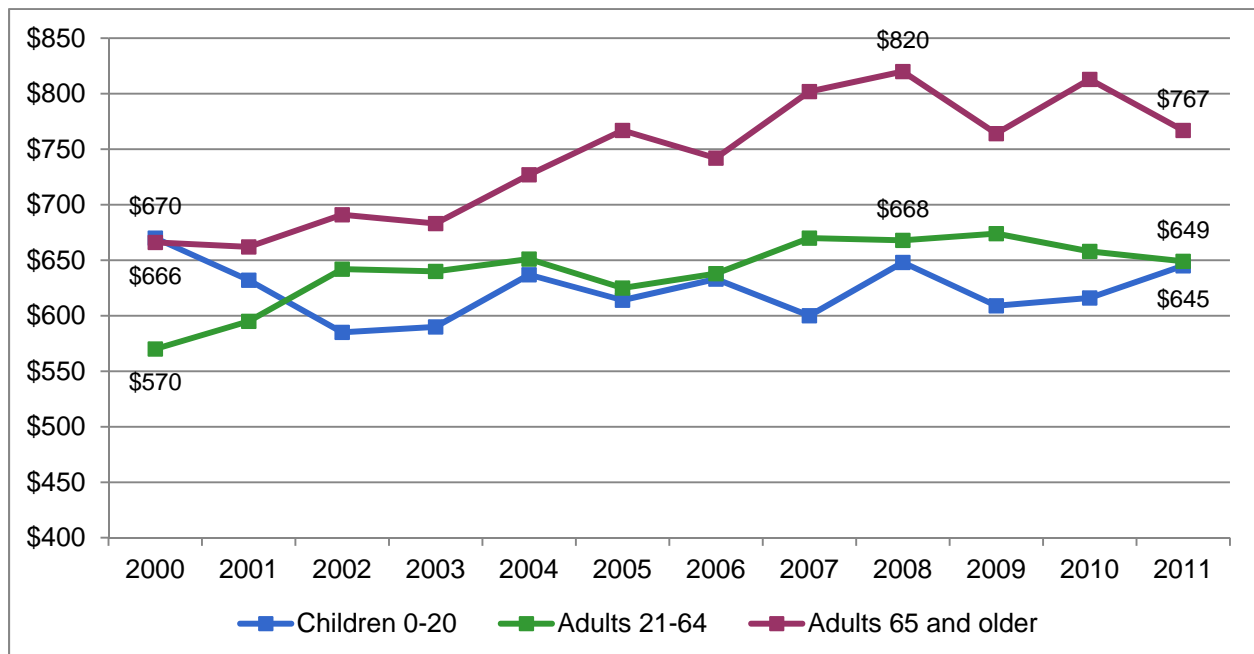
Source: Centers for Medicare and Medicaid Services. Note: CMS includes Medicare, Medicaid and CHIP.

Figure 6: Average Annual Per-Patient Dental Expenditure, 2000 to 2011.



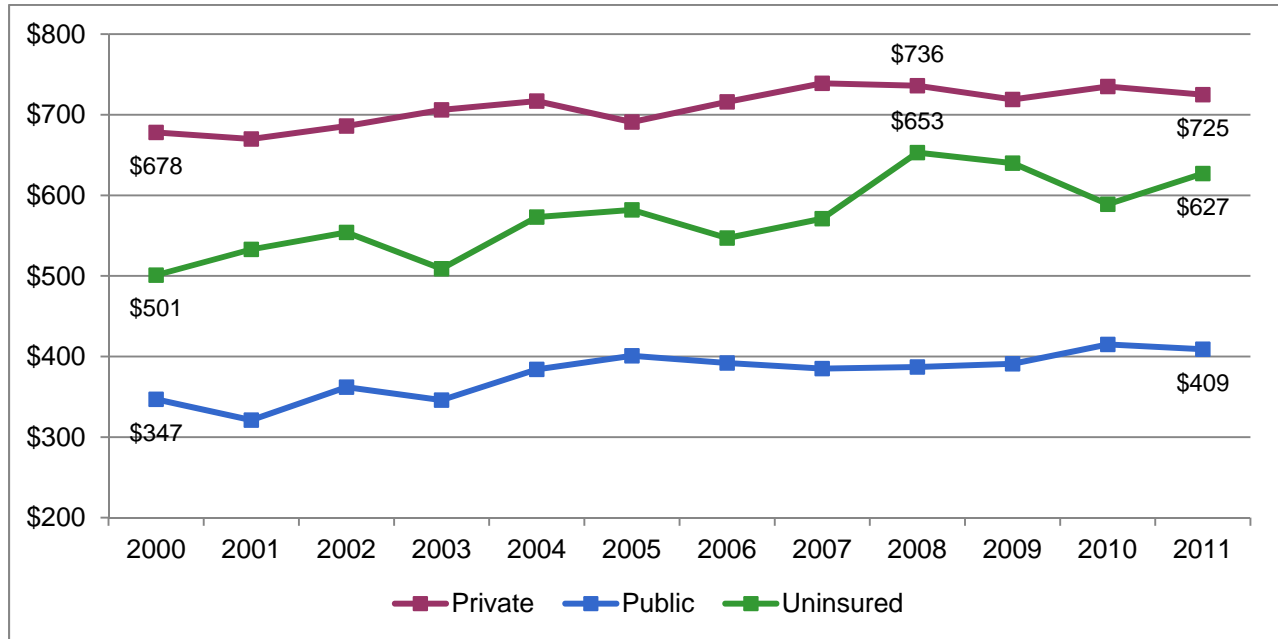
Source: Medical Expenditure Panel Survey, Agency for Healthcare Research and Quality. **Note:** 2000 to 2011 change is statistically significant at the 5% level. The change from 2008 to 2011 is not statistically significant. Per-patient dental expenditure in 2011 dollars.

