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Research Brief

Recent Trends in the Market for Oral Surgeons, Endodontists, Orthodontists, Periodontists, and Pediatric Dentists

Authors: Niodita Gupta, M.D., M.P.H.; Marko Vujicic, Ph.D.; Bradley Munson, B.A.; Kamyar Nasseh, Ph.D.

Key Messages

- *Out of five types of dental specialists (oral surgeons, endodontists, orthodontists, periodontists, and pediatric dentists), oral surgeons are consistently the highest earning dental specialists while periodontists are the lowest earning dental specialists.*
- *Among the five specialist types studied in this brief, orthodontists have the lowest self-reported busyness levels while oral surgeons have the highest self-reported busyness levels.*
- *Among the five specialist types studied in this brief, a greater percentage of pediatric dentists work in dental service organization (DSO) affiliated practices while a lower percentage of periodontists work in DSO affiliated practices.*

Introduction

Dentist incomes have undergone major changes in the last decade. Dentist incomes have shown few signs of rebounding despite the recent economic recovery.[1,2] The Affordable Care Act led to an increase in dental benefits coverage and dental care utilization for children and low-income populations, but dental care use has been declining among working-age adults for many years.[3-5] Since the mid-2000s, the supply of practicing dentists has been steadily increasing. These forces have led to stagnation in the average net income of general practitioner dentists in the last decade.[6] Dental specialists are experiencing a similar trend of decline.[6] A recent study focusing on endodontists suggested a slight rebound in average net incomes along with those of pediatric dentists in 2014.[7]

This research brief analyzes the market trends for five types of specialist dentists (oral

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surgeons, endodontists, orthodontists, periodontists, and pediatric dentists) and provides a snapshot of their incomes from 2000 to 2015. Additionally, this brief examines the trends in self-reported busyness levels by dental specialty from 2007 to 2015. For simplicity, these five specialist groups will be referred to as "dental specialists" throughout this brief, even though they only represent five out of nine ADA-recognized specialties. Other specialties were not included in the study due to lack of adequate data.

Results

Figure 1 summarizes annual net income by dental specialty from 2000 to 2015 in inflation-adjusted 2015 dollars. Oral surgeons have been the highest earning specialists from 2000 to 2015, followed by endodontists. However, in 2003, 2006, 2009, 2013, and 2014, pediatric dentists were the second highest earners.

From 2000 to 2015, oral surgeons' earnings were highest in 2008 ($568,968) and lowest in 2010 ($399,171). In contrast, the other specialties had their highest earnings in the years before the Great Recession and their lowest earnings in the last four years. The highest earnings for periodontists were observed in 2002 ($323,284), for pediatric dentists in 2003 ($411,185), for endodontists in 2004 ($422,541), and for orthodontists in 2007 ($389,906). The lowest earnings for orthodontists ($276,971), pediatric dentists ($271,552), and periodontists in ($234,901) were seen in 2012 and for endodontists in 2013 ($269,364).

In 2015, the average annual net income for oral surgeons was $465,768, for endodontists was $327,521, for periodontists was $291,525; these incomes reflect an increase from 2014 average net incomes. The average annual net income for pediatric dentists was $284,670 and for orthodontists was $283,811 in 2015 and these incomes show a decrease from 2014 average net incomes.

Figure 2 represents the dentists' perceived sense of being "not busy enough" by specialty from 2007 to 2015. Every year, the percentage of orthodontists who reported they are "not busy enough" was the highest compared to the other dental specialties. Endodontists often followed orthodontists in their perceived low busyness level; however, in 2011, 2014, and 2015, the percentage of periodontists who reported they were "not busy enough" was second to that of orthodontists.

Comparing the data from 2007 to 2015 for each specialist, the highest percentage of dentists "not busy enough" is observed in 2010 and 2011. In 2010, about 45.0 percent of endodontists, 55.5 percent of orthodontists, and 35.4 percent of pediatric dentists stated that they were "not busy enough" and in 2011, 45.5 percent of periodontists and 24.4 percent of oral surgeons stated that they were "not busy enough." The lowest percentage of dentists stating they were "not busy enough" was seen in 2007 for pediatric dentists (12.1 percent) and periodontists (25.2 percent), in 2008 for oral surgeons (6.0 percent), in 2014 for orthodontists (38.2 percent), and in 2015 for endodontists (17.9 percent).

The percentage of endodontists, pediatric dentists, and periodontists who felt they were "not busy enough" is lower in 2015 compared to 2014; however the percentage of oral surgeons and orthodontists who reported they were "not busy enough" has increased from 2014 to 2015.

Figures 3 and 4 summarize the time in days an established patient and a new patient respectively wait for an initial appointment for each dental specialty. Comparing the five specialties, pediatric dentists appear to have the highest wait times except for in 2012 and 2013 for new patients. However, the wait

time appears to be decreasing since 2009, rebounding slightly in the last two years. Endodontists appear to have the lowest wait times, although the wait time appears to have been increasing since 2010.

The average wait time for an established patient was the highest for endodontists (9.8 days), orthodontists (8.9 days), and periodontists (8.8 days) in 2000, for pediatric dentists (14.8 days) in 2002, and for oral surgeons (5.8 days) in 2015. The average wait time for a new patient was the highest for endodontists (9.3 days) and periodontists (11.3 days) in 2000, for orthodontists (11.1 days) and for pediatric dentists (21.5 days) in 2001, and for oral surgeons (9.0 days) in 2012.

The average wait time for an established patient was the lowest for oral surgeons (4.0 days) in 2009, for endodontists (2.1 days) and for pediatric dentists (6.9 days) in 2010, for periodontists (4.2 days) in 2011, and for orthodontists (3.5 days) in 2014. The average wait time for a new patient was the lowest for oral surgeons (5.3 days) in 2009, for endodontists (2.0 days) in 2010, for orthodontists (5.2 days) and for periodontists (5.1 days) in 2011, and for pediatric dentists (7.2 days) in 2013.

Figures 5 through 9 exhibit overall trends in average inflation-adjusted net incomes and the busyness levels by individual specialty. Average inflation-adjusted net income for oral surgeons appears to have remained steady while it appears to be declining over time for endodontists, pediatric dentists, orthodontists and periodontists. The overall trend for specialists who reported they are “not busy enough” appears to have increased over time for oral surgeons, pediatric dentists, orthodontists and periodontists while decreasing for endodontists.

