Board Certification Status and Pediatric Dentists' Practice Characteristics

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Abstract

Purpose: Board certification is often used as a surrogate indicator of provider competence and quality of care, although few studies have demonstrated its validity. The aim of this study was to assess the relationship between board certification status and a set of quality characteristics of pediatric dental practice.

Methods: A 30-item questionnaire was developed that collected information regarding practice characteristics in the areas of: (1) professional growth/practice management; (2) emergency readiness; (3) treatment guidelines utilization; (4) patient pool selection; (5) safety; and (6) behavior management. The questionnaire was mailed to 250 board-certified and 250 noncertified pediatric dentists paired by year and program of graduation.

Results: Overall, respondents—irrespective of pairing by program and year of graduation—tended to answer affirmatively or largely positively to most questions. Maintaining hospital privileges and having routinely CPR-certified staff were significantly related to the board certification status. When year of graduation and residency program attended was considered, however, this significance disappeared. In categories of treatment guidelines utilization, patient pool selection, safety protocols and behavior management, there was no significant difference between board certified and nonboard certified pediatric dentists ($P>.05$).

Conclusions: Generally, pediatric dentists independent of certification status, practice at a high level of quality, as measured in this study. (*Pediatr Dent.* 2005;27:12-18)

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Today, more than ever, board certification is used as a measure of provider competence in medicine and dentistry. The Joint Commission on Accreditation of Healthcare Organizations and the National Committee for Quality Assurance integrate board certification into their hospital accreditation standards, and most hospitals require board certification for providers applying for medical staff privileges. Many managed care organizations and insurance plans reimburse hospitals at a higher rate for board certified providers; in addition, board certification is an eligibility requirement in order to join the provider plan.[1-3]

Board certification has also been linked to lower malpractice premiums, election to professional societies, higher federal salaries, promotions in academics, and being recognized as an expert witness in legal actions.[3,4] Finally, the public views board certification as a measure of health care provider competence and expertise in providing quality clinical care.[2,5] The question remains, however, as to whether the quality of care given to a patient by a nonboard certified provider is different from the care given by a board certified provider.[3] In a survey of hospital administrators, 73% reported they prefer board certified physicians to staff their emergency department. When asked about the importance of board certification vs experience, however, 68% chose experience over certification with comments such as "hands-on experience is better than any test you can take."[1]

Table 1. Demographic Data by Certification Status

Gender	Diplomate	Non-diplomate	Significance
Whole group			*P*=.32; NS
Male	61 (39%)	41 (34%)	
Female	94 (61%)	81 (66%)	
SS group			*P*=.47; NS
Male	20 (27%)	24 (32%)	
Female	55 (73%)	51 (68%)	

*Chi-square test.

Table 2. Demographic Data by Certification Status*

Years in Practice	Diplomate	Non-diplomate	Significance
Whole group			
N	153	122	
Mean±SD	14.5±5.7	14.3±5.3	*P*=.74; NS
Minimum	3	3	
Maximum	28	29	
SS group			
N	73	75	
Mean±SD	15.6±5.8	13±5.7	*P*=.54; NS
Minimum	3	3	
Maximum	27	29	

*Mann-Whitney U test; N=no. of responses.

There is inconsistency in findings relating physician performance to certification status.[6] In 2002, Sharp et al performed a systematic review of published studies in medicine to evaluate the link between certification and clinical outcomes. Of the 33 findings:

1. 16 showed a significant relationship between certification status and good clinical outcomes;
2. 3 demonstrated worse outcomes for certified physicians;
3. 14 revealed no association.[2]

In pediatric dentistry, no studies have assessed the relationship between board certification status and quality of practice. Although it is hard to define quality, the American Academy of Pediatric Dentistry (AAPD) Reference Manual has established a set of guidelines to assist the dental provider in making patient care-related decisions. Accordingly, "adherence to the guidelines increases the probability of a favorable practice outcome and decreases the likelihood of an unfavorable practice outcome."[7]

Using AAPD guidelines, federal and state regulations, and the American Board of Pediatric Dentistry (ABPD) site visit checklist to develop a set of quality indicators,[7,8] this study assessed the relationship between board certification status and the quality indicator characteristics of pediatric dentists' practices.

