



Published in final edited form as:  
*Gen Dent.* 2009 ; 57(3): 270.

## Dentists in Practice-Based Research Networks Have Much in Common with Dentists at Large: Evidence from “The Dental PBRN”

Sonia K. Makhija, DDS, MPH<sup>1</sup>, Gregg H. Gilbert, DDS, MBA<sup>1</sup>, D. Brad Rindal, DDS<sup>2</sup>, Paul Benjamin, DMD<sup>3</sup>, Joshua S. Richman, MD, PhD<sup>4</sup>, and Daniel J. Pihlstrom, DDS<sup>5</sup> for the DPBRN Collaborative Group

<sup>1</sup> Department of Diagnostics Sciences, School of Dentistry, University of Alabama at Birmingham, Birmingham, AL

<sup>2</sup> HealthPartners Dental Group and HealthPartners Research Foundation, Minneapolis, MN

<sup>3</sup> Private practitioner in Miami, FL

<sup>4</sup> Division of Preventive Medicine, University of Alabama at Birmingham, Birmingham, AL

<sup>5</sup> Permanente Dental Associates, Portland, OR

### Abstract

**Background**—Practice-based research networks (PBRNs) aim to improve clinical practice by engaging dental practitioners in studies that are directly relevant to daily clinical practice. A dental PBRN called “DPBRN” (Dental Practice-Based Research Network) comprises dentists from seven U.S. states and three Scandinavian countries.

**Methods**—All DPBRN dentists complete an enrollment questionnaire about their practices and themselves; to date, 1,086 have done so. To quantify how similar DPBRN dentists are to U.S. dentists at large, we compared DPBRN practice characteristics to those of dentists who responded to the 2004 ADA Survey of Dental Practice, which is not limited to ADA members.

**Results**—DPBRN dentists were similar to dentists nationally with regard to dentist’s gender, race, ethnicity, number of offices, percentage of patients with insurance coverage, number of operatories, patient visits per week, days for a new appointment, and waiting room time. DPBRN dentists were statistically more likely to be recent graduates.

**Conclusion**—DPBRN practitioners have much in common with U.S. dentists nationally.

**Clinical implications**—Commonalities between DPBRN dentists and dentists nationally should increase the likelihood that DPBRN studies will be applicable to U.S. practices, thereby fostering knowledge transfer in both the research-to-practice and practice-to-research directions.

### Keywords

practice-based research; dentistry; private practice; health-services research; multi-center studies

### Introduction

Practice-based research networks (PBRNs) have been in existence in the United States since the 1970s.<sup>1</sup> The purpose of these networks is to join practitioners with academicians in developing and answering relevant research questions that can directly impact daily clinical practice.<sup>2</sup> Traditionally, clinical research projects have been conducted in an academic

environment, where less than 1% of Americans receive their health care and with limited to no input from private practitioners.<sup>3</sup> With studies developed by private practitioners and conducted in their offices - where the majority of Americans receive their care - results should be more relevant to clinicians and therefore lead to improved clinical treatment in a shorter amount of time as compared to conventional laboratory research because they are directly applicable to their clinical treatment.<sup>4</sup> PBRNs offer unique advantages both to research and quality improvement because they have the potential to move scientific advances into daily practice quickly, bring practice-relevant topics for research projects, and foster information sharing between practitioners.<sup>5-7</sup>

In the past, PBRNs have focused on non-dental areas, such as family medicine, internal medicine, pediatrics, and ophthalmology. Recognizing the success of physician-based PBRNs, the U.S. National Institute of Dental and Craniofacial Research (NIDCR) funded three oral health PBRNs in 2005, one of which is “DPBRN” (Dental Practice-Based Research Network). The purpose of these networks is to answer questions raised by dental practitioners in everyday clinical practice and to evaluate the effectiveness of current strategies to prevent, manage, and treat oral diseases and conditions.<sup>8-9</sup>

Since the 1950s, the American Dental Association (ADA) has periodically collected information on private practice dentists with its “Survey of Dental Practice”. This survey, based on a national probability sample of private practice dentists in the U.S., provides the most comprehensive and reliable statistical information on characteristics of U.S. dentists.<sup>10-16</sup> It is noteworthy that this survey samples both ADA members and non-ADA members.