Figures 5 to 9 suggest there may be correlation between income and busyness levels. The correlation analysis results using Pearson’s correlation coefficient for each specialty is summarized in Table 1. At the 10 percent significance level, there is a correlation between income and busyness level for oral surgeons, pediatric dentists, and periodontists.

Figure 10 summarizes the supply of dentists by specialty per capita from 2001 to 2015. The number of oral surgeons per capita (2.4 per 100,000 population), endodontists per capita (1.7 per 100,000 population), and orthodontists per capita (3.3 per 100,000 population) are the highest in 2015. The number of pediatric dentists per capita for all ages of the U.S. population is 2.2 per 100,000 population, and the number of pediatric dentists per capita for only the U.S. population under 19 years of age is 8.7 per 100,000 population (Figure 11). These are also the highest in 2015. The number of periodontists per capita (1.7 per 100,000 population) was the highest in 2011 and 2012.

Overall, the number of periodontists, oral surgeons, and orthodontists per capita were stable from 2001 to 2015. However, there was a slight increase in the number of endodontists from 2001 (1.4 per 100,000 population) to 2015 (1.7 per 100,000 population). In the case of pediatric dentists, there is a substantial increase in the per capita supply from 2001 to 2015. Considering all ages of U.S. population, the per capita supply of pediatric dentists increased from 1.4 per 100,000 population in 2001 to 2.2 per 100,000 population in 2015. For the U.S. population under 19 years of age, the per capita supply of pediatric dentists increased from 4.9 per 100,000 population in 2001 to 8.7 per 100,000 population in 2015.

Figure 12 summarizes the patient volume in 2016 as compared to the patient volume in 2015 for the five dental specialties studied in this brief. Pediatric dentists have the highest percentage of patient volume that increased or remained the same, followed by periodontists, orthodontists, oral surgeons and

endodontists. However, considering only the percentage of dentists stating their patient volume increased, pediatric dentists had an increase of 51.3 percent, followed by orthodontists (increase of 41.9 percent), endodontists (increase of 39.8 percent), oral surgeons (increase of 35.6 percent), and periodontists (increase of 25.2 percent).

Figure 13 shows the percentage of dentists by specialty who worked in dental service organization (DSO) affiliated practices in 2015. Pediatric dentists (8.1 percent) had the highest likelihood of working in such practices and periodontists the lowest (5.7 percent).

Discussion

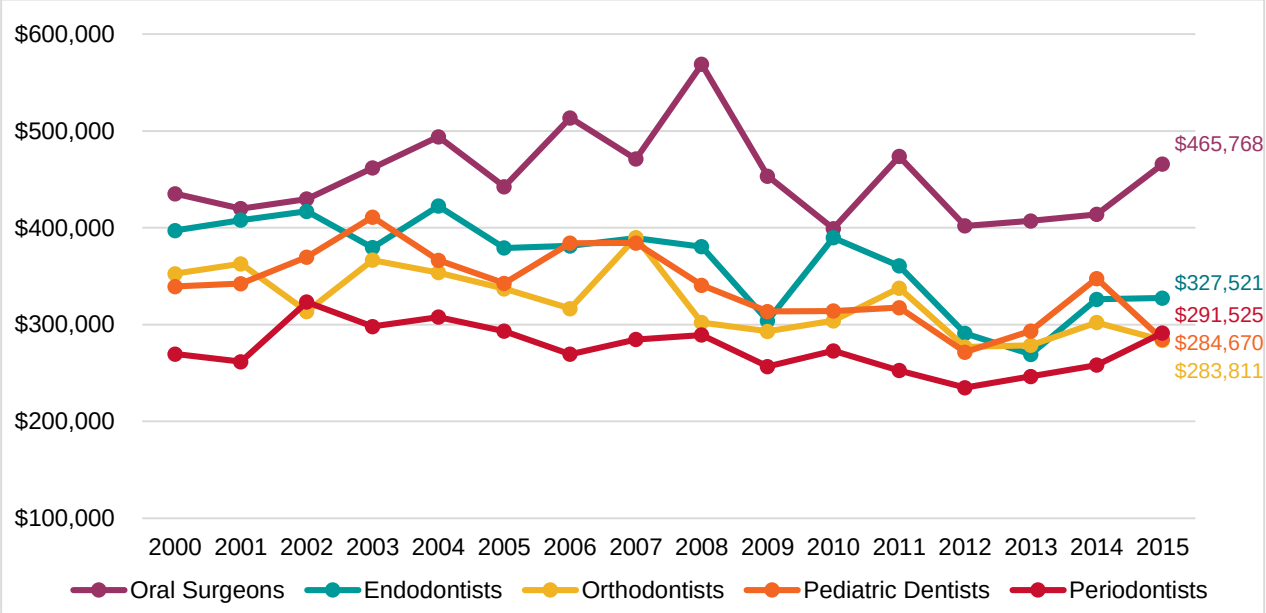
Average net income and busyness levels for dental specialists appear to have stabilized during the years 2010-2013 after years of decline. The years 2014 and 2015 further indicate incomes are rebounding from their Great Recession lows. Although income gains are modest, they represent a reversal of declines in the previous years. Income is influenced by the average appointment wait times, busyness levels, patient volume, and supply of dentists per capita, as these factors influence the number of patients dentists treat. Appointment wait times appear to have increased in 2014 and 2015 (Figures 3 and 4), and the patient volume is increasing or the same for about three-fourths of the dentists across the five specialties from 2015 to 2016 (Figure 12). This may explain the rebound in income in recent years. In the case of endodontists and pediatric dentists, there is an increase in the supply of dentists per capita (Figure 10 and 11). This may result in lower wait times, lower busyness levels, and lower incomes.

It is easy to speculate that when dentists report they are busy, they are treating enough patients to increase their earnings. As observed from the correlation coefficients, higher busyness levels correlate with higher net incomes. Figures 5, 7, and 9 summarizing the trends for oral surgeons, pediatric dentists, and periodontists reflect this rationale. As dentists' perception of being "not busy enough" increases, net income decreases. However, endodontists report they are busier than in the past, but their net incomes are still decreasing. It is possible that this income decrease is due to lower reimbursement rates. A previous study noted that in 2005-2006, only a quarter of endodontic procedures were performed by endodontists.[7] It is possible that there is a shift in the type of procedures performed by endodontists. For example, if endodontists are performing more general dental procedures, their reimbursement levels would be lower than for specialized procedures; however, their busyness levels may stay high.

