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# An analysis of dentists' incomes, 1996–2009

**Marko Vujicic, PhD; Vickie Lazar, MA, MS; Thomas P. Wall, MA, MBA; Bradley Munson, BA**




## ABSTRACT


**Background.** The U.S. economy is beginning to recover from the most significant contraction since the Great Depression. Several sectors, including dentistry, have experienced reduced consumer demand and reduced earnings. Focusing on general practitioners, the authors analyzed trends in various factors that drive dentists' income to identify which of these factors are most important in explaining the recent decline. They then offer their views on future trends in dentists' net income levels.

**Methods.** The authors used data from a nationally representative survey of dentists maintained by the American Dental Association (ADA) and data from the Agency for Healthcare Research and Quality's Medical Expenditure Panel Survey to analyze trends in real gross billings per visit, rates of collection of gross billings, number of visits to a dentist, percentage of the population who visited a dentist, population to dentist ratio and average real practice expenses.

**Results.** The authors found that the recent decrease in dentists' net income levels was driven primarily by a decrease in utilization of dental care on the part of the population. Moreover, this decline in dental care use, although most pronounced during the economic downturn, appeared to have started before the downturn began. This suggests that more factors than solely the economic recession are affecting changes in dental care utilization patterns.

**Conclusions.** The authors' findings suggest that average real net income for dentists may not necessarily recover to prerecession levels once economic conditions in the United States improve. This finding, combined with the potential implications of health care reform for dentistry, causes the authors to believe the future prospects related to dentists' net income levels remain uncertain.


**Key Words.** Net income; dental visits; practice expenses; general practitioners.

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The U.S. economy is beginning to recover from the most significant contraction since the Great Depression. Many sectors of the economy still are experiencing reduced consumer demand, increased unemployment and reduced earnings—and this includes dentistry. The most recent data from the American Dental Association[1] (ADA) show a significant decline in both general practitioners' (GPs') and specialists' real net income levels. (As of the writing of this article, 2009 data were the most recent available.) Historically, net income levels for dentists[1-14] have fluctuated with economic conditions[15] (Figure 1,[1-15] page 454). However, GPs' net income levels have declined since 2005, more than two years before the start of the economic recession.[16] This inspires some important questions: how much of the decrease in dentists' average net income is being driven by short-term cyclical movements in the economy, and how much is rooted in longer-term underlying structural changes in the market for dental services? If the decrease is

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primarily cyclical, then net income levels should be expected to recover as the economy recovers. If the change is primarily for the long term, however, the consequences could be far reaching. Decreasing income levels are likely to lead to a decline in the number of applicants to dental schools.[17-20] This decline could have long-term consequences for the future supply of dentists and, more immediately, could affect the viability of several new dental schools that have opened recently or are planned. An overall decline in dentists' net income also may have an effect on the geographical distribution of dentists (for example, in rural and underserved areas), the mix of patients whom dentists are able to treat (for example, patients covered by Medicaid versus those with private insurance) and dentists' ability to provide charity care.

Owing to the potential consequences of these trends, understanding the factors behind the recent decline in dentists' net income is important, and this article takes a first step toward that understanding. Specifically, we had three objectives. First, we developed a simple framework to identify key components that drive dentists' net income. Second, we used various data sources to analyze trends in each of the components to identify which components are most important in explaining the decline in dentists' net income. Third, we assessed what our findings imply for dentists' future net income levels.

## METHODS

We focused our analysis on independent (that is, owner) general practitioners (GPs). This is because the majority (80.3 percent) of active private practitioners are in general practice[21] and the majority (85.8 percent) of dentists in private practice are independent dentists.[1]

For data regarding average net income, we used results from the annual Survey of Dental Practice[1-14] (SDP) conducted by the ADA. These surveys are conducted with a national random sample of approximately 4,000 to 7,000 dentists in private practice; response rates to this survey (which has been conducted for five decades) have varied from approximately 30 to 50 percent. We used regression analysis to control for any underlying demographic effects—such as age and sex—that might account for dentists' declining net income. In addition, we controlled for the location of the practice in terms of region and whether the practice was located in a rural area.

