Iowa Dentists' Willingness to Utilize Expanded Function Dental Auxiliaries

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Background

Expanded function dental auxiliaries (EFDAs), which includes both dental assistants and hygienists, are a classification of health care providers that are licensed and recognized in many states. In Iowa, expanded functions that can be performed by dental assistants* include: fabricating temporary crowns; removing temporary crowns; taking occlusal registrations; placement and removal of gingival retraction; taking final impressions; applying cavity liners, bases, desensitizing agents, or bonding systems; and testing pulp vitality.[1]

Some states have expanded the list of functions that EFDAs can provide to include restorative functions including placement and shaping of amalgam and composite restorations. The Dental Assistant National Board (DANB) maintains a web-based list of dental assisting job titles and the procedures that each are allowed to perform on a state-by-state basis.[2] States in the Midwest that currently allow EFDA's to place and contour amalgams and composites include Michigan, Minnesota, Missouri, and Ohio.[2] Increasing the services that EFDAs can perform has many advantages that may allow for improved practice efficiency. Several studies have demonstrated that EFDAs can provide more advanced services while maintaining quality of work similar to dentists.[3-5] EFDAs able to perform expanded duties could also contribute to increasing the profitability of dental practices and increasing access to care for patients.[6-10] Additionally, it is anticipated that these EFDAs with increased procedural capacity will experience improved job satisfaction and professional development.[11]

During the past several years there has been increased interest in Iowa about allowing EFDAs to provide additional functions. This recent interest is largely the result of statewide interest to maximize the efficiency of our current dental workforce to provide oral health care to the state's population. The idea of increasing EFDAs' duties in Iowa is not new. In fact, Iowa has a rich history in training and utilizing EFDAs to improve practice efficiency through the University of Iowa College of Dentistry's EFDA program of the 1970s.

In October 2011, Iowa Dental Association leadership presented a proposal to the Iowa Dental Board asking the board to consider expanding the number of reversible dental procedures a dental assistant is allowed to do after proper training and to allow dental hygienists to provide all reversible procedures that dental assistants are allowed to provide. This recommendation would, thereby, allow both hygienists and dental assistants to function as "expanded function dental auxiliaries" (EFDAs). The list of additional procedures recommended by

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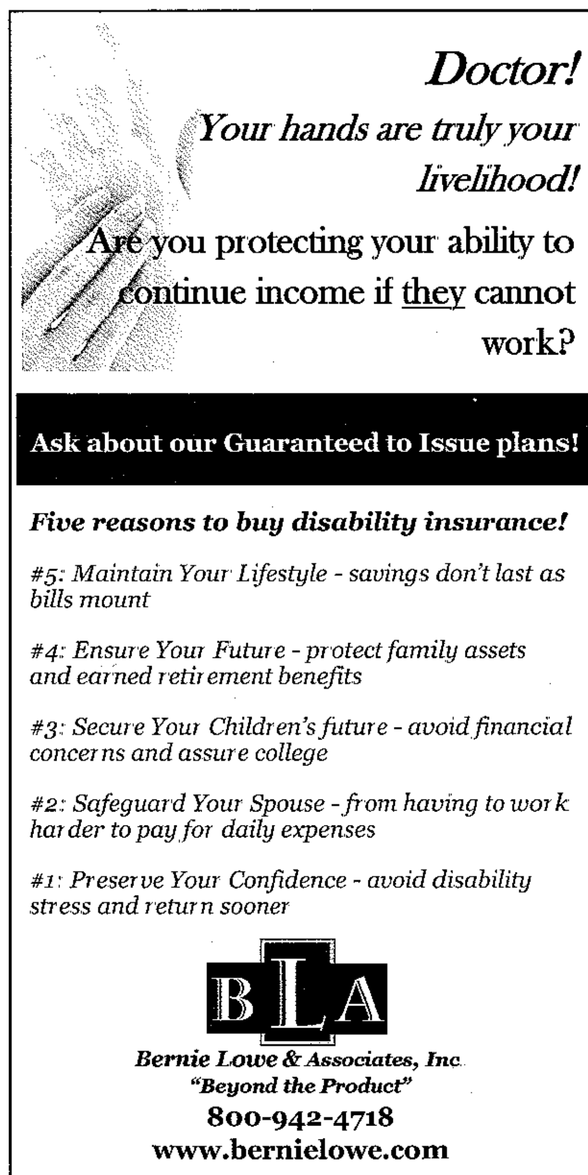
* *Currently in Iowa, only dental assistants are able to perform expanded functions, so they are known as "expanded function dental assistants" or EFDAs. However, we performed this study in mind of the possibility that both hygienists and assistants, as auxiliaries, may be allowed to perform expanded functions in Iowa. Thus, we use the term EFDAs in reference to expanded function dental auxiliaries.