Previous studies show there is shift from small practices to larger consolidated practices. This could affect dentists' incomes.[8] It is possible that practicing in DSOs may affect the dentists' incomes. However at this point it is not uncertain whether the effect is positive or negative. Future studies should explore if practicing in DSOs is associated with change in income levels.

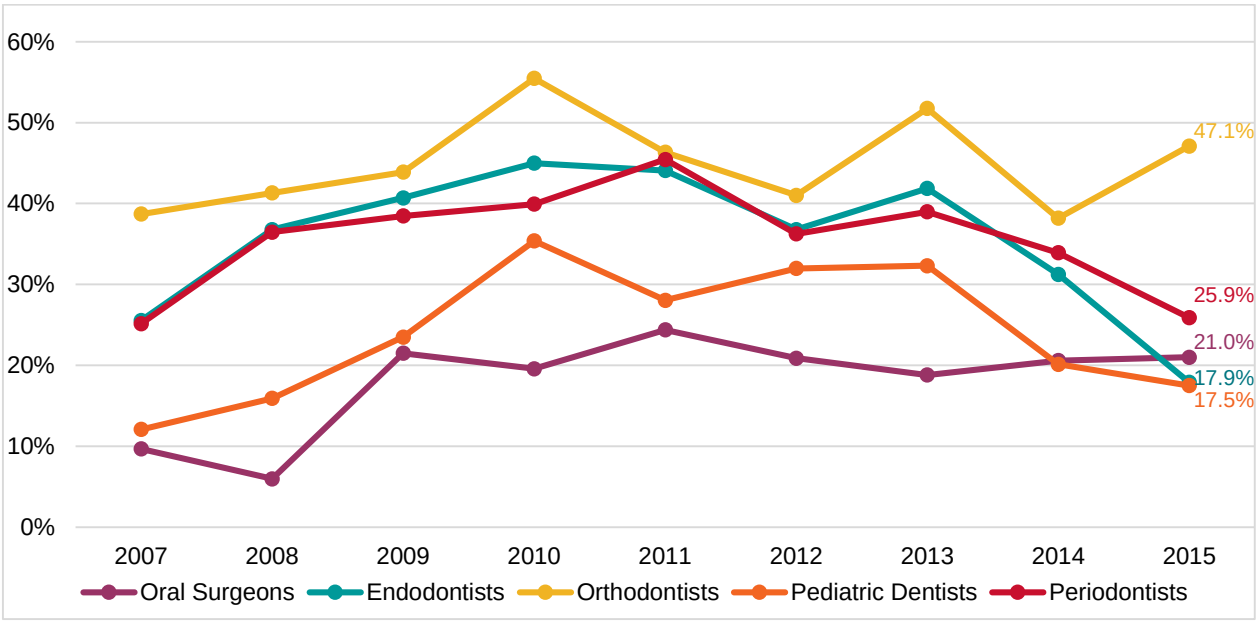
Future research should explore whether the rebound in incomes is a continuous trend, particularly by examining the factors that may be associated with the stabilization or increase in earnings. For example, previous studies show that about 5.4 million adults gained dental benefits through Medicaid expansion through 2015[9] and adult dental care utilization has increased about 2 to 6 percent in the last half of 2014 due to Medicaid expansion.[10] HPI will continue to explore and monitor such factors that may influence dentist earnings.

Figure 1: Average Inflation-Adjusted Net Income for Select Dental Specialties, 2000-2015



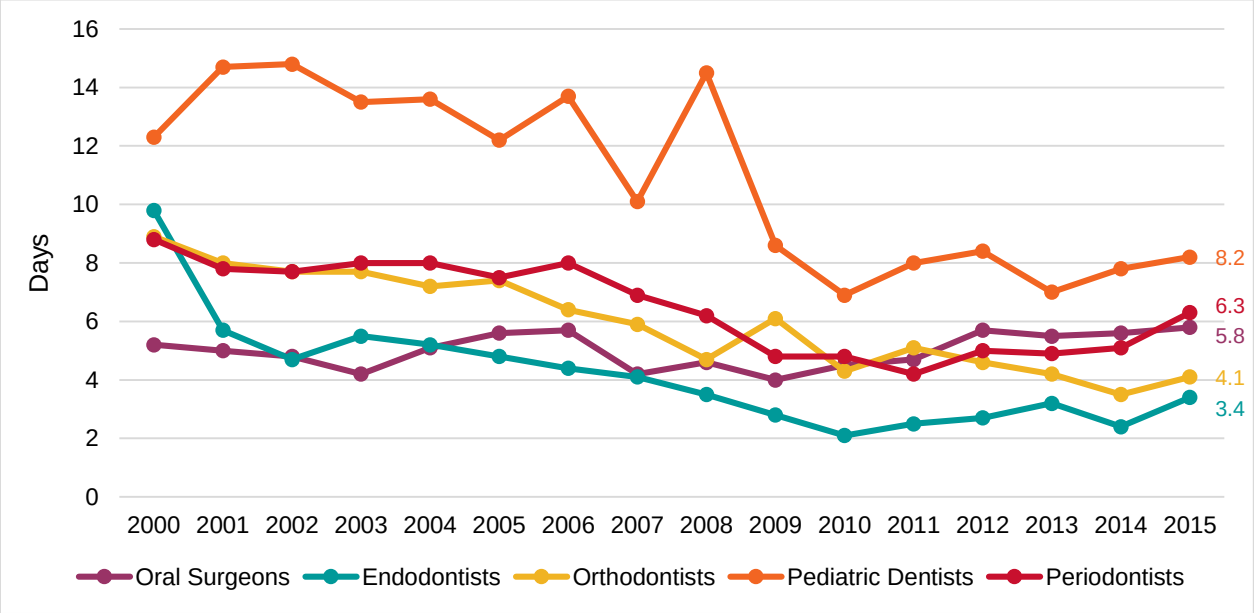
Source: ADA Health Policy Institute *Survey of Dental Practice* data for 2000-2015. **Notes:** Weighted to compensate for oversampling and non-response bias. Incomes are adjusted using the Consumer Price Index for All Items to represent 2015 dollars.

