Access to Care and the Allied Oral Health Care Workforce in Kansas: Perceptions of Kansas Dental Hygienists and Scaling Dental Assistants


Abstract: Access to oral health care continues to be a problem in the United States. Research has called for innovative approaches to improve access to oral health care and reduce oral health care disparities. Successful alternate approaches have been reported. In 1998 the Kansas Legislature passed a proposal to enhance access to care and manpower needs by allowing dental assistants to provide supragingival scaling, a service traditionally assigned to dental hygienists. In 2000, Mitchell et al. investigated the perceptions of Kansas dental hygienists and scaling dental assistants in relation to House Bill 2724 (HB 2724), which allows dental assistants to perform coronal scaling. The intent of the study was to collect baseline data in relation to HB 2724. The purpose of the present study was to follow up on the impact of HB 2724 six years after legislation. Both groups report satisfaction with their professions: scaling dental assistants believe the delivery of care in Kansas has changed, and areas of Kansas previously noted as dental health professional shortage areas are now served by either a registered dental hygienist or scaling dental assistant.

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Key words: dental hygiene, dental assistants, access to care, perceptions, legislation

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In 2000, the U.S. Surgeon General released the report Oral Health in America: A Report of the Surgeon General, demonstrating that oral health disparities exist across all age groups.1 The report emphasized to policymakers, community leaders, private industry, health professionals, the media, and the public that oral health is crucial to general health and well-being. In April 2003, the Department of Health and Human Services released A National Call to Action to Promote Oral Health in response to the surgeon general’s report.2 The goals of the call to action were to promote oral health, improve quality of life, and eliminate oral health disparities. Five specific actions with implementation strategies were discussed: 1) change perceptions of oral health; 2) overcome barriers by replicating effective programs and proven efforts; 3) build the science base and accelerate science transfer; 4) increase oral health workforce diversity, capacity, and flexibility; and 5) increase collaborations. Programs that have overcome barriers in access to care caused by geographic isolation, poverty, insufficient education, and lack of language skills, including outreach efforts and community service activities conducted through dental schools and other health professional schools and residency programs, were to be recognized and imitated. By increasing collaborations among all sectors of society—the public, private practitioners, and federal and state government personnel—oral health programs could be designed, implemented, and monitored with people who have the knowledge and expertise to follow such programs.2
Dental hygienists are competent to provide services in a variety of settings such as residences of the homebound, public health and school-based programs, community clinics, and others. Patients in these settings have traditionally had difficulty gaining access to oral health care. In an effort to remove barriers to dental hygiene care and to address access to care problems, nineteen states allow some form of unsupervised practice or minimal supervision in at least some circumstances. Independent dental hygiene practice is one example of how one state sought to increase the public’s access to preventive and therapeutic services provided by dental hygienists.

In response to the call to action, the American Dental Hygienists’ Association (ADHA) introduced the advanced dental hygiene practitioner (ADHP) in 2004. As proposed, the ADHP would provide cost-effective, diagnostic, preventive, therapeutic, and restorative services to individuals with little or no access to oral health care. This would include working in hospitals, nursing homes, public health clinics, or wherever an unmet need existed for oral health care. Current state practice acts would require change for the restorative aspect of the ADHP’s responsibilities, but would extend direct access to preventive and simple restorative care to the public from an educated and licensed dental hygienist.

The ADHA supports utilization of dental hygienists who are graduates of accredited dental hygiene programs in all public and private practice settings to deliver preventive and therapeutic oral care services to the public, safely and effectively, independent of dental supervision. The average dental hygiene student takes 1,000 hours of basic and dental science courses and more than 600 hours of clinical instruction supervised by dental hygiene educators. Further measures ensuring competency of dental hygienists include required passage of the National Board Dental Hygiene Examination and a regional clinical examination prior to issuance of a license. Continuing competency is fostered through mandated continuing education, including Basic Life Support, required in the majority of states.