the IDA included: removal of adhesives; placement and shaping of amalgam or composite restorations; forming and placement of stainless steel crowns; taking final impressions and records for the fabrication of dentures and partial dentures; and cementation of final restorations.

To address the IDA's recommendation, the Iowa Dental Board appointed a task force to deliberate about expanding the number of allowed procedures that can be performed by EFDAs and to make a recommendation to the board. Membership on the task force included dentists, dental hygienists, dental assistants and a lay member. In order to make a more informed recommendation to the Iowa Dental Board, the task force had three major questions about Iowa dentists' utilization and opinions of EFDAs:

1. How do dentists utilize EFDAs to perform currently allowed services?
2. What are Iowa dentists' attitudes toward using EFDAs to perform any of the additional duties being proposed?
3. How willing are Iowa dentists to pay for EFDAs to receive training in these additional services?

In sum, this study aimed to address these three major questions posed by the task force, and in turn, help the task force determine the acceptability of expanding the scope of practice for dental auxiliaries in order to increase the ability of Iowans to receive oral health care.

Methods

This study collected and merged information from several different sources in order to answer the three major questions charged by the EFDA task force. Results from the "2013 Survey of Iowa Dentists," the Iowa Dentist Tracking System (IDTS), and the United States Department of Agriculture Economic Research Service's Rural-Urban Continuum Codes (RUCCs) were merged and analyzed using univariate and bivariate statistics.

Several questions about EFDAs were included into the "2013 Survey of Iowa Dentists," a study designed and administered by The University of Iowa Public Policy Center. First, dentists were provided a list of allowable services and asked if they ever delegate these to an EFDA in their practice. Second, dentists were provided a list of proposed expanded functions and asked if they would consider delegating these to an EFDA in their practice. Finally, dentists were asked how strongly they would consider paying to train one of their own dental auxiliaries to perform one of the proposed services.

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Other questions in the survey assessed dentists' acceptance of new Medicaid patients, percent of patients in practices enrolled in Medicaid, and perceived workload.

The "2013 Survey of Iowa Dentists" was sent to all private practice dentists in Iowa and asked about their participation in and attitudes toward Medicaid. The survey was not sent to dentists practicing at community health centers or the University of Iowa College of Dentistry. We limited our study only to primary care providers in private practice (general and pediatric dentists) in Iowa. Other dental specialties are excluded from analysis here because EFDA procedures currently allowed in Iowa and those being proposed are most applicable to the practice of general and pediatric dentistry (e.g., fitting stainless steel crowns).

Responses to the survey were linked to data from the Iowa Dentist Tracking System (IDTS), which provides demographic data about all licensed dentists in the state.[12,13] IDTS data includes: dentist specialty; gender; age; dental school; practice arrangement; practice location; and hours worked per week. Full-time was considered 32 or more hours worked per week while part-time was considered any amount less than this.

Practice location information from the IDTS was used to describe the urbanicity of counties as either metropolitan or nonmetropolitan using Rural-Urban Continuum Codes (RUCCs, also known as a Beale Codes) of the county in which dentist's practice was located. The United States Department of Agriculture's Economic Research Service developed the 2013 RUCC classification system for counties in the United States.[14] Metropolitan counties are distinguished by population size while nonmetropolitan counties are characterized by degree of urbanization and proximity to metropolitan area(s).

Descriptive statistics were performed to examine characteristics of survey respondents, their current use of EFDAs, and the acceptability of additional expanded functions. Bivariate analysis was performed to determine possible associations between dentists' characteristics and whether they delegated any of the currently allowed procedures to EFDAs.