Net income is defined as gross billings minus total practice expenses. Thus, dentists' average net income can be broken out into several components by means of the following equation:

$$\text{Net income} = \underbrace{\frac{\text{Gross billings}}{\text{Visit}} \times C}_{\text{Gross billings collected per visit}} \times \underbrace{\frac{\text{Visits}}{\text{Patient}} \times \frac{\text{Patients}}{\text{Population}}}_{\text{Visits per capita}} \times \frac{\text{Population}}{\text{Dentist}} - E$$

where C is the average rate of collection of gross billings and E is average practice expenses per dentist.

In the context of this framework, the factors that could account for the reduction in dentists' average real net income since 2005 are as follows:

- Average real gross billings per visit could have decreased.
- Average rate of collection of gross billings could have decreased.
- Average number of annual visits to a dentist among people who visited a dentist could have decreased.
- The percentage of the population who visited a dentist in the preceding year could have decreased.
- The population to dentist ratio could have decreased.
- Average real practice expenses per dentist could have increased.

We analyzed trends in these six variables at the national level by using several data sources. We used data from the SDP for average gross billings per visit, the collection rate and average practice expenses.[1-14] We used data from the Distribution of Dentists in the United States by Region and State surveys,[21-25] also conducted by the ADA, and population data from the U.S. Census Bureau[26] for the population to dentist ratio for GPs.

We used data from the Medical Expenditure Panel Surveys (MEPS), conducted by the Agency for Healthcare Research and Quality of the U.S. Department of Health and Human Services from 1996 to 2009, to calculate patient/population—the percentage of the population with a dental visit.[27] The numerator consists of a weighted estimate of the number of noninstitutionalized people in the United States who reported having made one or more visits to a GP during the preceding year. The denominator consists of a weighted estimate of the total (again, of the noninstitutionalized population). The MEPS results provide nationally rep-

**ABBREVIATION KEY. ADA:** American Dental Association. **GDP:** Gross domestic product. **GP:** General practitioner. **HC:** Household Component. **MEPS:** Medical Expenditure Panel Survey. **SDP:** Survey of Dental Practice.