Haden et al. looked at how the allied dental workforce might be called upon for innovative approaches to improve access to oral health care and reduction of oral health care disparities. Those authors discussed the perceived shortage of dental hygienists that has led to efforts by the ADA House of Delegates to produce “alternate pathways” or educational tracks other than completion of an ADA Commission on Dental Accreditation-approved dental hygiene program. The American Dental Education Association (ADEA) continues to support its long-standing policy that confirms dental, advanced dental, and allied dental education programs accredited by the Commission on Dental Accreditation. As part of this policy, ADEA opposes preceptorship and other nonaccredited methods of training.

The state of Kansas is not immune to issues regarding a shortage of oral health care providers in rural areas. Kansas has a total of 105 counties. Approximately 31 percent of the state’s population lives in the fifty-eight counties defined as “rural” according to the low score on the United States Department of Agriculture’s Urban Influence coding system. Included in this definition is any county that does not contain an urban area with at least 10,000 residents and is not adjacent to a county with urban areas of at least 250,000 residents. Also, one-third of counties in Kansas are labeled as Health Professional Shortage Areas (HPSA) by the U.S. Health Resources and Services Administration. This suggests that those counties have less than one full-time dentist for every 4,000 people.

Trends in national health data indicate that urban residents were 11 percent more likely to have had a dental visit in the past year than nonurban residents. National studies indicate that access to care in rural areas is lower because rural residents tend to be poorer and less likely to have dental insurance. Kansas’s rural population has counties low in population, but can also be many miles or even several counties away from the nearest significant population center. The USDA’s Urban Influence coding system defines rural counties by taking into account both population and proximity to population centers in its designations of urban, nonurban, and rural areas. However, the Kansas Health Institute (KHI) found Kansas’s rural population is less likely than other rural populations to have had a preventive dental visit in the previous year. It is unclear whether this is the result of the distance that rural residents in Kansas must travel to arrive at urban centers where dentists are more likely to practice.

The Kansas legislators’ approach to a solution for access to care and manpower needs was unlike any of those previously mentioned. The legislature passed legislation that created a “new” category within the oral health care delivery system—scaling assistants, who are allowed to perform dental hygiene
services, including coronal scaling and polishing. After completion of a ninety-hour, board-approved instructional course, these individuals are approved to provide intraoral services previously performed only by licensed and registered dentists and dental hygienists. Requirements to ensure continued competency, such as continuing education and certification in cardiopulmonary resuscitation (CPR), were not specified.7

In 2000, Mitchell et al. investigated the perceptions of Kansas dental hygienists and scaling dental assistants in relation to House Bill 2724 (HB 2724), the legislation that created scaling assistants.7 The intent of the study was to collect baseline data related to that legislation. Specific purposes of the study were to 1) compare overall perceptions of dental hygienists and scaling assistants related to HB 2724; 2) compare perceptions of dental hygienists and scaling assistants on how HB 2724 has addressed access to care and manpower issues; and 3) examine the impact of HB 2724 on the delivery of preventive care in underserved areas in Kansas. Results indicated overall satisfaction with career choices for both groups as well as being happy in their professions and respected by their dentist employers. The majority (79 percent) of dental hygiene respondents did not see HB 2724 addressing either access to care or manpower issues in the state, while in contrast 89 percent of scaling assistants believed that this was the best answer for Kansas in relation to access to care and manpower. Both the majority of dental hygiene and dental assistant respondents reported practicing in regions not identified as underserved. Forty-five percent of dental hygienist respondents perceived that other states will someday allow dental assistants to scale teeth as a way of increasing access to dental care. A large majority of the scaling assistant respondents (81 percent) believed that other states will some day allow dental assistants to scale teeth as a way of increasing access to dental care. Fifty-nine percent of dental hygiene respondents did not perceive that dentists viewed dental assistants’ scaling teeth as a solution to manpower issues in Kansas. However, 83 percent of scaling assistants strongly agreed that dentists viewed dental assistants’ scaling teeth as a solution to manpower issues. Dental hygienists strongly disagreed that more individuals were receiving oral health care as a result of HB 2724. In contrast, the dental assistants agreed that more individuals were receiving oral health care.