If findings from the DPBRN enrollment questionnaire are consistent with the conclusion that practitioners participating in DPBRN are similar to dentists nationally, findings from DPBRN studies should be applicable to the larger population of dentists, thereby fostering knowledge transfer in both the research-to-practice and practice-to-research directions. The purpose of this paper is to quantify how similar DPBRN dentists are to U.S. dentists at large and to test the hypothesis that there are no statistically significant differences between these groups. We did this by comparing DPBRN practice characteristics to characteristics of dentists who responded to the ADA 2004 Survey of Dental Practice.

## Methods

### DPBRN Enrollment Questionnaire

DPBRN includes dental practitioners (dentists and hygienists) from Alabama, Florida, Georgia, Minnesota, Mississippi, Oregon, Washington, and Scandinavia. To become a member, practitioners must first complete a 101-item enrollment questionnaire. This questionnaire, which is located at <http://www.DPBRN.org>, queries information on practitioner characteristics, practice characteristics, and patient characteristics. Some items on the questionnaire were designed to be similar to the ADA Survey. DPBRN will re-administer the questionnaire periodically to ensure that the information collected is up-to-date. From 2002–2004, practitioners completed the questionnaire as a paper form; since 2005 practitioner-investigators have completed the questionnaire on-line. As of April 2, 2007, 1086 dentists (and 25 hygienists who were excluded from the current analyses) from the five participating regions have completed the questionnaire. The regions consist of: Alabama/Mississippi, Florida/Georgia, HealthPartners/Minnesota, Permanente Dental Associates, and the Scandinavian countries of Norway, Denmark, and Sweden.

For two DPBRN regions, collaborations were established with two organizations, HealthPartners (HP) of Minneapolis, Minnesota, and Permanente Dental Associates (PDA) of the greater metropolitan Portland, Oregon area. HP is a prepaid, multi-specialty group that

provides comprehensive health care. The HP Dental Group is staffed by 58 dentists at 16 clinic locations that serve about 100,000 enrollees. The HP/Minnesota DPBRN region also has a small but growing number of dentists in private practice in the Minneapolis, Minnesota area. PDA is a multi-specialty dental group that contracts with Kaiser Permanente Northwest (KPNW) to provide dental services for KPNW prepaid comprehensive health plan members. PDA includes 110 dentists in 14 dental clinics that serve about 180,000 members with dental benefits. A DPBRN region in Norway, Sweden, and Denmark also exists, which is administratively based at the University of Copenhagen.

In addition to comparing all dentists enrolled in DPBRN with dentists who completed the ADA survey, a comparison was also made with the DPBRN practitioners who completed the first study. This was done to see if there were any significant differences between the dentists who completed the ADA survey and DPBRN practitioners who are actively participating in the studies, since our data will come from this subset. To have been eligible to participate in the first DPBRN study (DPBRN Study 1: "Assessment of Caries Diagnosis and Caries Treatment" questionnaire) a dentist must have been a general dentist, pediatric dentist, or do at least some restorative dentistry, as well as have completed the enrollment questionnaire. Of the 970 practitioners who were eligible for Study 1, 523 completed the Study 1, including 493 general practitioners. Table 1 provides the distribution, by region, of participants who completed the enrollment questionnaire and general practitioners who completed the enrollment questionnaire and Study 1.

### **ADA 2004 Survey of Dental Practice**

The purpose of the ADA Survey of Dental Practice is to collect information about U.S. dentists, including characteristics of the dentists, their practice(s), characteristics of their patients, as well as information on income and dental fees. The ADA reports its results in categories of general practitioners, specialists, both, independent, solo, independent non-solo, and employed. For the purpose of this paper, results described in Table 2 are for all private practitioners (general practitioners and specialists) who are independent dentists. The definition of independent is "a sole proprietor or partner who owns or shares in the ownership of an incorporated or unincorporated dental practice".<sup>10</sup> This subset was chosen because, with the exception of HealthPartners, whose practitioners are employees, a majority of the practitioners in DPBRN are considered independent dentists. The results for Table 3 are restricted to general practitioners who are classified as independent dentists. The 2004 ADA questionnaire was initially mailed to more than 7,000 dentists. A total of 2,671 questionnaires were returned, resulting in an adjusted 44.0% response rate.<sup>10</sup> The information queried was for the year 2003.