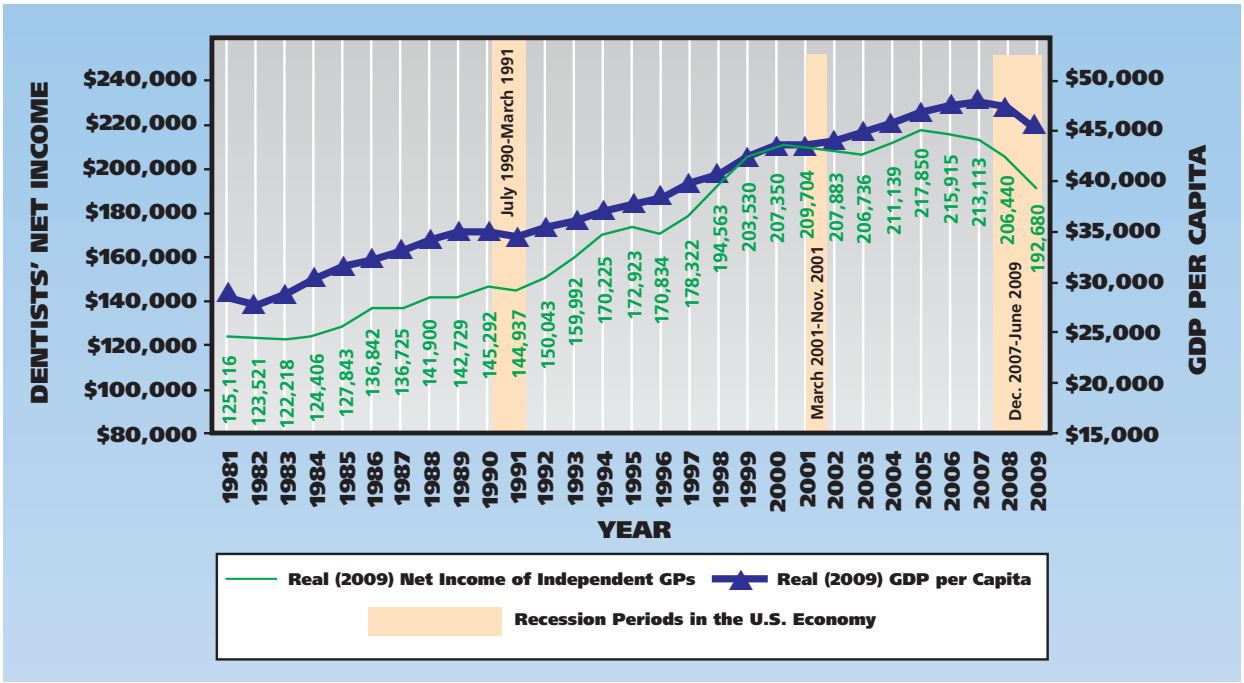


**Figure 1.** Average real (base = 2009) net income of independent general practitioners (GPs) and real gross domestic product (GDP) per capita, 1981-2009.[1-14] Information on recession periods from National Bureau of Economic Research.[15]

resentative estimates of health care use, expenditures, sources of payment and health insurance coverage for the U.S. civilian noninstitutionalized population. The survey consists of three components: the Household Component (HC), the Medical Provider Component and the Insurance Component. The MEPS-HC was initiated in 1996. The number of households included in the MEPS-HC varies from year to year. In 2008, 9,688 households were sampled, resulting in 10,325 people eligible for interviewing. The response rate was 67.9 percent. A single respondent from each household reports all data for a sampled household. Data must be weighted to produce national estimates. The MEPS-HC contains data about dental visits, including the type of dentist seen.[28]

We converted all nominal dollar values into constant 2009 dollars by using the Consumer Price Index for All Urban Consumers, which is made available through the U.S. Department of Labor's Bureau of Labor Statistics.[29]

## RESULTS

Figure 1[1-15] displays the trend in real (that is, adjusted for inflation with 2009 as the base year) average net income of independent GPs and real gross domestic product per capita (a broad measure of economic conditions). There have been slight decreases in average real net income for short periods historically owing to economic downturns, but the decrease that began after 2005 is the longest one seen during the entire period from 1981 through 2009. Real net income of independent GPs increased from $170,834 in 1996 to a high of $217,850 in 2005—an average annual increase of 2.7 percent. Starting in 2006, however, there has been a gradual decrease, and by 2009, average real net income had fallen to $192,680—an average annual decrease of 3.0 percent. GPs' average real net income in 2009 was roughly at the same level as it had been more than a decade earlier.

Table 1[1-14,30] shows results from the regression analysis. After taking into account GPs' age, sex and practice location, we found that 2005 saw the end of a period of steady, statistically significant annual increases in average net income. Since then, the trend has reversed completely, and there have been steady decreases in average net income—although for 2006 and 2007, the drop was not statistically significant. The regression-adjusted average decrease in net income between 2005 and 2009 was $17,977, or 2.0 percent per year. These results indicate that changes in the age and sex structure of the workforce and practice locations do not account fully for the observed decrease in average net income since 2005.

Table 2 (page 456) displays trends across time in the six factors that drive net income. Average real gross billings per visit decreased

from $170 in 2005 to $165 in 2007 and then rebounded to $177 in 2009, for a net average annual increase of 0.9 percent for the 2005-2009 period. Between 1996 and 2005, real gross billings per visit increased steadily at a rate of 2.9 percent per year. A decline in real gross billings per visit helps explain the decrease in average real net income from 2005 to 2007. However, from 2007 to 2009, average real net income continued to decrease in spite of an increase in real gross billings, indicating that other factors may be implicated.

The average rate of collection of gross billings decreased slightly from 94.3 percent in 2005 to 93.3 percent in 2009. This represents the continuation of a steady decline since 1996—when the rate was 96.0 percent—and does not appear to be linked to the economic downturn. Although this rate has not dropped significantly since 2005, the gradual decrease nevertheless contributed to the reduction in GPs' average real net income.