Regarding employment-related issues, no dental hygienist reported losing his or her job to a scaling assistant, and only 11 percent reported knowing another dental hygienist who had lost his or her job to a scaling assistant as the result of HB 2724. Also, the majority of dental hygienists reported they had not lost benefits in the form of wages, vacation, sick pay, health insurance, retirement benefits, or profit sharing since the initiation of the bill. Thirteen percent of dental hygiene respondents reported being employed in settings where dental assistants were scaling teeth. Fifty-one percent reported working in a practice where the dental assistant was scaling teeth without completing the required Kansas Dental Board training course. In compliance with the bill, 97 percent of dental assistants reported having their certificates displayed stating successful completion of the board-approved course, and 97 percent confirmed the dental hygienist or dentist performed subgingival scaling on patients who required the procedure.

The investigators concluded the legislation did not appear to be addressing one of its main objectives: access to care and increased manpower in dentally underserved areas in Kansas.7 Since the study was conducted within a short time after enactment of HB 2724, its long-term impact was not assessed.

The purpose of the present study was to investigate the long-term impact of HB 2724 six years after passage, utilizing the two survey instruments used in the initial study.

Materials and Methods: Research Design

All licensed and registered dental hygienists and those scaling dental assistants in Kansas who have taken the training course approved by the Kansas Dental Board (KDB) to perform coronal scaling of teeth and who have supplied documentation certifying completion of the course to the board were included in the study. Address lists of all licensed and registered dental hygienists and those scaling dental assistants who can perform coronal scaling were obtained from the KDB. A total of 2,183 surveys were sent to participants. There were no exclusion criteria for the dental assistants. Those dental hygienists no longer practicing in Kansas, no longer practicing at all, or those who practice more than 50 percent of the time in another state were excluded.

The survey instruments and cover letters developed for the original study conducted in 2000 were
used in this study so that comparisons could be made between baseline data and data collected for this study. The surveys are based on three domains: 1) the overall perceptions of dental hygienists and dental assistants regarding HB 2724, 2) access to care and manpower issues, and 3) perceptions of the delivery of preventive oral health care in Kansas. In addition, two new questions were added to both surveys aimed at gaining information regarding the opening of new sites for patients to receive dental care. (See Appendix for dental hygiene survey.)

Each questionnaire consisted of three sections of closed-ended, rank-scaled items as well as some open-ended questions in which respondents were asked to write in explanations or comments. A five-point Likert scale (1=strongly disagree; 5=strongly agree) response format and a dichotomous response format of yes or no were used. Demographic data were collected on the survey also.

Each participant was asked to complete the survey and return it in the self-addressed, stamped envelope. Neither the return envelope nor the survey was coded for follow-up purposes to ensure anonymity and confidentiality. Eight weeks after the initial mailing, the total populations of dental hygienists and dental assistants were mailed a reminder postcard.

Data were analyzed using SPSS for analysis. Descriptive statistics were used to characterize demographic data of dental hygienists and scaling dental assistants in the state of Kansas. In order to obtain the current distribution of dental hygienists and scaling dental assistants in Kansas, specific questions regarding practice location were asked. Baseline data found the majority of dental hygienists and scaling dental assistants to be in metropolitan areas of the state, suggesting limited impact on access to care in underserved areas. Factor analysis of responses in the initial study revealed three principal components that were congruent with the three study questions and were repeated to verify congruence in this study. The component called “perceptions” was comprised of questions numbered 4, 7, and 15 in the dental hygiene questionnaire (see Appendix) and questions 6, 8, 10, and 20 in the dental assistant questionnaire. The component called “manpower/access to care” was comprised of questions 2, 12, and 13 in the dental hygiene questionnaire and questions 12 and 17 in the dental assistant questionnaire. “Perceptions on the delivery of care” questions were number 5 and 8 in the dental hygienist questionnaire and questions 3 and 4 in the dental assistant questionnaire. Mean responses for the initial and follow-up surveys of both provider groups were calculated, and statistical significance of differences was ascertained by t-tests.