### **Statistical Methods**

All enrollment data from DPBRN were entered from paper forms into an Access (Microsoft Office®) database with 5% of data re-entered for quality-control. These data were then stored in an SQL (Structured Query Language) database. Data from on-line enrollments were captured into the SQL database. Analytic datasets were extracted, underwent a final quality-control analysis and were converted to SAS® (SAS Institute, Cary, NC) and SPSS® 12.0 (SPSS, Inc, Chicago, IL) datasets. For categorical responses, chi-square goodness-of fit tests were used to test for differences between the ADA Survey item and the DPBRN enrollment questionnaire item. Two-sample t-tests were used to examine continuous responses. For all cases, significance was determined by  $p < 0.05$ . Because some DPBRN responses were categorized into percentile ranges, a midpoint was assigned to each range in order to derive an approximate mean and standard deviation for reporting. We used this method for the variables regarding number of operatories, number of patients/week, number of days waiting for a new patient

exam, and number of minutes waiting in the front area. All analyses were done using SPSS<sup>®</sup> 12.0 and were independently verified using SAS<sup>®</sup> 9.1.

## Results

Table 2 presents the results comparing the ADA Survey dentists to all DPBRN practitioners, and the ADA Survey dentists to US DPBRN practitioners only.

There were no statistically significant differences between the ADA Survey dentists and DPBRN practitioners (all and US), with the exception of graduation year. For example, 81.3% of those in the ADA Survey were general practitioners, compared to 75.4% of all DPBRN and 76.1% of US DPBRN participants. With regards to race, 87.2% of those in the ADA Survey<sup>17</sup> were white; for all DPBRN practitioners, 93.2% were white; 91.6% for the DPBRN US practitioners.

With regard to ethnicity, 3.4% in the ADA Survey were Hispanic, compared to 1.5% for all DPBRN practitioners, and 1.6% for US DPBRN practitioners.<sup>17</sup> When asked about number of office locations, approximately 90% of all practitioners worked from one office. When asked about insurance coverage for patients in their practice, 64.0% of those in the ADA Survey said their patients are covered by private insurance, compared to 58.1% of all DPBRN practitioners and 59.6% of US DPBRN practitioners. All practitioners (ADA and DPBRN) said that they have approximately 4 operatories in their office, have 60 patient visits per week, have a 10-day waiting period for new patient examinations, and their patients spend about 8 minutes in the waiting room before they are seen. With regard to graduation year, a higher percentage of DPBRN practitioners graduated after 1994: only 9.5% of the ADA Survey participants graduated after 1994, compared to over 20% of DPBRN practitioners (all and US).

Not all enrolled DPBRN dentists have participated in a DPBRN study. For example, a total of 493 DPBRN general practitioners completed DPBRN Study 1. To further assess how applicable DPBRN practitioner-investigators are, these practitioners were compared to the general practitioners who completed the ADA Survey. These results are provided in Table 3. Similar to the comparisons from Table 2, there were no statistically significant differences between these groups, with the exception of graduation year: practitioners participating in DPBRN Study 1 typically graduated later.

## Discussion

These results indicate that practitioners participating in DPBRN are similar to dentists across the nation with regard to gender, race, ethnicity, number of offices, insurance coverage by patients in their practice, number of operatories, number of days waiting for a new patient exam, and number of minutes that patients wait after arrival in the office.

There was one characteristic that was significantly different: graduation year. With the introduction of the online enrollment, younger practitioners may have felt more comfortable completing the questionnaire compared to their older counterparts. Another explanation could be that recent graduates may want to learn about what is more beneficial for their daily clinical practice. Additionally, two DPBRN regions provide dental care exclusively (PDA) or mainly (HP) in a health maintenance organization context. These contexts may attract younger dentists. For example, 42% and 33% of DPBRN practitioner-investigators from PDA and HP, respectively, graduated after 1994. However, the percent of practitioners who graduated since 1994 ranged from 13% to 20% in the other DPBRN regions.

These results do have some limitations. A larger percentage of younger dentists do not own their practices, so they may be under-represented in the subset of the ADA survey that we

looked at. In addition, the ADA data used in these analyses were limited to independent dentists: therefore, dentists practicing in HMOs may not be included in their analyses, which may explain the differences in graduation year. Although dentists in PDA are considered independent dentists, the practitioners in HP are considered employed. The ADA data we looked at involved independent dentists only.