**TABLE 1**

**General practitioners' (GPs') net income regression results.*†‡**

| INDEPENDENT VARIABLES§¶ | PARAMETER ESTIMATE | STANDARD ERROR OF THE MEAN | *t* VALUE | *P* VALUE |
|---|---|---|---|---|
| **Intercept** | –25,883 | 22,637 | –1.14 | 0.253 |
| **Age** | 10,076 | 899.90 | 11.20 | < .001 |
| **Age, Squared** | –106 | 9.01 | –11.80 | < .001 |
| **Female Sex** | –34,060 | 3,748.35 | –9.09 | < .001 |
| **Year#** | | | | |
| **1995** | –48,061 | 5,646.48 | –8.51 | < .001 |
| **1996** | –49,943 | 5,766.11 | –8.66 | < .001 |
| **1997** | –42,015 | 5,444.68 | –7.72 | < .001 |
| **1998** | –23,565 | 5,674.88 | –4.15 | < .001 |
| **1999** | –26,559 | 6,017.10 | –4.41 | < .001 |
| **2000** | –15,961 | 5,735.15 | –2.78 | .005 |
| **2001** | –15,700 | 6,224.03 | –2.52 | .012 |
| **2002** | –16,964 | 6,208.02 | –2.73 | .006 |
| **2003** | –18,273 | 5,747.80 | –3.18 | .002 |
| **2004** | –10,028 | 5,761.92 | –1.74 | .082 |
| **2006** | –6,469 | 6,251.38 | –1.03 | .301 |
| **2007** | –4,113 | 6,100.84 | –0.67 | .500 |
| **2008** | –14,273 | 6,316.61 | –2.26 | .024 |
| **2009** | –17,977 | 6,660.75 | –2.70 | .007 |
| **Rural Status of Practice Location**** | | | | |
| **Rural, large** | 2,655 | 3,394.54 | 0.78 | .434 |
| **Rural, small** | 661 | 4,118.59 | 0.16 | .873 |
| **Rural, isolated** | –25,128 | 5,757.65 | –4.36 | < .001 |
| **U.S. Geographical Area in Which Practice Located** | | | | |
| **Northeast** | –1,374 | 2,732.24 | –0.50 | .615 |
| **Midwest** | –6,121 | 2,588.85 | –2.36 | .018 |
| **West** | –3,558 | 2,673.65 | –1.33 | .183 |

* Dependent variable is real (base = 2005) GP net income. Number of observations: 7,714. $r^2 = 0.0618$. Adjusted $r^2 = 0.06$. Sources: American Dental Association, Survey Center.[1-14]

† Sample restricted to GPs working 1,600 hours or more per year (that is, full-time) and aged between 22 and 74 years.

‡ Distributions of real net income for each year trimmed (2.5 percent at both ends) to remove outliers.

§ Age, sex, year, ruralism and geographical location variables included in the income regression to control for standard human capital and labor market conditions. All variables except age and age squared are categorical.

¶ Omitted values for categorical variables are 2005 for year, male sex, urban practice location and South for geographical area.

# Parameter estimates for the year variables can be interpreted as the average difference in net income of GPs in that year compared with 2005 when one controls for age, sex, ruralism and geographical area.

** Rural status is based on rural-urban commuting area codes assigned to the zip code of the dental practice according to a coding scheme developed by the Washington, Wyoming, Alaska, Montana and Idaho (WWAMI) Rural Research Center.[30]

The average number of visits per patient (that is, the population who visited a GP) decreased from 2.0 per year in 2005 to 1.9 per year in 2009, representing a 1.1 percent annual decrease. This factor clearly contributed to the decline in GPs' average real net income. The downward trend in visits per patient, interestingly, began in 2002 and was well established before the economic downturn started.

The percentage of the population who had visited a GP in the preceding year increased from 40.6 percent in 2005 to 40.8 percent in 2007 and then decreased to 38.6 percent in 2009. The decrease since 2007—2.7 percent per year—is significant and clearly coincides with the onset of the economic downturn. Thus, this factor contributed to the decline in GPs' average real net income. In fact, the decline in visits per patient combined with the decline in the percentage of the population who visited a GP resulted in a decrease in the absolute number of