Figure 2: Percentage of Dentists "Not Busy Enough" by Specialty, 2007-2015



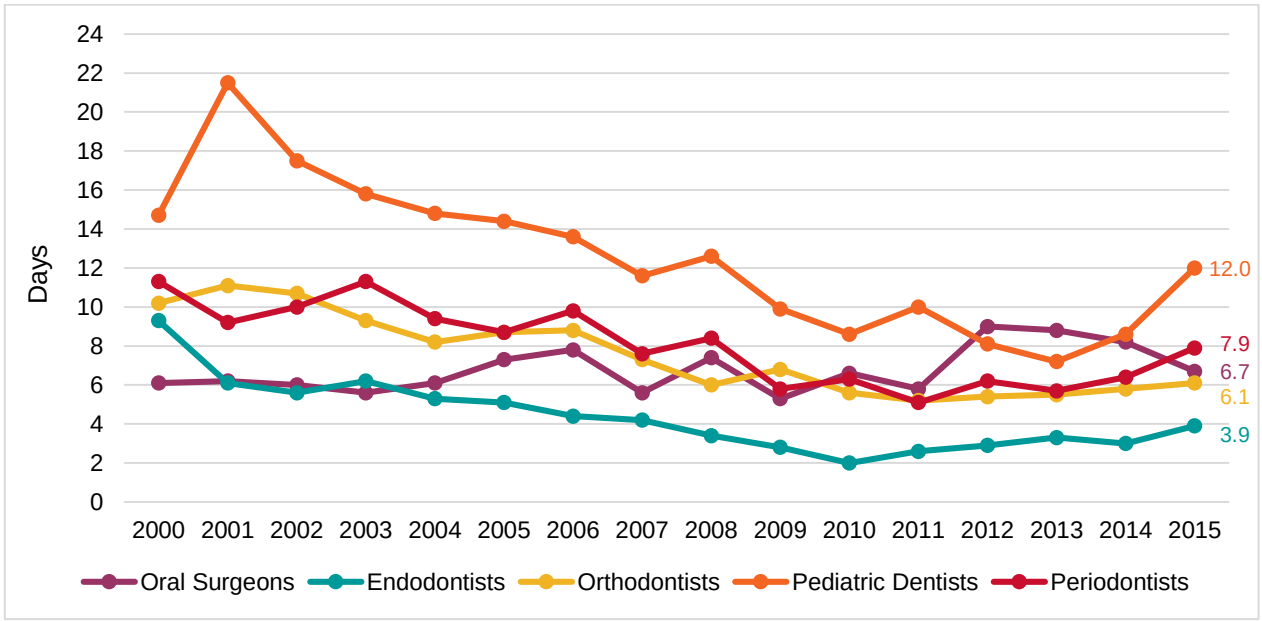
Source: ADA Health Policy Institute *Survey of Dental Practice* data for 2007-2015. **Notes:** Weighted to compensate for oversampling and non-response bias.

Figure 3: Average Wait Time for Initial Appointment, Established Patient, 2000-2015



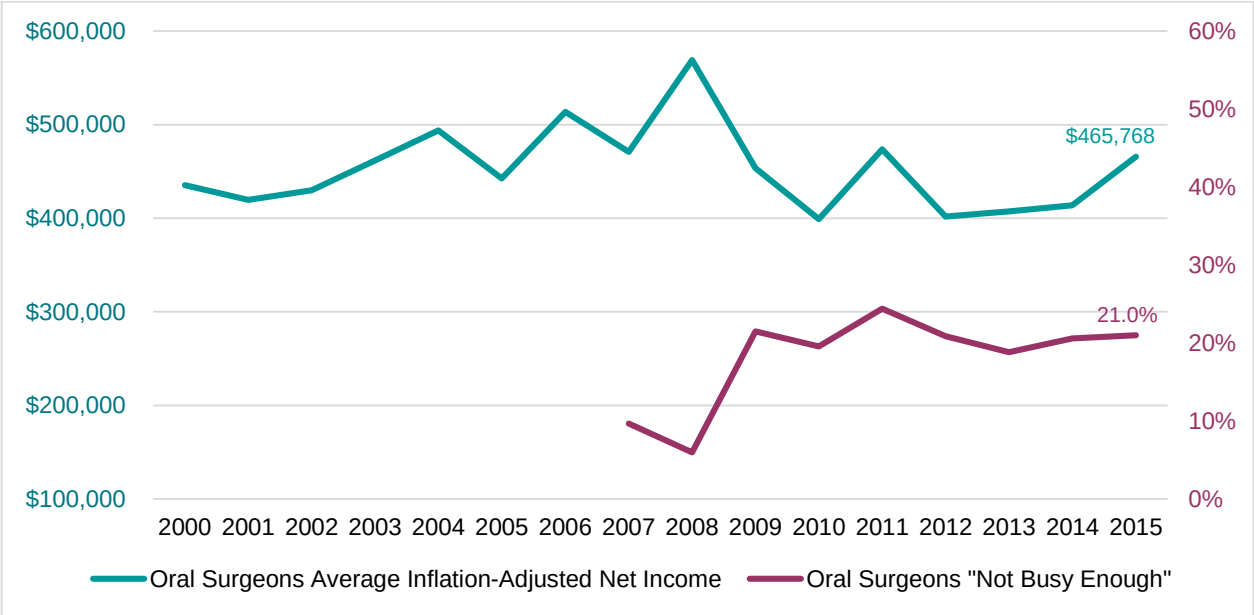
Source: ADA Health Policy Institute *Survey of Dental Practice* data for 2000-2015. **Notes:** Indicates the average wait time in days for an appointment with a specialist dentist. Weighted to compensate for oversampling and non-response bias.