## Conclusion

Past studies have shown that it takes an average of 17 years to turn just 14% of original research findings into changes in care that will benefit patients.<sup>25</sup> When research is done in an academic setting, patients are not typically representative of the majority of those who receive care in a private setting, and the results of these studies may not be applicable to many communities.<sup>21–22,26</sup> PBRNs have great potential to speed this process.<sup>19,21–24</sup> If practitioners are involved with the development of the studies and are involved in projects that are relevant to everyday clinical practice, they are more likely to use the results.<sup>5</sup> An assessment of how applicable the findings of PBRN research are to the dental community at large is important in evaluating its impact on changing clinical practice.<sup>18</sup> With regard to DPBRN specifically, ideas for almost all studies conducted by DPBRN originate from DPBRN practitioner-investigators themselves, so DPBRN results have the potential to help shorten the time gap between when study results are incorporated into clinical practice.<sup>19</sup> In a 2000 ADA Membership Needs and Opinion Survey, 80% of ADA members felt that implementing treatment for their patients based on scientific findings was a ‘critical’ or ‘significant’ issue, stressing the importance of the findings from PBRNs.<sup>20</sup>

DPBRN is a large and diverse network that encompasses several US states and three countries of Scandinavia. Research data gathered from DPBRN practices should result in a large amount of useful information that could be translated into daily clinical practice and applicable to dentists across the nation. DPBRN dentists have much in common with dentists across the nation. These commonalities should increase the likelihood that DPBRN studies will be applicable to other practices, thereby fostering knowledge transfer in both the research-to-practice and practice-to-research directions.

## Acknowledgments

This investigation was supported by NIH grants DE-16746 and DE-16747. An Internet site devoted to details about DPBRN is located at [www.DPBRN.org](http://www.DPBRN.org). Persons who comprise the DPBRN Collaborative Group are listed at <http://www.DPBRN.org/users/publications>. The authors would like to thank Sha Zhu, Statistician, at the University of Alabama at Birmingham for his help with the DPBRN enrollment data and verification of analyses; Thomas P. Wall, Manager of Statistical Research at the ADA Health Policy Resources Center, for his help with the ADA survey data; and Vibeke Qvist, DDS, PhD, DrOdont of the Royal Dental College at the University of Copenhagen. Opinions and assertions contained herein are those of the authors and are not to be construed as necessarily representing the views of the respective organizations or the National Institutes of Health. The informed consent of all human subjects who participated in this investigation was obtained after the nature of the procedures had been explained fully.

## References

1. Pearce KA, Love MM, Barron MA, Matheny SC, Mahfoud Z. How and why to study the practice content of a practice-based research network. *Ann Fam Med* 2004;2:425–428. [PubMed: 15506575]
2. Fagnan LJ, Morris C, Shipman SA, Holub J, King A, Angier H. Characterizing a practice-based research network: Oregon rural practice-based research network (ORPRN) survey tools. *JABFM* 2007;20:204–219. [PubMed: 17341758]
3. Green LA, Fryer GE Jr, Yawn BP, Lainer D, Dovey SM. The ecology of medical care revisited. *N Engl J Med* 2001;344:2021–2025. [PubMed: 11430334]
4. Mjör IA, Gordan VV, Abu-Hanna A, Gilbert GH. Research in dental practice. *Acta Odontol Scand* 2005;63:1–9. [PubMed: 16095055]