Results

Overall, 677 primary care providers responded to this survey, resulting in a response rate of 59.1% (Table 1). Over three-fourths of respondents were male. Slightly over half of respondents were 50 years or older. The majority of respondents were general dentists (N = 657). Approximately 44% of pediatric dentists in Iowa responded to the survey. Responders to the survey were representative of all surveyed dentists in gender and age ($p>0.05$). General dentists were significantly more likely to respond to the survey than pediatric dentists (59.7% vs. 44.4% $p = 0.042$).

The proportion of dentists delegating services to EFDAs ranged from 48.1% for fabricating temporary crowns to 15.8% for testing pulp vitality (Table 2). More than half of the dentists (58.5%) delegated at least one of the procedures EFDAs are currently allowed to perform. Bivariate analyses were performed to determine the characteristics of dentists that currently delegate at least one of the currently allowed services. Dentist characteristics of interest included specialty, gender, age, dental school attended, practice arrangement, county urbanicity, hours worked per week, perceived workload, and current Medicaid participation (Table 3).

Two dentist characteristics, gender and age, were found to be significantly associated with their decision to delegate services to EFDAs. Female dentists were significantly more likely than males to report delegating duties to EFDAs ($p = 0.010$). As age increased, dentists were significantly less likely to report delegating tasks to EFDAs ($p = 0.004$)

A majority of dentists would consider allowing EFDAs to perform at least one of the proposed services (71.1%) (Table 4). We found that dentists were less likely to consider using EFDAs for more complex duties than simpler ones. For example, most dentists (63.3%) reported that they would consider allowing EFDAs to remove cement/adhesives following permanent cementation of crowns/bridges. Dentists were least likely to consider delegating placing and shaping composite restorations with only 18.6% saying they would consider using EFDAs for this procedure. When considering only the more complex duties of placing and shaping composite or amalgam restorations as well as fitting and cementing stainless steel crowns, 37.0% of dentists would consider delegating at least one of those procedures to EFDAs.

Among 429 dentists who would consider delegating at least one of the proposed duties to EFDAs, 61.1% of dentists would give moderate or extreme consideration to covering the cost for training EFDAs, and an additional 20.3% of these primary care dentists would slightly consider paying for training. Only 18.6% of dentists that would allow EFDAs to perform at least one of the proposed expanded functions

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would not consider covering the cost of EFDA training at all.

Discussion

As many studies have demonstrated, EFDAs can increase practice efficiency by enabling practices to see more patients [6,8,9,11-14] Increasing EFDA duties in Iowa may have significant implications on dental practices and improving patients' access to oral health care. This study investigated dentists' characteristics and willingness to utilize EFDAs in order to determine the acceptability of improving access to oral health care in Iowa by expanding the number of procedures EFDAs may perform.

Most Iowa dentists are open to utilizing EFDAs. Nearly 60% of the dentists in this study already utilize EFDAs for currently allowed procedures and over 70% were willing to delegate at least one of the proposed expanded duties. Of the dentists willing to consider delegating a proposed duty to EFDAs, over 80% of them would consider paying for the training of EFDAs to perform these expanded duties. This study also found that younger dentists and female dentists were more likely to delegate procedures that are currently allowed in the state of Iowa. These encouraging results suggest that increasing the services EFDAs can provide would be a well-accepted and utilized policy change among Iowa's dental workforce that may help address issues about the future of Iowa's dental workforce and its ability to address Iowans' needs for dental care

The substantial proportion of dentists in Iowa who are approaching retirement is a source of concern for access to dental care in Iowa. Over half of Iowa's primary care dentists in private practice are 50 years or older and approaching retirement, so there could be a substantial decrease in dentists in the coming two decades.[13] Younger dentists' increased willingness to utilize EFDAs could offer a feasible way to help compensate for the coming decrease in dentists due to retirement.