Figure 4: Average Wait Time for Initial Appointment, New Patient, 2000-2015



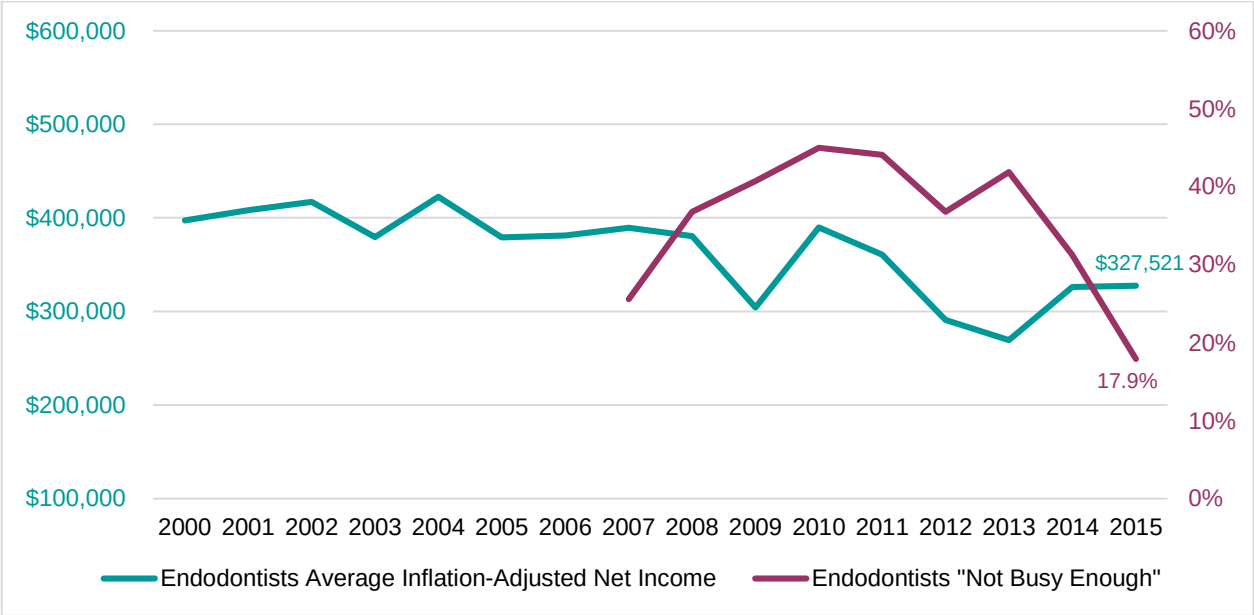
Source: ADA Health Policy Institute *Survey of Dental Practice* data for 2000-2015. **Notes:** Indicates the average wait time in days for an appointment with a specialist dentist. Weighted to compensate for oversampling and non-response bias.

Figure 5: Average Inflation-Adjusted Income and Busyness Levels, Oral surgeons, 2000-2015



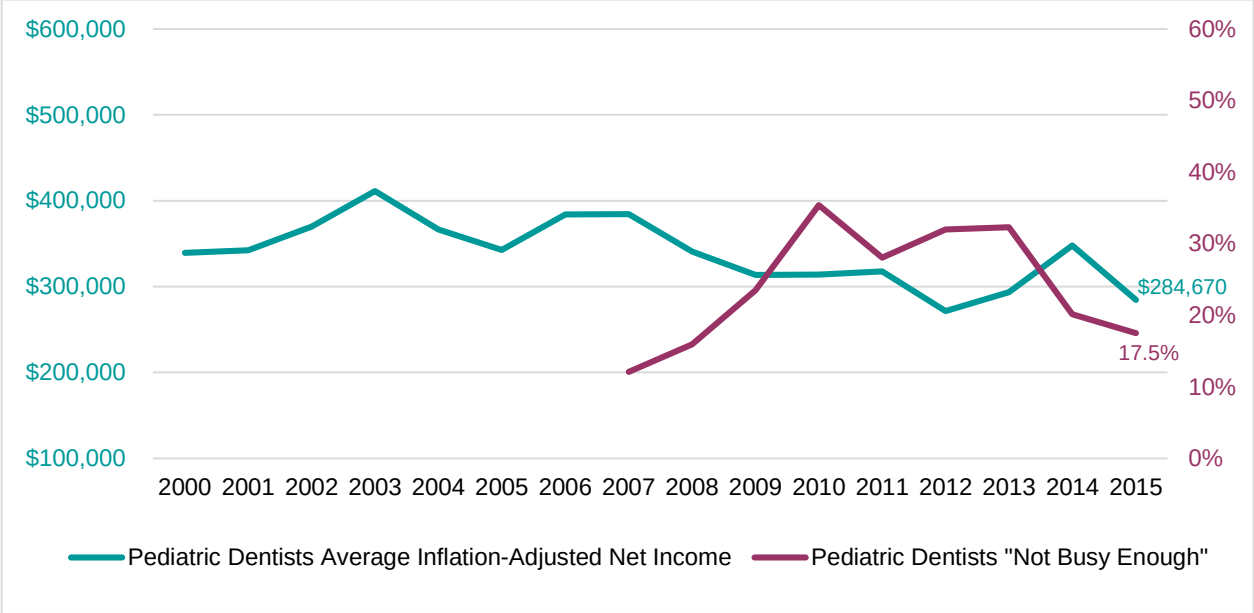
Source: ADA Health Policy Institute *Survey of Dental Practice* data for 2000-2015. **Notes:** Weighted to compensate for oversampling and non-response bias. Incomes are adjusted using the Consumer Price Index for All Items to represent 2015 dollars. Data on busyness levels is available only for 2007-2015.

Figure 6: Average Inflation-Adjusted Income and Busyness Levels, Endodontists, 2000-2015



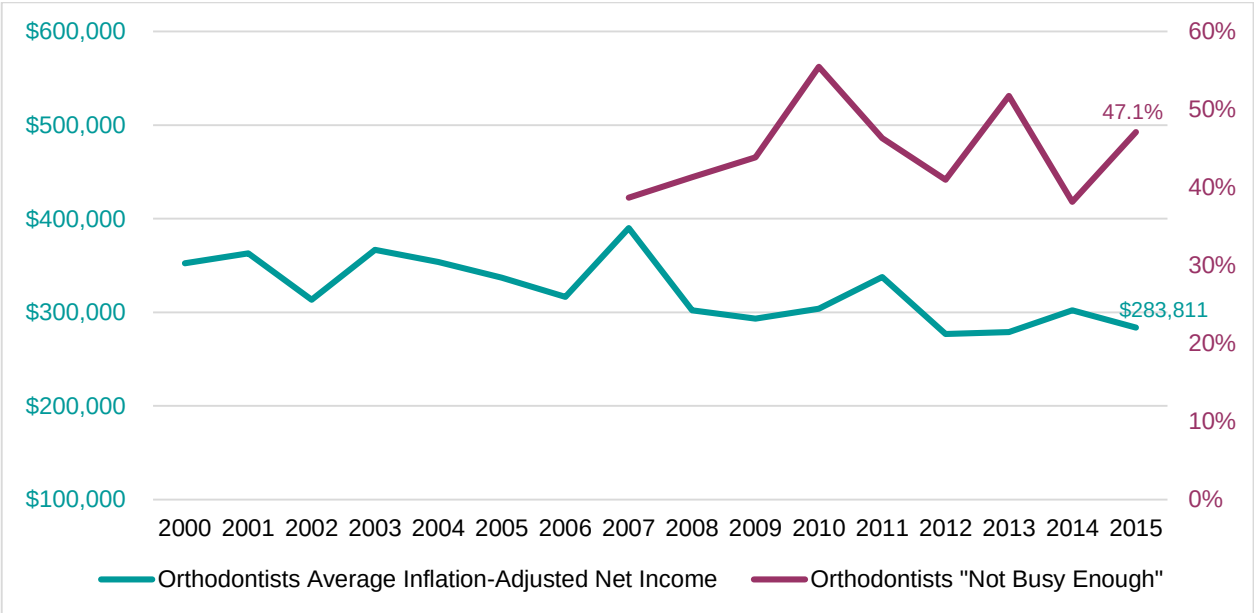
Source: ADA Health Policy Institute *Survey of Dental Practice* data for 2000-2015. **Notes:** Weighted to compensate for oversampling and non-response bias. Incomes are adjusted using the Consumer Price Index for All Items to represent for 2015 dollars. Data on busyness levels is available only for 2007-2015.