5. Mold JW, Peterson KA. Primary care practice-based research networks: working at the interface between research and quality improvement. *Ann Fam Med* 2005;3:S12–S20. [PubMed: 15928213]
6. Green LA, White LL, Barry HC, Nease DE, Hudson BL. Infrastructure requirements for practice-based research networks. *Ann Fam Med* 2005;3:S5–S11. [PubMed: 15928219]
7. Lenfant C. Clinical research to clinical practice: lost in translation? *New Engl J Med* 2003;349:868–874. [PubMed: 12944573]
8. Pihlstrom BL, Tabak L. The National Institute of Dental and Craniofacial Research. Research for the practicing dentist. *J Am Dent Assoc* 2005;136:728–737. [PubMed: 16022037]
9. Tabak LA. Dentistry on the road(map). *J Am Dent Assoc* 2004;135:1362–1363. [PubMed: 15551971]
10. American Dental Association, Survey Center. The 2004 survey of dental practice. Chicago: American Dental Association; 2006.
11. Wall TP, Brown LJ. Recent trends in dental visits and private dental insurance, 1989 and 1999. *J Am Dent Assoc* 2003;134:621–627. [PubMed: 12785498]
12. Brown LJ, Lazar V. Trend analysis of dental practice: rent and mortgage expenses: 1989–1995. *J Am Dent Assoc* 1999;130:424–430. [PubMed: 10085668]
13. Brown LJ, Lazar V. Trend analysis of dental expenditures by selected dentist and practice characteristics, 1985–1005. *J Am Dent Assoc* 1998;129:1615–1621. [PubMed: 9818583]
14. Seale NS, Casamassimo PS. Access to dental care for children in the United States: a survey of general practitioners. *J Am Dent Assoc* 2003;134:1630–1640. [PubMed: 14719761]
15. Lazar V. Dental hygienists in the United States: results of an ADA survey. *J Am Dent Assoc* 1997;128:651–653. [PubMed: 9150651]
16. Brown LJ, Lazar V. Dental expenditures by selected dentists and practice characteristics. *J Am Dent Assoc* 1998;129:1474–1479. [PubMed: 9787548]
17. American Dental Association, Survey Center. Distribution of dentists in the United States by region and state, 2004. Chicago: American Dental Association; 2006.
18. Slora EJ, Thoma KA, Wassweman RC, Pedlow SE, Bocian AB. Patient visits to a national practice-based research network: comparing pediatric research in office settings with the national ambulatory medical care survey. *Pediatrics* 2006;118:228–234.
19. Westfall JM, Mold J, Fagnan L. Practice-based research-“Blue highways” on the NIH roadmap. *JAMA* 2007;297:403–406. [PubMed: 17244837]
20. Burgess K, Ruesch JD, Mikkelsen MC, Wagner KS. ADA members weigh in on critical issues. *J Am Dent Assoc* 2003;134:103–107. [PubMed: 12555963]
21. Green LA, Dovey SM. Practice-based primary care search networks: they work and they are ready for full development and support. *Br Med J* 2001;322:567–568. [PubMed: 11238139]
22. Green LA, Hickner J. A short history of primary care practice-based research networks: from concept to essential research laboratories. *J Am Borad Fam Med* 2006;19:1–10.
23. Lindbloom EJ, Ewigman BG, Hickner JM. Practice-based research networks: the laboratories of primary care research. *Med Care* 2004;42(4 Suppl):III45–49. [PubMed: 15026664]
24. Thomas P, Griffiths K, Kai J, O’Dwyer A. Networks for research in primary health care. *BMJ* 2001;322:588–590. [PubMed: 11238155]
25. Balas, EA.; Boren, SA. yearbook of Medical Informatics: Patient-Centered Systems. Stuttgart, Germany: Schattauer; 2000. Managing clinical knowledge for health care improvements; p. 65-70.
26. Tierney WM, Oppenheimer CC, Hudson BL, Benz J, Finn A, Hickner JM, Lanier D, Gaylin DS. A national survey of primary care practice-based research networks. *Ann Fam Med* 2007;5:242–250. [PubMed: 17548852]
27. American Dental Association. Distribution of Dentists in the United States by region and state. Chicago: American Dental Association; 2001.
28. Veitz-Keenan A, Berkowitz GS, Brandes I, Goldbert KL, Hamlin DA, Margolin R, Oen K. Practice-based research networks. A win-win for private practice dentists and the future of dentistry. *NY State Dent J* 2007;73:14–15.
29. Ship JA, Curro FA, Caufield PW, Dasanayake AP, Lindblad A, Thompson VP, Vena D. Practicing dentistry using findings from clinical research. You are closer than you think. *J Am Dent Assoc* 2006;137:1488–1491. [PubMed: 17082265]

**Table 1**

Number of Dentists Who Completed a DPBRN Enrollment Questionnaire, by Region

Region	AL/MS	FL/GA	HP/MN	PDA	SK	Total
Number	809	130	44	64	39	1086
Percent	74.5	12.0	4.0	5.9	3.6	100.0

Number of Dentists Who Completed a DPBRN Enrollment Questionnaire and Who Also Completed DPBRN Study 1, by Region (Restricted to general practitioners)						
Region	AL/MS	FL/GA	HP/MN	PDA	SK	Total
Number	281	93	28	49	32	493
Percent	57.0	18.9	5.7	9.9	6.5	100.0