**TABLE 2**

**Trends in average real net income of independent general practitioners (GPs) and explanatory variables, 1996–2009.**

| VARIABLE | REAL (2009) NET INCOME, IN U.S. DOLLARS | REAL (2009) GROSS BILLINGS PER VISIT, IN U.S. DOLLARS | POPULATION WITH A GP VISIT (%) | GP VISITS PER PATIENT | RATIO OF U.S. RESIDENT POPULATION TO GPs | REAL (2009) PRACTICE EXPENSES PER OWNER, IN U.S. DOLLARS | GROSS BILLINGS COLLECTED (%) |
|---|---|---|---|---|---|---|---|
| **Year** | | | | | | | |
| **1996** | 170,834 | 131.75 | 39.2 | 2.05 | 2,254.48 | 320,656 | 96.0 |
| **1997** | 178,322 | 137.27 | 38.4 | 2.07 | 2,267.33 | 332,428 | 95.4 |
| **1998** | 194,563 | 138.71 | 39.7 | 2.05 | 2,239.13 | 335,660 | 95.9 |
| **1999** | 203,530 | 140.38 | 40.4 | 2.03 | 2,257.15 | 368,590 | 95.7 |
| **2000** | 207,350 | 145.23 | 38.6 | 2.04 | 2,272.81 | 355,133 | 94.8 |
| **2001** | 209,704 | 143.50 | 39.7 | 2.03 | 2,260.81 | 392,531 | 95.5 |
| **2002** | 207,883 | 161.14 | 40.5 | 2.05 | 2,274.30 | 405,726 | 95.6 |
| **2003** | 206,736 | 155.01 | 41.2 | 2.04 | 2,248.92 | 391,428 | 94.9 |
| **2004** | 211,139 | 161.53 | 40.9 | 2.02 | 2,248.40 | 408,379 | 95.1 |
| **2005** | 217,850 | 170.35 | 40.6 | 2.00 | 2,274.08 | 445,826 | 94.3 |
| **2006** | 215,915 | 168.31 | 40.5 | 1.96 | 2,260.05 | 421,882 | 94.5 |
| **2007** | 213,113 | 165.41 | 40.8 | 1.95 | 2,255.85 | 445,897 | 94.0 |
| **2008** | 206,440 | 169.55 | 39.2 | 1.95 | 2,263.14 | 421,329 | 93.7 |
| **2009** | 192,680 | 176.72 | 38.6 | 1.91 | 2,245.56 | 459,860 | 93.3 |
| **Annual Percentage Change** | | | | | | | |
| **1996-2005** | 2.74 | 2.90 | 0.39 | –0.27 | 0.10 | 3.73 | –0.20 |
| **2005-2009** | –3.02 | 0.92 | –1.25 | –1.14 | –0.31 | 0.78 | –0.27 |

dental visits in the United States—from 240 million in 2007 to 226 million in 2009.[27]

The population to GP ratio decreased from 2,274 in 2005 to 2,246 in 2009. This represents an annual decrease of 0.3 percent compared with an annual increase of 0.1 percent between 1996 and 2005. This 0.3 percent annual decrease is small, contributing only slightly to the decline in GPs' average real net income.

Overall, average real practice expenses per GP increased by an average of 0.8 percent per year between 2005 and 2009, but with significant year-to-year fluctuations. This trend represents a significant slowdown when compared with the 3.7 percent annual growth rate in real practice expenses between 1996 and 2005. Nevertheless, the slight increase in practice expenses during the economic downturn was a contributing factor in the decline in GPs' average real net income.

Figure 2 summarizes trends across time in each of the components factored into the decrease in GPs' real net income. We combined real gross billings per visit and the collection rate into a single variable. We also combined visits per patient and the percentage of the population who saw a dentist into a single utilization variable. To illustrate the relative importance of each factor, we indexed all variable values to 100 in 2005—the year after which GPs' real net income began to decline. Presented this way, the data make it clear that the decrease in GPs' real net income since 2005 came about primarily because of a decrease in the population's utilization of dental care. Moreover, although it clearly was accelerating at the onset of the economic downturn, this decline in utilization appears to have begun several years earlier.

## DISCUSSION

The results of our analysis suggest strongly that the decline in GPs' average net income levels is not linked solely to the recent economic downturn but that other unrelated factors also are important. A key question then becomes what might happen to average net income levels when economic conditions finally improve. Will they return to prerecession levels or continue to decline? To answer this question, we offer our views on the prospects for some of the specific components that affect dentists' net income within our framework, on the basis of the available evidence.