Table 3. Professional Growth and Practice Management Questions and Responses*

Professional growth/development		Whole sample			Same school (subsample)		
Question		Diplomate	Non-diplomate	Adj *P*†	Diplomate	Non-diplomate	Adj *P*†
		N/%	N/%		N/%	N/%	
Are all your practice's assistants certified as dental assistants?	Yes No	60/39 95/61	52/43 70/57	1	28/37 47/63	31/41 44/59	1
Do you have a written manual of the policies and procedures for your practice?	Yes No	130/84 25/16	94/77 28/23	1	61/81 14/19	54/72 21/28	1
Does your practice send your staff to continuing education?	Yes No	146/94 9/6	110/90 12/10	1	73/97 2/3	8/91 67/9	1
Do you exceed your state's continuing education requirements for relicensure?	Always Mostly Usually Rarely Never	122/79 25/16 7/4 1/1 0/0	80/65 24/20 12/10 5/4 1/1	.72	58/77 12/16 4/5 1/1 0/1	49/65 15/20 5/7 5/7 1/1	1
Do you review the scientific literature in every issue of: *Pediatric Dentistry*?	Yes No	126/81 29/19	89/74 32/26	1	63/84 12/16	53/72 21/28	1
Journal of American Dental Association?	Yes No	81/52 74/48	52/43 70/57	1	46/61 29/39	35/47 40/53	1
Journal of Dental Research?	Yes No	10/6 145/94	15/12 107/89	1	8/11 67/89	10/13 65/87	1
Do you maintain hospital privileges?	Yes No	140/90 15/10	89/74 31/26	.01*	67/89 8/11	53/73 20/27	.29

**P*<.05; N=no. of responses.
†Step-down Bonferroni method of Holm.

Table 4. Emergency Readiness Questions and Responses*

Emergency readiness		Whole sample			Same school (subsample)		
Question		Diplomate	Non-Diplomate	Adj *P*†	Diplomate	Non-diplomate	Adj *P*†
		N/%	N/%		N/%	N/%	
Does your practice have arrangements for after-hours dental emergencies for patients of record?	Yes No	151/97 4/3	116/96 5/4	1	74/99 1/1	70/95 4/5	1
Do you have positive-pressure oxygen in your office to manage medical emergencies?	Yes No	153/99 2/1	116/95 6/5	1	74/99 1/1	70/93 5/7	1
Is all your staff CPR certified on a regular basis?	Yes No	154/99 1/1	108/89 13/11	.003	74/99 1/1	65/88 9/12	.28
Do you provide comprehensive management of dental trauma in your office?	Always Mostly Usually Rarely Never	100/64 43/28 11/7 1/1 0/0	76/62 41/34 3/2 2/2 0/0	1	49/65 22/29 4/5 0/0 0/0	48/64 24/32 1/1 2/3 0/0	1

*$P<.05$; N=no. of responses.
†Step-down Bonferroni method of Holm.

Methods

A sample of 250 board-certified pediatric dentists, who graduated from an ADA-accredited residency program between 1980 and 1999, were selected from the AAPD membership. Using the criteria of same program attended and same year of graduation, a second group of 250 non-board certified pediatric dentists was selected and matched with the first group, creating pairs whose year of graduation and program training were identical. This was done to minimize the effects of training program and experience level of the subjects. No attempt was made to obtain a geographic distribution or gender balance in the sample.

Then, through a modified Delphi technique, a 30-item questionnaire was developed and mailed to all 500 pediatric dentists in early 2003. Questions were derived from: (1) AAPD guidelines; (2) ABPD's site visit checklist; (3) federal infection control guidelines; and (4) assorted sedation guidelines.[7-9]

A group of 5 pediatric dentists reviewed and refined questions to develop the final questionnaire. The questionnaire assessed the dentists' clinical practice in 6 categories: (1) professional growth/practice management; (2) emergency readiness; (3) treatment guidelines utilization; (4) patient pool selection; (5) safety; and (6) behavior management. The last question asked respondents their opinion on how their board certification status had affected their: (1) practice; (2) hospital appointment; and (3) other aspects of their professional lives. The results of this question, however, were not included in this report.