Figure 7: Average Annual Per-Patient Dental Expenditure by Patient Age, 2000 to 2011



Source: Medical Expenditure Panel Survey, Agency for Healthcare Research and Quality. **Note:** Increase from 2000 to 2008 is statistically significant at the 1% level for age group 21 to 64 and statistically significant at the 5% level for age group 65 and over. Per-patient dental expenditure in 2011 dollars.

Figure 8: Average Annual Per-patient Dental Expenditure by Dental Coverage Status, 2000 to 2011



Source: Medical Expenditure Panel Survey, Agency for Healthcare Research and Quality. **Note:** 2000 to 2008 change in per-patient dental expenditure for the uninsured is statistically significant at the 1% level and 2000 to 2008 change in per-patient dental expenditure for those with private dental insurance is statistically significant at the 10% level. Per-patient dental expenditure in 2011 dollars.

Discussion

In this brief, we updated findings from two prior analyses of dental expenditure in the United States^{13,14} using newly released data. We found that 2012 was another year of stagnant dental spending, measured on an inflation-adjusted per-capita basis, representing the continuation of a trend that began in 2008. A recent CMS analysis reported that growth in overall health spending in 2012 remained low, increasing by 3.7 percent in 2012.¹⁵ That level of annual growth is similar to spending growth rates since 2009. In other words, U.S. national overall health spending over the past four years has grown at the slowest rates ever recorded in the fifty-three year history of the National Health Expenditure Accounts. According to the authors, the low rates of national overall health spending growth and relative stability since 2009

primarily reflect the lagged effects of the recent economic recession.

Dental spending is different. The dental economy actually began to slow well before the onset of the recent economic downturn and dental spending has been flat since 2008. Given our analysis covers three years of post-recession data, it suggests strongly that structural changes are occurring in the dental economy and the slowdown is not simply a cyclical effect. These structural changes are rooted in a shift in dental care utilization patterns, namely reduced dental care use among working age adults.¹⁶ Other factors include improvements in oral health among most segments of the U.S. population¹⁷, the decline in the percentage of individuals with private dental benefits¹⁸ and the erosion of adult dental benefits provided by state

Medicaid programs¹⁹, as well as fee reductions among many private insurers in recent years.²⁰

Focusing on those who actually use dental care, the age group with the highest level of per-patient dental expenditure continues to be the elderly. We reported in an earlier research brief that dental care utilization among the elderly steadily increased from 2000 to 2011, driven primarily by gains among individuals with private dental benefits.²¹ This was in contrast to declines in dental utilization among non-elderly adults, regardless of dental benefit status and income level. Higher demand for dental services among the elderly could be one reason why per-patient dental expenditure among the elderly is higher than other age groups.

In earlier work, we suggested that the rising proportion of those over 65 years of age combined with relatively high per-patient dental expenditure among the elderly

could significantly increase dental expenditure, buoying up the dental economy for years to come.²² However, recent projections of dental spending through 2040 suggest that while the aging of the population may act to increase total dental expenditure, downward trends in dental spending among younger age groups may counteract this effect, particularly as the baby boomer generation phases out.²³ As a result, despite the anticipated increase in dental expenditure among older adults, growth in total dental spending is expected to be sluggish in the near future, with a 'new normal' emerging. Given the expected sluggishness of dental expenditure in the coming years, dentists are likely to face a challenging economic environment. At the same time, the U.S. health care system is entering a period of significant reform and profound change. The ADA's Health Policy Resources Center will continue to monitor these and other critical developments in the dental care system through this period of transition.

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