**Gross billings per visit.** Gross billings per visit will be determined by the average quantity and mix of various procedures performed during GP visits and the levels of fees associated with those procedures. Demographic and epidemiologic changes are shifting the procedure mix

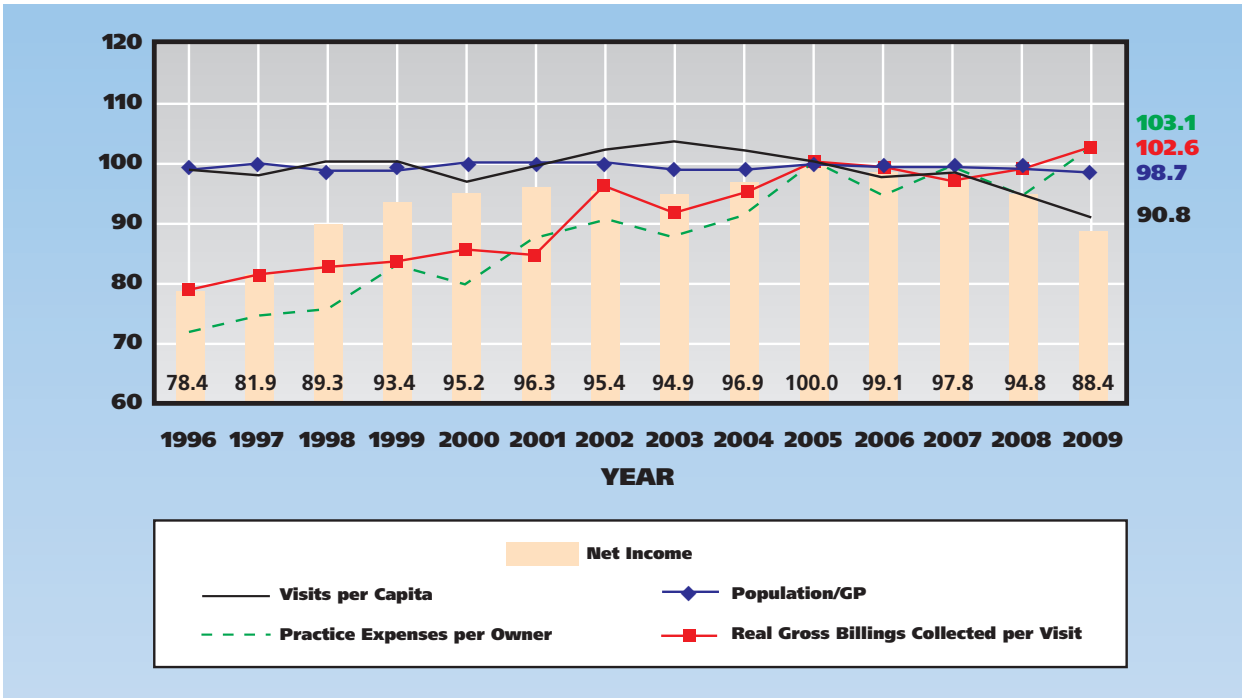


**Figure 2.** General practitioners' (GPs') real net income and all explanatory variables index (all variable values indexed to 100 in 2005).

away from restorative and prosthodontic procedures toward diagnostic and preventive procedures, and this trend is likely to continue.[31,32] There is also some evidence that procedure mix—and practice patterns in general—are influenced by individual provider characteristics such as sex.[33] Technological innovation and the possible emergence of new cadres of providers (such as dental therapists) might reshape the scope of practice for GPs. Thus, the average volume of various procedures during a GP visit may be shaped by complex interactions of all of these forces and, as a result, we feel that volume is difficult to predict.

***Fee levels.*** Regarding fee levels, we used the ADA's national fee data[34-37] to track changes across time in real fees for select procedures (Table 3). For eight of the 14 procedures listed in Table 3, the rate of increase in the real fee level was higher between 1997 and 2005 than it was between 2005 and 2009. But the fact that real fees did not decrease for any of the procedures in Table 3 suggests that fee reductions did not contribute to the decline in GPs' average net income. It is important to note, however, that the data reported in Table 3 are for fees that dentists charge most often, not fees they expect to receive or for which they actually are reimbursed. As a result, it could be the case that average reimbursement levels for various procedures decreased in recent years, which, in fact, would contribute to lower GP average net income. Unfortunately, we found no reliable data available to test this hypothesis.