Figure 7: Average Inflation-Adjusted Income and Busyness Levels, Pediatric Dentists, 2000-2015



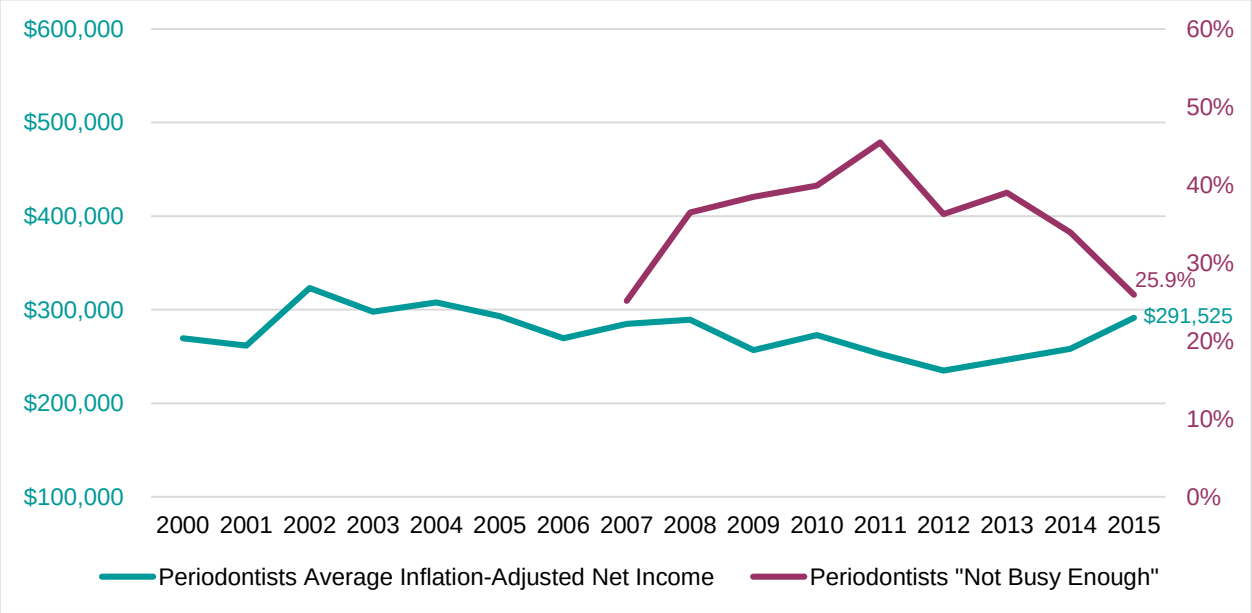
Source: ADA Health Policy Institute *Survey of Dental Practice* data for 2000-2015. **Notes:** Weighted to compensate for oversampling and non-response bias. Incomes are adjusted using the Consumer Price Index for All Items to represent for 2015 dollars. Data on busyness levels is available only for 2007-2015.

Figure 8: Average Inflation-Adjusted Income and Busyness Levels, Orthodontists, 2000-2015



Source: ADA Health Policy Institute *Survey of Dental Practice* data for 2000-2015. **Notes:** Weighted to compensate for oversampling and non-response bias. Incomes are adjusted using the Consumer Price Index for All Items to represent for 2015 dollars. Data on busyness levels is available only for 2007-2015.

Figure 9: Average Inflation-Adjusted Income and Busyness Levels, Periodontists, 2000-2015



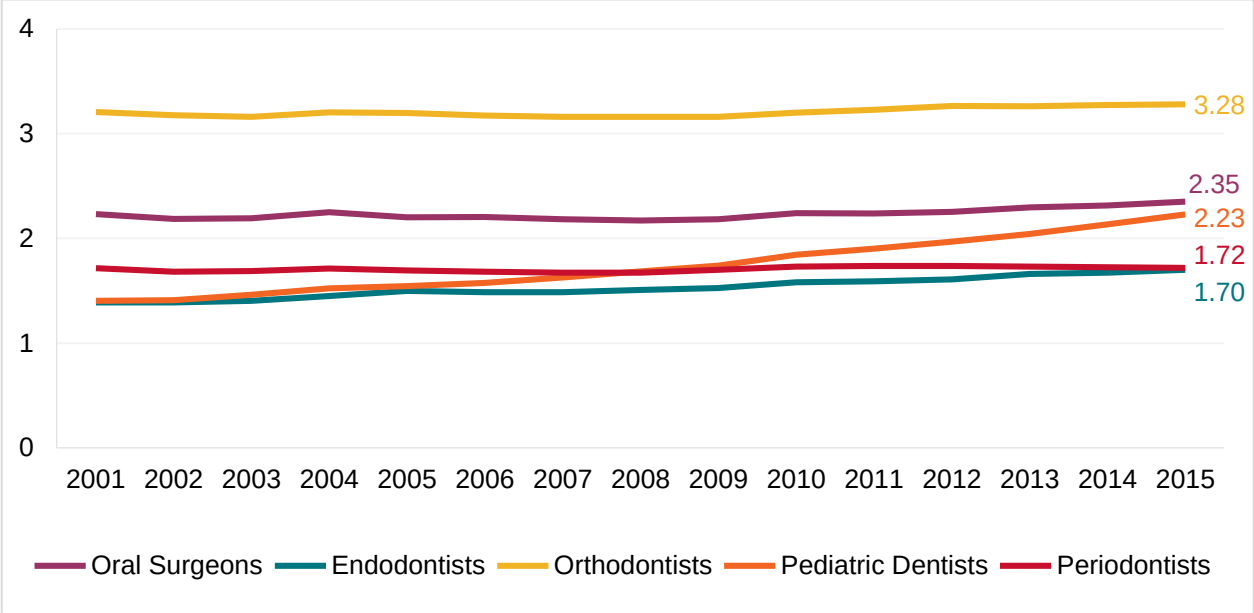
Source: ADA Health Policy Institute *Survey of Dental Practice* data for 2000-2015. **Notes:** Weighted to compensate for oversampling and non-response bias. Incomes are adjusted using the Consumer Price Index for All Items to represent for 2015 dollars. Data on busyness levels is available only for 2007-2015.