AL/MS: Alabama/Mississippi

FL/GA: Florida/Georgia

HP/MN: HealthPartners/Minnesota

PDA: Permanente Dental Associates

SK: Scandinavian countries of Norway, Denmark, and Sweden

**Table 2**

Practitioner and Practice Characteristics, in Percent or Mean, for the ADA Survey, all practitioners in DPBRN, and US practitioners in DPBRN

	ADA Survey* n= 2314	DPBRN (All)* n=1086	US DPBRN* n= 1047
<b>Practitioner Type</b>			
General Practitioner	81.3	75.4	76.1
Specialist	18.7	24.1	23.9
<b>Gender</b>			
Male	88.8	83.5	84.0
Female	11.2	16.5	15.3
<b>Race</b>			
White	87.2	93.2	91.6
African-American	2.0	3.6	3.7
All Other	8.0	3.2	3.2
<b>Ethnicity</b>			
Hispanic	3.4	1.5	1.6
Non-Hispanic	96.6	98.5	97.0
<b>Graduation Year<sup>† ‡</sup></b>			
Before 1974	23.9	19.0	19.1
1974–1983	37.7	35.3	34.9
1984–1993	25.9	23.3	23.3
After 1994	9.5	22.4	22.6
<b>Number of Offices</b>			
One	93.1	87.4	86.5
Two	5.7	11.2	11.0
Three or more	1.2	2.5	2.5
<b>Insurance coverage by patients in practice</b>			
Private insurance	64.0	58.1	59.6
Public Insurance	5.7	13.8	11.7
Not covered by any program	30.3	28.1	28.7
<b># Operatories (SD)</b>			
	4.0 (1.8)	3.5 (1.2)	3.8 (1.4)
<b># patients/week (SD)</b>			
	60.5 (47.7)	58.0 (49.3)	55.3 (47.5)



	ADA Survey* n= 2314	DPBRN (All)* n=1086	US DPBRN* n= 1047
# days waiting for new patient exam (SD)	9.2 (11.3)	10.8 (13.3)	9.7 (12.1)
# minutes waiting in front area (SD)	7.8 (7.1)	7.7 (7.7)	8.3 (8.1)

All statistical tests were performed using the chi-square test or two-sample t-test.  $p < 0.05$  is significant

\* sample size for the ADA survey ranges from 2053–2314 dentists; 863–1086 dentists for DPBRN (All); 854–1047 dentists for DPBRN (US)

† differences between the ADA Survey and DPBRN (All) are statistically significant

‡ differences between the ADA Survey and DPBRN (US) are statistically significant

**Table 3**

Practitioner and Practice Characteristics, in Percent or Mean, for the ADA Survey (limited to general practitioners) and DPBRN practitioners who completed Study 1 (limited to general practitioners)

	ADA Survey (general practitioners) n=1498*	DPBRN Study 1 (general practitioners) n=493*
<b>Gender</b>		
Male	88.9	82.8
Female	11.1	17.2
<b>Race</b>		
White	NA	94.1
African-American	NA	3.1
All Other	NA	2.9
<b>Ethnicity</b>		
Hispanic	NA	2.2
Non-Hispanic	NA	97.8
<b>Graduation Year<sup>†</sup></b>		
Before 1974	25.4	14.4
1974–1983	39.1	40.2
1984–1993	25.8	24.6
After 1994	9.7	20.7
<b>Number of Offices</b>		
One	97.4	93.6
Two	2.5	5.7
Three or more	--	0.6
<b>Insurance coverage by patients in practice</b>		
Private insurance	64.7	58.4
Public Insurance	5.4	14.7
Not covered by any program	30.0	26.9
<b># Operatories</b>	3.8 (1.5)	4.0 (2.3)
<b># patients/week (SD)</b>	51.2 (25.7)	49.1 (27.1)
<b># days waiting for new patient exam (SD)</b>	9.2 (11.3)	10.3 (12.0)

	ADA Survey (general practitioners) n=1498*	DPBRN Study 1 (general practitioners) n=493*
# minutes waiting in front area (SD)	7.5 (7.0)	8.4 (7.4)

All statistical tests were performed using the chi-square test or two-sample t-test.  $p < 0.05$  is significant

\* sample size for the ADA survey ranges from 1033–1498 dentists; sample size for DPBRN Study 1 ranges from 405–493

NA: data limited to general practitioners were not available

† differences between the ADA Survey and DPBRN practitioners who completed Study 1 are statistically significant

-- not enough responses for reliable statistical analysis