We believe that some of the critical factors that will drive average fee levels, at least in the near future, include the Patient Protection and Affordable Care Act[38] (especially the implications of the state health insurance exchanges stipulated by the law), payment rates in public programs such as Medicaid (which will be influenced heavily by state government fiscal policy) and new workforce models that might emerge (such as the dental therapist model). Given the heavy emphasis on cost containment that is at the root of all of these initiatives, we believe there will be continued downward pressure on dental fees in the coming years.

**Utilization of dental care.** Routine dental care is essential to promoting and maintaining overall health and well-being.[39] The decrease in utilization of dental care ought to be a major cause for concern, especially because at least part of the decrease appears to be unrelated to the economic downturn of recent years. Although a full analysis of this situation is beyond the scope of this article, it is important to highlight some important potential factors contributing to the decline in utilization of dental care. Financing issues clearly play a role. More than 90 percent of dental expenditures in the United States are financed through out-of-

**TABLE 3**

## Average nominal and real (base = 2009) fees among general practitioners (GPs).*

| TREATMENT | YEAR | | | | AVERAGE ANNUAL PERCENTAGE CHANGE | |
|---|---|---|---|---|---|---|
| | 1997 | 2001 | 2005 | 2009 | 1997-2005 | 2005-2009 |
| **Diagnostic** | | | | | | |
| **Periodic oral evaluation** | | | | | | |
| Nominal | 23.19 | 28.14 | 34.92 | 41.48 | 5.25 | 4.40 |
| Real | 30.99 | 34.08 | 38.35 | 41.48 | 2.70 | 1.98 |
| **Intraoral radiographs, complete series (including bitewings)** | | | | | | |
| Nominal | 66.88 | 79.45 | 94.65 | 110.48 | 4.44 | 3.94 |
| Real | 89.38 | 96.23 | 103.96 | 110.48 | 1.91 | 1.53 |
| **Bitewings, two films** | | | | | | |
| Nominal | 21.57 | 26.04 | 31.30 | 36.94 | 4.76 | 4.23 |
| Real | 28.83 | 31.54 | 34.38 | 36.94 | 2.23 | 1.81 |
| **Preventive** | | | | | | |
| **Prophylaxis, adult** | | | | | | |
| Nominal | 48.52 | 57.00 | 67.37 | 77.64 | 4.19 | 3.61 |
| Real | 64.84 | 69.04 | 73.99 | 77.64 | 1.66 | 1.21 |
| **Topical application of fluoride (prophylaxis not included), adult** | | | | | | |
| Nominal | 21.26 | 23.87 | 27.59 | 30.72 | 3.31 | 2.72 |
| Real | 28.41 | 28.91 | 30.30 | 30.72 | 0.81 | 0.34 |
| **Restorative** | | | | | | |
| **Amalgam, one surface, permanent** | | | | | | |
| Nominal | 59.81 | 73.21 | 90.03 | 110.35 | 5.25 | 5.22 |
| Real | 79.93 | 88.67 | 98.88 | 110.35 | 2.70 | 2.78 |
| **Amalgam, three surfaces, permanent** | | | | | | |
| Nominal | 91.45 | 109.14 | 134.90 | 165.71 | 4.98 | 5.28 |
| Real | 122.22 | 132.19 | 148.16 | 165.71 | 2.44 | 2.78 |
| **Resin, one surface, anterior** | | | | | | |
| Nominal | 72.64 | 89.99 | 109.05 | 131.30 | 5.21 | 4.75 |
| Real | 97.08 | 108.99 | 119.77 | 131.30 | 2.66 | 2.32 |
| **Crown, porcelain/ceramic substrate** | | | | | | |
| Nominal | 594.42 | 707.82 | 833.82 | 974.47 | 4.32 | 3.97 |
| Real | 794.41 | 857.30 | 915.79 | 974.47 | 1.79 | 1.56 |
| **Endodontic** | | | | | | |
| **Molar (excluding final restoration)** | | | | | | |
| Nominal | 507.43 | 611.73 | 736.47 | 868.31 | 4.77 | 4.20 |
| Real | 678.15 | 740.92 | 808.87 | 868.31 | 2.23 | 1.79 |
| **Periodontal** | | | | | | |
| **Periodontal scaling and root planing, four or more teeth per quadrant** | | | | | | |
| Nominal | 122.43 | 145.25 | 174.20 | 208.31 | 4.51 | 4.57 |
| Real | 163.62 | 175.92 | 191.33 | 208.31 | 1.97 | 2.15 |
| **Prosthodontic** | | | | | | |
| **Complete denture, maxillary** | | | | | | |
| Nominal | 774.07 | 914.73 | 1,108.68 | 1,333.57 | 4.59 | 4.73 |
| Real | 1,034.50 | 1,107.90 | 1,217.67 | 1,333.57 | 2.06 | 2.30 |
| **Maxillary partial denture, cast metal framework with resin denture bases (including any conventional clasps, rests and teeth)** | | | | | | |
| Nominal | 845.32 | 983.18 | 1,180.30 | 1,404.45 | 4.26 | 4.44 |
| Real | 1,129.73 | 1,190.81 | 1,296.34 | 1,404.45 | 1.73 | 2.02 |
| **Oral and Maxillofacial Surgery** | | | | | | |
| **Single-tooth extraction (including local anesthesia, suturing if needed and routine postoperative care)** | | | | | | |
| Nominal | 72.65 | 87.76 | 111.59 | 138.21 | 5.51 | 5.49 |
| Real | 97.09 | 106.29 | 122.56 | 138.21 | 2.95 | 3.05 |