Table 1: Correlation Between Income and Busyness Levels by Specialty, 2007-2015

Specialty	Pearson's Correlation Coefficient (r)	p-value
Oral Surgeons	-0.66	0.0514*
Endodontists	-0.06	0.87
Orthodontists	-0.34	0.38
Pediatric Dentists	-0.65	0.06*
Periodontists	-0.59	0.09*

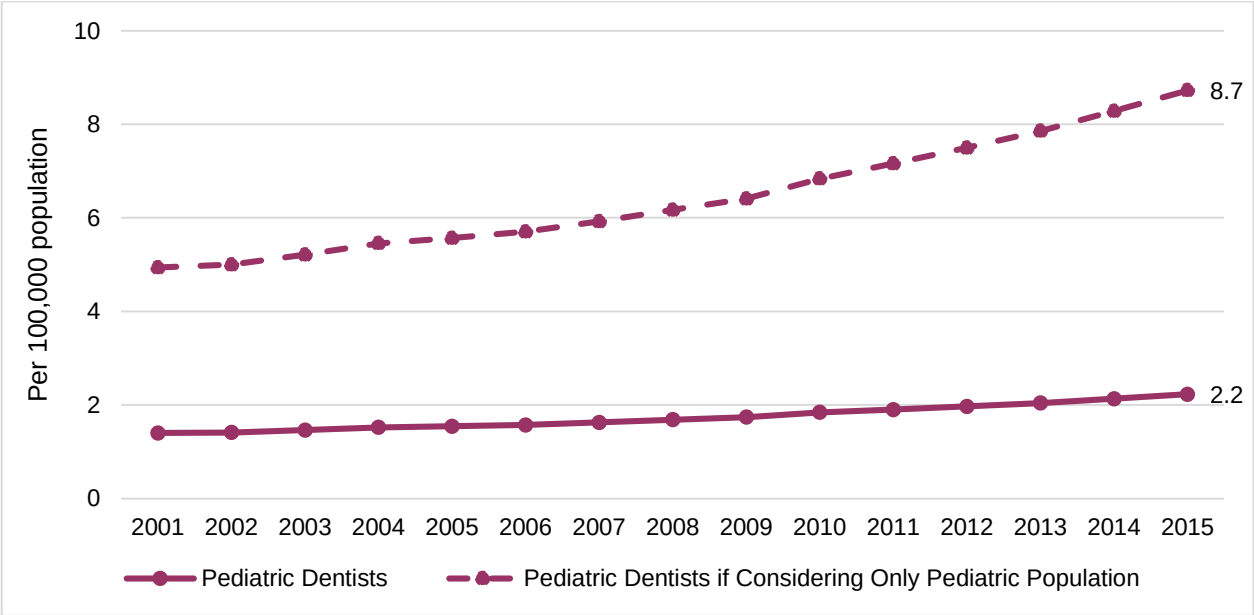
Note: *p-value is significant at 10% significance level.

Figure 10: Supply of Dentists by Specialty per 100,000 population, 2001-2015



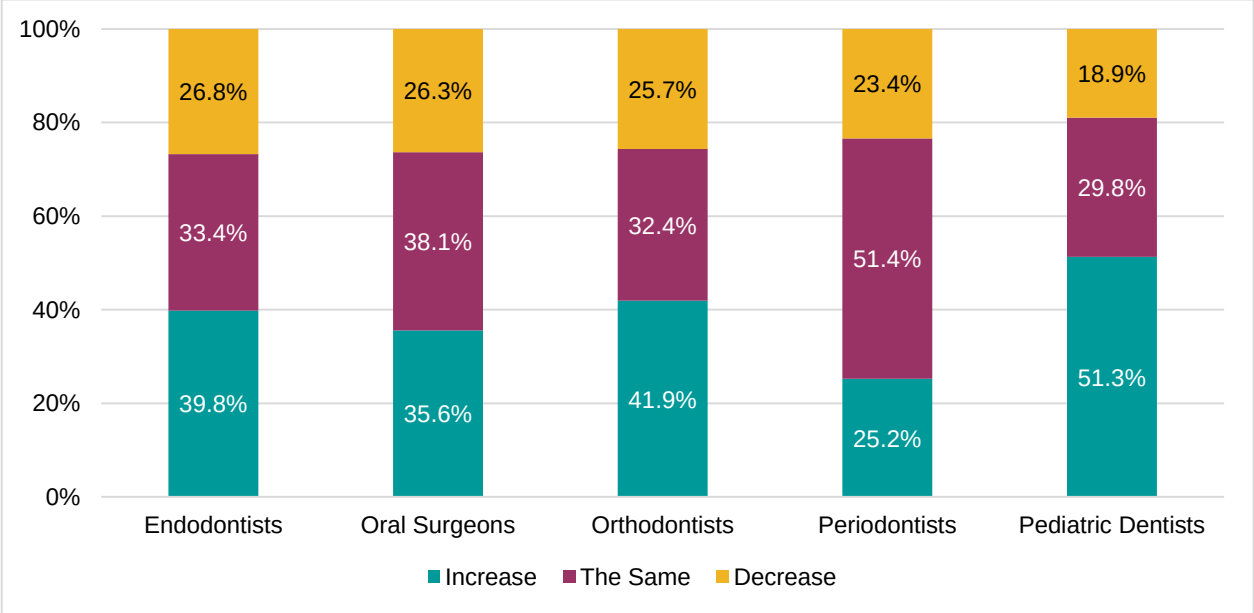
Source: American Dental Association Health Policy Institute Analysis of ADA masterfile, 2001-2015; U.S. Census Bureau, Intercensal Estimates and National Population Projections.