Between-group differences in gender and questionnaire responses were analyzed using chi-square tests. To prevent type I error inflation from multiple testing, questionnaire probabilities were adjusted using the step-down Bonferroni method of Holm.[10] With a nondirectional alpha risk of 0.05 and a power of 85%, a sample size of 75 subjects per group was required to detect a difference of ±20% for the dichotomous questions. The Mann-Whitney U test was used to assess between-group differences in years in practice. A *P* value ≤.05 was considered significant.

Results

Of the 500 mailings, 122 surveys were returned by non-board certified pediatric dentists for a response rate of 49%, and 155 were returned by board certified pediatric dentists for a 62% response rate. Of the 277 returned surveys, 150 were similar with respect to postdoctoral pediatric dentistry training program and year of graduation. Data were first analyzed comparing parameters for the board certified and noncertified group using all 277 returned surveys (whole-group diplomates vs whole-group non-diplomates). To help minimize the potential confounding effects of experience and training, data were also analyzed for those 150 subjects with similar residency programs and date of graduation (subgroup diplomates vs subgroup non-diplomates). Demographic data analysis showed no statistically significant differences for gender and years in practice for the whole group or the subgroup (Tables 1 and 2).

Overall, a majority of both certified and noncertified respondents answered very positively to most questions, with many combinations of "always" and "mostly" exceeding 80% for both groups. Questions were in a 5-point Likert-type or a yes/no question format and grouped into 6 different categories of practice. Questions related to the category of professional growth and development looked at: (1) continued learning for dentist and staff; (2) breadth of professional involvement; and (3) office management structure. In this category, there was a significant relationship between certification status and having hospital privileges, with more board certified dentists maintaining hospital privileges. When the data of the subgroup were analyzed, however, this significance disappeared (Table 3).

The area of emergency readiness included questions dealing with both medical and dental emergencies—including

Table 5. Use of Treatment Guideline Questions and Responses*

Treatment guidelines		Whole sample			Same school (subsample)		
Question		Diplomate	Non-Diplomate	Adj *P*†	Diplomate	Non-Diplomate	Adj *P*†
		N/%	N/%		N/%	N/%	
Do you record the amount of local anesthetic used for every treatment visits?	Always Mostly Usually Rarely Never	154/99 1/1 0/0 0/0 0/0	116/95 2/2 2/2 2/2 0/0	1	75/100 0/0 0/0 0/0 0/0	70/93 1/1 2/3 2/3 0/0	1
Do you use rubber dam when doing operative dentistry?	Always Mostly Usually Rarely Never	61/39 61/39 10/6 17/11 6/4	49/40 33/27 18/15 15/2 7/6	1	33/44 27/36 5/7 8/11 2/3	31/41 21/28 9/12 12/16 2/3	1
Do you follow the AAPD/FDA guidelines for prescribing the radiographs in your practice? (If you are unaware of these guidelines, check never.)	Always Mostly Usually Rarely Never	91/59 54/35 9/6 0/0 1/1	67/55 34/28 12/10 2/2 7/6	1	45/60 26/35 3/4 0/0 1/1	34/45 25/33 9/12 1/1 6/8	1
Do you perform a clinical examination before exposing a radiograph?	Always Mostly Usually Rarely Never	53/34 60/39 26/17 15/10 1/1	41/34 35/29 28/23 16/13 2/2	1	27/36 31/41 13/17 4/5 0/0	26/35 22/30 16/21 10/13 1/1	1
For your orthodontic patients, do you perform intra- and extraoral examination, take diagnostic records, and perform facial analysis?	Yes No No	72/47 2/1 80/52	43/36 4/3 73/61	1	35/47 2/3 37/50	36/49 3/4 35/47	1
Do you have water tested for fluoride content before you prescribe systemic fluoride supplements?	Always Mostly Usually Rarely Never	71/46 12/8 16/10 27/17 29/19	40/33 14/11 12/10 21/17 35/29	1	41/63 4/5 7/11 3/1 10/15	24/32 9/12 9/12 10/13 23/31	.475
Do you follow the AAPD/FDA guidelines on fluoride supplementation when prescribing the systemic fluoride? (If you are unaware of these guidelines, please check never.)	Always Mostly Usually Rarely Never	126/81 19/12 7/4 0/0 3/2	92/75 15/12 5/4 6/5 4/3	1	62/83 6/8 5/7 0/0 2/3	56/75 10/13 2/3 6/8 1/1	1