Another trend in Iowa is the increasing number of female dentists. The percent of dentists in Iowa who are women increased from only 10.5% in 1997 to 23% in 2011.[12,13] Female dentist's increasing presence in the workforce makes their greater likelihood of delegating to EFDAs significant for policy making concerning improving access to oral health care. This is because expanding EFDA duties can increase the number of patients seen per day in a dental practice.

Because low income patients' ability to receive dental care is of particular concern in the access to care issue, we also investigated respondents' Medicaid participation. Although Medicaid participation was not associated with dentists' willingness to utilize EFDAs in this study ($p = 0.053$), there is still a strong likelihood that expanding EFDA duties can increase the number of Medicaid patients who receive care in Iowa. A 2010 survey supported this by demonstrating that 37% of pediatric dentists would care for more Medicaid patients if utilizing EFDAs with expanded duties would allow them to see more patients.[10]

This study may underestimate the impact EFDAs can have on access to oral health care in Iowa. Community health center dentists, academic dentists, and non-primary care providers who may also utilize EFDAs were not included in this study. This is especially important when considering that community health centers and dental schools largely care for low income patients as part of the dental safety net.[15]

The complexity of a procedure

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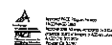

is important in a dentist's decision to delegate it to an EFDA. As the complexity of duties increases, dentists' willingness to delegate allowable duties decreases, as does their willingness to consider delegating proposed expanded functions. Regardless of whether EFDAs are trained in a procedure, dentists are likely to consider the difficulty and risks of a procedure before deciding if they would allow EFDAs to perform it. Convenience may be another aspect of a procedure that dentists consider before deciding to delegate it to an EFDA. For example, only 18.5% of dentists currently allow EFDAs to apply cavity liners, bases, desensitizing agents, or bonding agents on patients. This may be due to the fact that dentists are already present chairside to perform a restoration, so dentists may apply those materials themselves for convenience and practicality reasons. The complexity and the context in which a procedure is performed are both factors likely to influence whether a dentist delegates an allowable procedure to an EFDA.

Conclusion

The following findings of this study support the idea that increasing the number of procedures EFDAs may perform (following appropriate training) could be a feasible way to improve access to care in Iowa:

1. Most dentists in Iowa utilize EFDAs for at least one of the currently allowed EFDA procedures.

2. Most dentists in Iowa would consider delegating at least one of proposed expanded functions to appropriately trained EFDAs.

3. The majority of Iowa dentists who are willing to allow EFDAs to perform one of the proposed duties are also willing to consider paying for training EFDAs.

4. Younger dentists' increased willingness to delegate to EFDAs could improve practice efficiency, which in turn may help compensate for the aging Iowa dentist population.

5. Women dentists are more likely to delegate to EFDAs, which is significant when considering that delegating to EFDAs could improve their practices' efficiency and allow them to see more patients.

6. Dentists consider the complexity and the context in which a procedure is performed in their decision of whether to delegate it to EFDAs.

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Table 1. Survey response rates	
Total Responders	677/ 1,146 (59.1%)
Gender	
Male	518 (76.5%)
Female	159 (23.5%)
Age	
<30 years	39 (5.8%)
30-39	134 (19.8%)
40-49	127 (18.8%)
50-59	199 (29.4%)
60-69	154 (22.8%)
≥70	23 (3.4%)
Specialty	
General dentistry	657 (97.0%)
Pediatric dentistry	20 (3.0%)

Table 2. Current use of expanded function dental auxiliaries (EFDAs) among primary care dentists (N=677)

Do you ever delegate any of these duties to an EFDA in your practice?	**Yes**	**No**
Fabricate temporary crowns	310 (48.1%)	335 (51.9%)
Remove temporary crowns	291 (45.1%)	354 (54.9%)
Take occlusal registrations	283 (43.8%)	363 (56.2%)
Placement and removal of gingival retraction	179 (27.8%)	464 (72.2%)
Take final impressions	143 (22.2%)	502 (77.8%)
Apply cavity liners, bases, desensitizing agents, or bonding systems	120 (18.5%)	527 (81.5%)
Test pulp vitality	102 (15.8%)	543 (84.2%)
Do you ever delegate any of the duties listed above?*	396 (58.5%)	281 (41.5%)

*Used as dependent variable in Table 3.