This study was reviewed and approved by the Institutional Review Board at the University of Missouri-Kansas City to ensure the safety and rights of human study participants. Participants in survey research give consent to participate when they fill out and return the survey. Therefore, no consent form was required.

Results

Because this study involved two populations of oral health care providers spread over a diverse state and dealt with an issue that had evoked strong dichotomous opinions in hearings prior to the passage of the bill, one initial concern was to determine the degree to which the respondents represented the practicing pools of providers. If any credence were to be placed in the findings, it would be essential to have confidence that both provider populations in rural as well as urban regions of the state were proportionately represented among the respondents. A total of 1,932 surveys were mailed to dental hygienists and 251 were mailed to scaling dental assistants. After invoking the exclusion criteria noted above, the responses of 696 dental hygienists and fifty-nine scaling dental assistants were used in the analysis. At 39 percent, the response rate for dental hygienists was nearly identical to the 38 percent on the 2000 survey. At 24 percent, the response rate for dental assistants was disappointingly low, particularly considering the 42 percent response rate on the 2000 survey. Allegiance to alma mater may have influenced the response rates, as the surveys originated at a dental school with a dental hygiene program but no dental assistant program.

The fundamental demographics of both groups of respondents were similar in that the largest numbers of respondents were in the forty-one to fifty age range, more than 90 percent were in general practices, and although nine of the dental hygienists were men, the majority of both groups were women. The issue of proportionate representation throughout the state is addressed in Tables 1 and 2. Utilizing the same methodology from 2000, the state was divided into six regions. The Kansas City and South regions are primarily urban and suburban, surrounding the Kansas City and Wichita metropolitan areas. The Northeast region is a mixture of smaller urban and...
rural, while the remaining regions of the state are fundamentally rural and agricultural. It is reassuring to note that, with two exceptions, the respondent pool proportionately represented the practitioner pool. Those exceptions were both among dental assistants, with respondents underrepresenting the practitioner pool in the Kansas City region and overrepresenting the practitioner pool in the Northwest region.

One fundamental goal of Kansas HB 2724 was to augment the number of individuals providing scaling services in rural and underserved regions of the state, thereby providing an increase to state-supplied oral health care. The supplied lists of scaling dental assistants and registered dental hygienists from the Kansas Dental Board provide insight into the success of the bill in the eyes of the legislature on those grounds. In 2000, twenty-four Kansas counties with 105,128 people did not have immediate access to advanced allied oral health care—namely, a licensed and registered dental hygienist.12 Interestingly enough, only five of those counties were classified as Dental Health Professional Shortage Areas. In 2004, that number had shrunk to nine counties and 28,077 people by the addition of six scaling dental assistants and twenty-seven dental hygienists. Therefore, as summarized in Table 3, fifteen counties with a combined population of 80,329 gained individuals who can provide scaling services over four years.

Viewed at this level, it appears that HB 2724 was successful in achieving the goal of increasing the delivery of oral health care to rural Kansas. However, it is illustrative to consider that, of the sixteen counties previously unserved, two (12,761 people) are now served by scaling dental assistants only; twelve (61,457 people) are now served by dental hygienists only; and two (6,111 people) are now served by both scaling dental assistants and dental hygienists.12