*$P<.05$; N=no. of responses.
†Step-down Bonferroni method of Holm.

availability, providing comprehensive trauma care, equipment, and staff training. In this category, there was a significant relationship between certification status and having routinely CPR-certified staff. This significance disappeared in the subgroup analysis (Table 4).

In the categories of treatment guidelines utilization, patient pool selection, safety protocols, and behavior management, there were no significant differences between board certified and nonboard certified pediatric dentists (Tables 5 to 8).

Discussion

Health care is moving in the direction of competence, and the quality of health services is equated with individual provider competence. Frequently, board certification is used to promote a perception of higher quality, and, in this competitive market, board certification has become a marketing tool for hospitals and HMOs.[1,5,11] The ABPD defines its mission as "to verify to the public and to the health professions that a pediatric dentist has successfully completed both an advanced educational program accredited by the American Dental Association Commission on Dental Accreditation and a voluntary examination process designed to validate the knowledge, application, and performance requisite to the delivery of proficient care in pediatric dentistry."[12]

Board certification has value for the individual, specialty, and the public. Becoming an ABPD diplomate is extremely gratifying, and most candidates consider passing the examination the pinnacle of their career. Another potential benefit of board certification is exposure to and adoption of practice guidelines, regulations, and procedures considered to be indicative of quality practice. This study's purpose was to compare board certified and noncertified pediatric dentists over a broad array of practice elements. These elements, in part or in whole, were considered in the literature to be quality indicators of pediatric dentistry practice, although the definition of quality remains elusive in all of health care.

Most responses were overwhelmingly positive and indicative of quality using the parameters studied. Since these respondents were mainly pediatric dentists who had been active in the field for up to 20 years, one might assume that

Table 6. Patient Pool Questions and Responses*

Patient Pool		Whole sample			Same school (subsample)		
Question		Diplomate	Non-Diplomate	Adj *P*†	Diplomate	Non-Diplomate	Adj *P*†
		N/%	N/%		N/%	N/%	
Do you accept children 3 years of age and younger in your practice?	Always Mostly Usually Rarely Never	153/99 2/1 0/0 0/0 0/0	116/95 2/2 3/2 0/0 1/1	1	73/97 2/3 0/0 0/0 0/0	71/95 2/3 2/3 0/0 0/0	1
Do you treat Medicaid or S-CHIP patients?	Always Mostly Usually Rarely Never	56/36 12/8 20/13 38/24 29/19	35/29 7/6 16/13 36/29 28/23	1	28/37 6/8 9/12 15/20 17/23	23/31 5/7 8/11 23/31 16/21	1
Do you treat children with special health care needs in your practice?	Yes No	155/100 0/0	120/100 0/0	1	75/100 0/0	74/100 0/0	1

*$P<.05$; N=no. of responses. †Step-down Bonferroni method of Holm.