Figure 11: Supply of Pediatric Dentists by Pediatric Population and Overall Population per 100,000 Population, 2001-2015



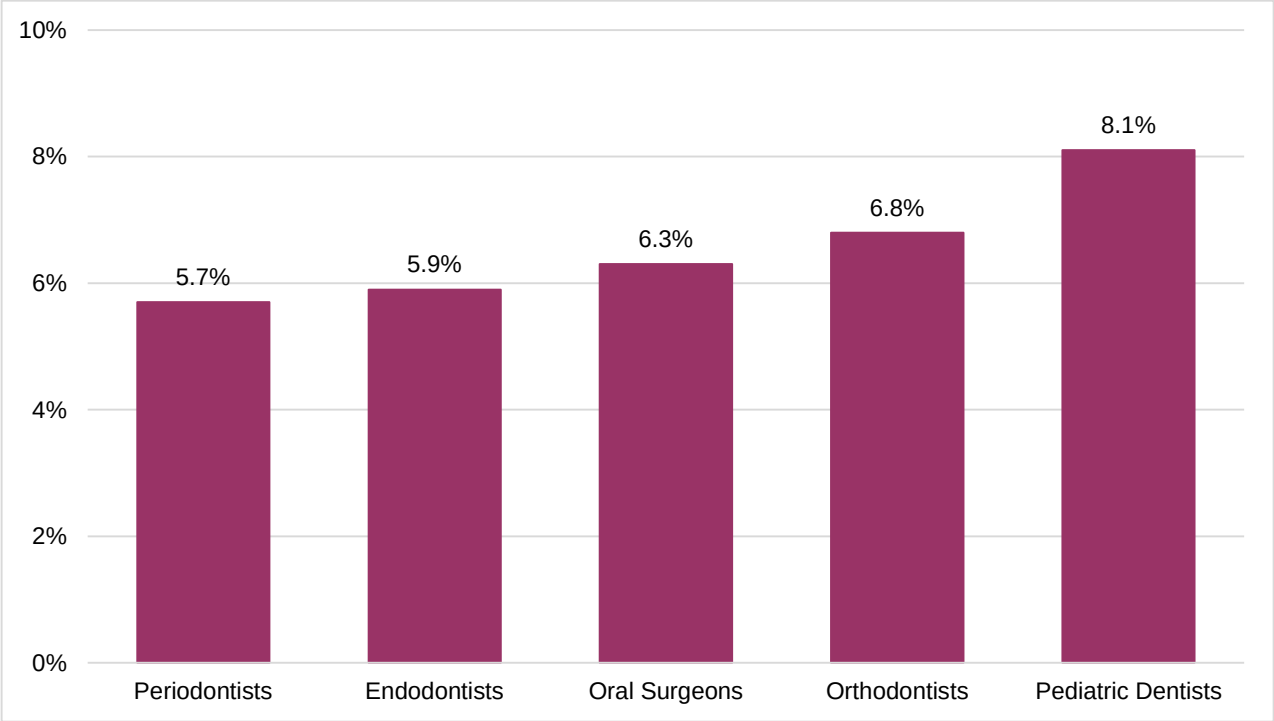
Source: American Dental Association Health Policy Institute Analysis of ADA masterfile, 2001-2015; U.S. Census Bureau, Intercensal Estimates and National Population Projections.

Figure 12: Patient Volume, 2016 Compared to 2015, by Specialty



Source: ADA Health Policy Institute *Survey of Dental Practice* data 2016. **Notes:** Weighted to compensate for oversampling and non-response bias.

Figure 13: Percentage of Dentists, by Specialty, in Dental Service Organization Affiliated Practices, 2015



Source: ADA Health Policy Institute 2015 office database.

Data & Methods

We used the ADA Health Policy Institute's *Survey of Dental Practice* to examine trends in net incomes and busyness levels for dental specialists. The *Survey of Dental Practice* is conducted annually on a nationally representative random sample of 4,000 to 17,000 dentists in private practice. Response rates for this survey has varied between 9.8 percent and 44.6 percent from 2000 to 2015. The response rate for 2015 data was 9.8 percent. This survey oversampled dental specialists to ensure enough responses for statistical analyses. The estimates for the years 2000 through 2015 were weighted to compensate for survey non-response bias with respect to these dentist characteristics: age group, general practitioner or specialist status, ADA membership status, and the county population corresponding to the dentist's location.

The survey asked dentists a variety of questions related to their practice, including their net income. Net income is defined as for "you only" and is income left over after practice expenses and business taxes and includes salary, commission, bonus and/or dividends, and any payments made to a retirement plan on the dentist's behalf. The data for net income is available for the years 2000-2015. We adjusted dentist earnings for inflation using the All Items Consumer Price Index (CPI) to represent income in 2015 dollars.

This survey includes three questions to evaluate the busyness levels of the dentists. The first question is about perceived busyness of the dentist. This question offers respondents four choices: (a) Too busy to treat all people requesting appointments, (b) Provided care to all who requested appointments but was overworked, (c) Provided care to all who requested appointments but was not overworked, (d) Not busy enough, could have treated more patients. The data for busyness is available for the years 2007-2015. We calculated Pearson's correlation coefficients to determine the correlation between income and busyness level. Dentists were also asked about the average wait time in days to obtain an initial appointment, excluding emergency cases for a patient of record and for a new patient. The data for this question is available for the years 2000-2015. A new survey question this year asked dentists, "Compared to this time last year, is your patient volume up, the same, or down?" The data for this question is available for the year 2016 as compared to the patient volume in 2015.

We used the Health Policy Institute's analysis of the ADA masterfile to determine the total number of dentists by specialty from 2001 to 2015. We used the U.S. Census Bureau's Intercensal Estimates and National Population Projections to calculate the number of dentists by specialty per capita. We calculate the number of dentists by specialty per capita based on the number of dentists by specialty and the total U.S. population in that year per 100,000 population.

We used the Health Policy Institute's 2015 office database to determine the share of dentists in dental service organization (DSO) affiliated practices. The office database is a database of all practicing dentists in the U.S.; it also contains all practice locations for a given dentist. Within this database, the Health Policy Institute is able to identify dentists who practice in locations that are affiliated with members of the Association of Dental Support Organizations[11] (ADSO). Such dentists are considered to be in DSO affiliated practices for the purposes of our analysis. In cases where a dentist practices in multiple locations and one of the locations is affiliated with a member of ADSO, the dentist is considered to be in a DSO affiliated

practice. Dentists affiliated with American Dental Partners, Western Dental, and Kool Smiles are also considered to be in DSO affiliated practices for the purposes or our analysis, even though these are not ADSO member companies.

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

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