Another way to view the issue of access to care is in the context of Dental Health Professional Shortage Areas (DHPSAs). Seventeen Kansas counties (of 105 total) are classified as DHPSAs.12 Over the four-year period studied here, those DHPSAs experienced a net gain of eight individuals to provide scaling services. Only 2.3 percent of the scaling dental assistants and 0.8 percent of dental hygienists added to the Kansas workforce over this time were located in DHPSAs, but it should be noted that those percentages may be misleading. In terms of real providers they translate into two scaling dental assistants and six dental hygienists being added to the workforce in Kansas DHPSAs. Thus, viewed either from the perspective

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<th>Table 1. Scaling dental assistants by region, 2004</th>
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<td>Region</td>
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<td>Kansas City</td>
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<td>Northeast</td>
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<td>Northwest*</td>
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<td>South</td>
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<td>Southeast*</td>
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<td>Southwest*</td>
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*Identified as underserved in 1998.

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<th>Table 2. Dental hygienists by region, 2004</th>
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<td>Region</td>
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<td>Southeast*</td>
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<td>Southwest*</td>
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*Identified as underserved in 1998.

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<tr>
<th>Table 3. Kansas counties with no scaling allied oral health care providers</th>
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<td>2000 Counties</td>
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<tr>
<td>Cheyenne, Clay, Edwards, Elk,*</td>
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<td>Gove, Graham, Hodgeman,*</td>
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<tr>
<td>Jewell, Lincoln, Logan, Morris, Morton, Ness,*</td>
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<tr>
<td>Norton, Phillips, Rawlins, Rush, Russell, Sherman, Thomas, Trego, Wallace,*</td>
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<tr>
<td>Washington, Wichita*</td>
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<td>TOTAL 24 counties</td>
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*Dental Health Professional Shortage Area
of previously unserved areas or from that of DHPSAs, the addition of scaling dental assistants to the state workforce as a result of HB 2724 had far less impact than the addition of dental hygienists through traditional, accredited training programs.

Because some rural counties are sparsely populated and residents are accustomed to traveling across county lines for services, it may be more realistic to consider the issue of access to care from a regional, rather than a county, viewpoint. For this study, the state was partitioned into six regions. As stated earlier, the Kansas City and South regions surround the Kansas City and Wichita metropolitan areas. The Northeast region is a mixture of smaller urban and rural, and the remaining regions of the state are essentially rural and agricultural. Table 4 enumerates the allied dental workforce additions to these regions between 2000 and 2004.

It is clear that the most popular locations for both scaling dental assistants and dental hygienists added to the workforce over this time period were in urban/suburban regions of the state, with 47.6 percent of the new scaling dental assistants and 64.2 percent of the new dental hygienists choosing either the Kansas City or South regions. The Northeast region, comprised of smaller urban and rural areas, has gained over 22 percent of new scaling assistants and less than 10 percent of new dental hygienists. The rural regions of the state captured similar percentages of scaling dental assistants and dental hygienists (29.8 percent and 26.2 percent, respectively) but, translated into real providers, nearly three times as many dental hygienists as scaling dental assistants (seventy-four and twenty-five, respectively).

Perhaps the most relevant feature of provider supply is the ratio of population to provider numbers, presented in Table 5. The most drastic improvement in availability of care was in the number of individuals providing scaling services in the Northwest, due to an influx of forty-three dental hygienists and four scaling dental assistants between 2000 and 2004. It is reassuring to note that, in all regions of the state, the populace to provider ratio is now below 3,000:1.

The perceptions of scaling dental assistants and hygienists on access to care, as reflected in survey responses, are interesting. As shown in Table 6, over this time period the two groups of providers retained their difference of opinion on whether HB 2724 was a solution to access to oral health care for Kansas residents. Likewise, the perceptions of both groups hold opposing views as to whether more individuals are receiving oral health care as a result of HB 2724. However, the moderation of opinion in the present study is noteworthy. With six years’ experience after enactment of the bill, both groups of providers showed a slight, but statistically significant, moderation in their initially polar opinions as the opinions of both groups moved towards the “undecided” rating of 3.0.