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Table 3. Comparison of primary care dentists based on reported delegation of duties to EFDAs (N=677)				
		Does the dentist delegate at least one of the currently allowed EFDA duties?		
Variable	**Total**	**Yes**	**No**	**p-value**
Specialty				0.088
General dentistry	657 (97.0%)	388 (59.1%)	269 (40.9%)	
Pediatric dentistry	20 (3.0%)	8 (40.0%)	12 (60.0%)	
Gender				0.010*
Male	518 (76.5%)	289 (55.8%)	229 (44.2%)	
Female	159 (23.5%)	107 (67.3%)	52 (32.7%)	
Age (years)				<0.0001*
Mean ± SD	49.8 ± 12.6	48.1 ± 12.6	52.3 ± 12.3	
Age group				0.004*
<30 years	39 (5.8%)	27 (69.2%)	12 (30.8%)	
30-39	134 (19.8%)	93 (69.4%)	41 (30.6%)	
40-49	127 (18.8%)	81 (63.8%)	46 (36.2%)	
50-59	199 (29.4%)	106 (53.3%)	93 (46.7%)	
60-69	154 (22.8%)	78 (50.6%)	76 (49.4%)	
>70	23 (3.4%)	11 (47.8%)	12 (52.2%)	
Dental school				0.901
University of Iowa	198 (73.6%)	292 (58.6%)	206 (41.4%)	
Other	179 (26.4%)	104 (58.1%)	75 (41.9%)	
Practice Arrangement				0.107
Solo practice	201 (29.7%)	127 (63.2%)	74 (36.8%)	
Other	476 (70.3%)	269 (56.5%)	207 (43.5%)	
County Urbanicity				0.278
Metro	287 (42.4%)	161 (56.1%)	126 (43.9%)	
Nonmetro	390 (57.6%)	235 (60.3%)	155 (39.7%)	
Full-Time/Part-Time*				0.666
≥32 hours/week	579 (88.1%)	47 (60.3%)	2 (39.7%)	
<32 hours/week	78 (11.9%)	334 (57.7%)	245 (42.3%)	
Perceived workload				0.135
Too busy	162 (24.8%)	105 (64.8%)	57 (35.2%)	
Comfortable workload	366 (56.0%)	322 (57.7%)	155 (42.3%)	
Not busy enough	125 (19.1%)	67 (53.6%)	58 (46.4%)	
Accepts new Medicaid patients				0.084
Yes	385 (57.4%)	214 (55.6%)	171 (44.4%)	
No	286 (42.6%)	178 (62.2%)	108 (37.8%)	
Current percent of patients covered by Medicaid				0.053
0%	87 (14.9%)	61 (70.1%)	26 (29.9%)	
1-5%	208 (35.7%)	121 (58.2%)	87 (41.8%)	
6-10%	106 (18.2%)	63 (59.4%)	43 (40.6%)	
11-15%	55 (9.5%)	32 (58.2%)	23 (41.8%)	
>15%	126 (8.1%)	62 (49.2%)	64 (50.8%)	

Table 4. Proposed use of EFDAs: acceptance among primary care dentists (N=677)		
If the practice act was changed, would you consider utilizing an EFDA to provide any of these duties?	**Yes**	**No**
Removal of cement/adhesives following permanent cementation of crowns/bridges	414 (63.3%)	240 (36.7%)
Take final impressions and records for the fabrication of dentures and partial dentures	224 (34.3%)	429 (65.7%)
Fit and cement stainless steel crowns on primary teeth	209 (31.9%)	446 (68.1%)
Place and shape amalgam restorations following preparation of a tooth by a dentist	145 (22.3%)	504 (77.7%)
Cement final restorations (i.e., crowns, fixed partial dentures)	143 (22.0%)	506 (78.0%)
Place and shape composite restorations following preparation of a tooth by a dentist	122 (18.6%)	534 (81.4%)
Would you delegate any of the proposed duties?	466 (71.1%)	189 (28.9%)
Would you delegate any of the following duties?		
• Place/shape amalgam restorations • Place/shape composite restorations • Fit/cement stainless steel crowns	242 (37.0%)	412 (63.0%)

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