Table 7. Practice Safety Questions and Responses*

Safety		Whole sample			Same school (subsample)		
Question		Diplomate	Non-Diplomate	Adj *P*†	Diplomate	Non-Diplomate	Adj *P*†
		N/%	N/%		N/%	N/%	
Do you prescribe SBE antibiotics, as recommended by the American Heart Association?	Always Mostly Usually Rarely Never	153/99 1/1 0/0 1/1 0/0	119/97 2/2 0/0 1/1 0/0	1	73/97 1/1 0/0 1/1 0/0	72/96 2/3 0/0 1/1 0/0	1
Are and your staff tested for tuberculosis annually?	Yes No	66/43 89/57	44/36 77/64	1	32/43 43/57	27/36 47/63	1
Are you and your clinical staff immunized against Hepatitis B or do you/they demonstrate natural antibodies to hepatitis B?	Yes No	154/99 1/1	120/98 2/2	1	74/99 1/1	73/97 2/3	1
In the event that you or your staff are exposed to blood or potentially infectious material, do you have a written protocol for immediate and long-term postexposure management?	Yes No	142/92 13/8	100/82 22/18	1	69/92 6/8	61/81 14/19	1
Does your office have radiation exposure monitoring procedures (eg, badges)?	Yes No	82/53 73/47	55/45 66/56	1	42/56 33/44	33/45 41/55	1

*$P<.05$; N=no. of responses. †Step-down Bonferroni method of Holm.

these largely positive responses indicate that many factors—such as continuing education, journal reading, and peer pressure—might contribute to shaping the contemporary pediatric dentistry practice. It is important to consider that some noncertified respondents might have completed part of the certification process and, thus, may have been similar to certified respondents. The authors did not measure this in their study, and they feel it would be difficult to quantify. Pursuit of board certification may be just one factor in an evolving practice's pursuit of quality, or, for many quality practices, it may have no role at all. The number of confounding variables—state regulation, location of practice, limits of practice, personal goals, and others—certainly need to be considered when interpreting this study's data.

The very similar responses to these quality measures suggest that the board certification process may miss recognizing many deserving practitioners who possess characteristics recognized by the Board in successful candidates, but whose busy professional and personal lives divert them from the process. A recognition process rather than an evaluative process may achieve a similar result in terms of acknowledging quality. A recognition process also offers, collectively and individually, more benefit from a larger cadre with certification. In short, there is uncertainty about the meaning of board certification. While achieving certification may be an index of a provider's ability, this study suggests that lack of certification does not mean a less-than-quality practice.

This study has implications for agencies and institutions using board certification in their selection process.[4] For example, a hospital's requirement for certification as a prerequisite for medical staff membership would deny many qualified pediatric dentists

Table 8. Behavior Management Questions and Responses*

Behavior management		Whole sample			Same school (subsample)		
Question		Diplomate	Nondiplomate	Adj *P*†	Diplomate	Nondiplomate	Adj *P*†
		N/%	N/%		N/%	N/%	
Do you obtain separate consent for restraint when used?	Always	104/67	84/69	1	47/63	50/66	1
	Mostly	18/12	9/7		10/13	7/9	
	Usually	7/4	6/5		3/4	4/5	
	Rarely	16/10	11/9		11/15	11/15	
	Never	10/6	12/10		4/5	4/5	
Do you document per-visit behavior in your records?	Always	131/84	91/75	.13	64/85	56/75	1
	Mostly	19/12	13/11		8/11	8/11	
	Usually	4/3	15/12		3/4	10/13	
	Rarely	0/0	2/2		0/0	1/1	
	Never	1/1	1/1		0/0	0/0	
Do you get procedure-specific informed consent when using any pharmacological means of behavior management?	Always	132/85	86/70	.99	66/88	56/75	.35
	Mostly	9/6	10/8		4/5	8/11	
	Usually	4/3	10/8		2/3	6/8	
	Rarely	4/3	6/5		3/4	0/0	
	Never	6/4	10/8		0/0	5/7	
For patients you sedate, do you follow AAPD guidelines?	Yes	120/78	80/67	.17	57/77	51/69	1
	No	4/3	0/0		2/3	0/0	
	NA	30/19	40/33		15/20	23/31	

*P<.05; N=no. of responses.
†Step-down Bonferroni method of Holm.

an appointment, since this study's data suggest they practice to a similar level of quality. The denial of hospital membership has an effect on availability of dental services for those children needing general anesthesia. Interestingly, in the whole group analysis in this study, board certification affected hospital membership.