* These data should not be interpreted as constituting a fee schedule in any way and should not be used for that purpose. Dentists must establish their own fees based on their individual practice and market considerations. The American Dental Association discourages dentists from engaging in any unlawful concerted activity regarding fees or otherwise.

pocket payment or private insurance.[40] The percentage of the population with dental insurance coverage has decreased in recent years. For example, enrollment in dental insurance plans in 2009 decreased by 5.7 percent compared with 2008.[41] This is the first decline in the number of people enrolled in a dental insurance plan since the National Association of Dental Plans began tracking this statistic in the early 1990s. Among firms offering health benefits, the number offering dental benefits has remained level for several years. However, fewer and fewer employers are offering health benefits, a trend that was present long before the recent economic decline.[42] Moreover, as a direct result of the economic downturn, firms that do offer dental insurance have been shifting more costs to employees by reducing the scope of coverage or increasing the amount that workers pay.[43] The results of a recent survey of dentists confirm that the high unemployment rate and reduced employer-sponsored dental benefits are major predictors of whether patients use dental services.[44] On the public financing side, several states, in response to fiscal constraints, have reduced eligibility for dental benefits among adult Medicaid beneficiaries or have reduced reimbursement rates.[45]

The extent to which the downward trend in dental care utilization reverses in the coming years will depend on several factors, including the unemployment rate, whether employers return to previous levels of medical and dental insurance benefits, state government policies regarding eligibility for dental benefits within public programs such as Medicaid and the broader implications of the Affordable Care Act. Because there is a considerable amount of uncertainty surrounding each of these factors, it is difficult to predict how the population's utilization of dental care will change in the coming years.

**Population to GP ratio.** The future population to GP ratio will depend greatly on the recent and planned expansion of dental school capacity and the retirement patterns of dentists currently in the latter stages of their careers. The only available comprehensive estimate of the future supply of dentists in the United States indicates that the population to dentist ratio will remain fairly steady through 2020.[20] This estimate may be subject to a high degree of ambiguity, however. First, it did not account for newly opened and planned dental schools, which will increase enrollment capacity. Second, if GPs' net income levels continue to decline, it is likely that older dentists will delay retirement and remain in the workforce longer.[46] A continued decline in GPs' net income levels likely also will reduce the number of applicants to dental school, thus reducing the future supply of dentists.[17-20]

## CONCLUSION

GPs' average net income in 2009 in real terms was at the same level as that a decade earlier. Our analysis has shown that, through several channels, the recent economic downturn has played a significant role in driving this decline in net income. However—and perhaps more importantly from the viewpoint of the dental profession—our analysis has demonstrated that a broader set of factors also played a key role in the decline. Of most concern is a steady decrease in utilization of dental care that began before the start of the recession. This factor alone suggests that GPs' average real net income may not necessarily recover to its prerecession level once economic conditions in the United States improve. This factor, combined with the potential implications of health care reform for dentistry, indicates that the future prospects related to GPs' net income levels remain uncertain. ■

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