In a feature article titled "Assessing a physician's worth," McCartney questioned the validity of board certification as a method to determine whether a physician can join a managed care plan or obtain hospital privileges.[3] According to McCartney, board certification reflects an individual's ability to complete a difficult scholarly task at a given point in time successfully, but it does not measure many important traits required to be a valuable health care provider. A practitioner's ability cannot be measured by auditing a few self-selected charts and evaluation of a one-time performance is not a valid measure of consistent, repeated performance at an acceptable level of quality.

The certification process cannot measure the ethical nature of a physician's practice, value of life experience, manual dexterity, patient satisfaction, work habits/ability to handle stressful situations, response to criticism, and the ability of a physician to participate as part of a health care team. Although successful completion of the certification process is a valuable measure in assessing knowledge base, it should be only one of many factors considered when selecting physicians for hospitals or managed care plans.[3]

There were limitations to this study that need to be addressed in future research. As with any self-reported data, one might question whether responses were actually indicative of how the pediatric dentists practiced or how they wanted to appear to practice. The nature of this questionnaire–that is, its revealing or disclosing nature—may have dissuaded some from responding. Consequently, the nonrespondents may not be accurately represented by those who did respond, and the results may be skewed. This study's response rate, at about half of the original sample, is not as high as it could be and also limits the extension of these findings.

Another limitation of this study was the use of a nonvalidated questionnaire. Primarily, these quality indicators were developed based on measures described in the literature and their validity or precision of measurement had not been established. Unfortunately, no national standards exist for quality in pediatric dentistry. In medicine, clinical outcomes such as mortality, morbidity, patient evaluation of care, costs for services, and malpractice litigation have become the "gold standard" for evaluating the quality of care.[2] Clinical outcomes, as opposed to practice characteristics, could be chosen for future studies.

Finally, the authors were impressed by the disproportionate response from women pediatric dentists in all categories. The fact that the authors used graduates from 1980 to 1999 may have accounted for this, since the gender balance of the specialty has shifted dramatically over the last 2 decades.

Conclusions

Overall, the tendency of all the respondents was to answer affirmatively or largely positively to most questions. This suggests that, in general, pediatric dental practices perform at a high level of compliance to quality measures used in this study, irrespective of board certification status.

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Abstract of the Scientific Literature

Measuring Preventive and Developmental Services for Young Children: US Patterns

The objective of this study was to generate a national picture of performance for pediatric care in the area of preventive and developmental services for children ages 4 to 35 months. Four composite measures were calculated in the areas of: (1) anticipatory guidance and parental education (AGPE); (2) screening for family psychosocial risks (FA); (3) screening for smoking and drug and alcohol use in the home (SDA); and (4) provision of family-centered care (FCC). Data from the National Center for Health Statistics, in which 2,068 parents were surveyed, were used to calculate national estimates of performance for these composite measures. Four different scoring methods were used to construct composite scores: (1) all or nothing; (2) preference sensitive; (3) unmet need; and (4) mean coverage.

On average, pediatric clinicians discussed 62% of the 10 to 12 age-appropriate topics with parents of young children. The unmet-needs scoring method revealed that 94% of parents reported one or more unmet needs in at least one aspect of care. Their children were more likely to be older and uninsured. Results confirm substantial gaps between what is recommended and what parents report is provided for a number of health supervision areas for young children. Regardless of which scoring methods was used, parents generally reported receiving high-quality care in the areas of FCC and screening for SDA and lowest quality of care in the areas of AGPE and FA. This more complete approach to performance monitoring avoids inaccuracies that occur when only one aspect of care, such as immunizations or well-care visit rates, is used to measure performance.

Comments: Given that the authors report substantial gaps between what is recommended and what is provided in a number of child health supervision areas, the importance of young children also being assessed by pediatric dentists who may help "fill in these gaps" is reinforced. Pediatric dentists and pediatric clinicians should continue to strengthen their partnership in the joint supervision of the health of young children. RLH

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