Perhaps part of the moderation of perceptions regarding the impact of the legislation is due to continued satisfaction with their professional rewards reported by both provider groups as shown in Table 7. It appears that the legislation did not have a dramatic impact on the rewards of either provider group, and the data presented here are not measurably different from those obtained on the 2000 survey. Only 3 percent of dental hygienists reported being unemployed because of the bill. Fifty-three percent of dental assistants reported their employer has increased benefits since the initiation of the bill.
The 2004 survey included two new questions about the individuals’ perceptions of the bill’s impact on access to care, with responses shown in Table 8. Sixteen percent of scaling dental assistants reported being aware of additional sites opening for Kansas residents to receive dental care, while only 7 percent of dental hygienists reported knowing of such sites. Forty-three percent of dental assistants reported more patients being seen in their office as a result of the legislation.

One initial point of concern over the passage of HB 2724 was the possibility that the delivery of oral health care would be markedly changed for dental hygienists. The impact of the legislation on this dimension is difficult to assess on the basis of provider perceptions alone, but the data presented in Table 9 provide some insight. Although the hygiene respondents differed from scaling assistants in their perceptions of changes in the delivery of care at both survey times, it is noteworthy that hygiene responses in 2004 were essentially the same as in 2000, and six years after passage of the legislation the hygienist group remains undecided about the impact of the bill on the practice of dental hygiene. If the legislation had caused a major change in the profession, it would likely have resulted in a marked shift in responses to these questions.

One final dimension of this survey was the issue of perceptions of the degree to which HB 2724 addressed the manpower needs of the state of Kansas. Table 10 shows that the two groups of providers retain widely divergent opinions on this issue, and there has been no moderation of those opinions over the four-year span of this study. Seventy-nine per-

Table 6. Changes in perceptions of access to care

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<tr>
<td>I believe more individuals are receiving oral health care as a result of HB 2724: **</td>
<td>Agree 4.18</td>
<td>Agree 3.98</td>
<td>Disagree 1.74</td>
<td>Disagree* 1.88</td>
</tr>
<tr>
<td>I believe the enactment of HB 2724 was the best answer for Kansas increasing access to preventive oral hygiene care: **</td>
<td>Agree 4.40</td>
<td>Agree* 4.05</td>
<td>Strongly Disagree 1.29</td>
<td>Strongly Disagree* 1.36</td>
</tr>
<tr>
<td>I see the enactment of HB 2724 as a method of increasing the availability of oral health care to the residents of Kansas.</td>
<td>No 3.2%</td>
<td>No* 16.9%</td>
<td>No 91.3%</td>
<td>No* 87.9%</td>
</tr>
<tr>
<td>I believe other states will someday allow dental assistants to scale teeth as a way of increasing access to dental care: **</td>
<td>Agree 4.29</td>
<td>Agree 4.27</td>
<td>Undecided 3.18</td>
<td>Undecided 3.23</td>
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*2005 value different from 2000 value, p<0.05, 2-tailed
**Likert scale: 1=strongly disagree; 5=strongly agree

Table 7. Professional rewards

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<td>The dentist demonstrates respect for my educational background and technical skills. (DH and DA SURVEY)*</td>
<td>Agree 4.53</td>
<td>Agree 4.33</td>
<td>Agree 4.30</td>
<td>Agree 4.33</td>
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<tr>
<td>I am happy in my current profession. (DH and DA SURVEY)*</td>
<td>Agree 4.50</td>
<td>Agree 4.48</td>
<td>Agree 4.27</td>
<td>Agree 4.33</td>
</tr>
<tr>
<td>Since the initiation of HB 2724, my hours of employment have not changed. (DH and DA SURVEY)*</td>
<td>Agree 81%</td>
<td>Agree 84.7%</td>
<td>Agree 86%</td>
<td>Agree 81.4%</td>
</tr>
<tr>
<td>Since the initiation of HB 2724, my employer has increased my benefits. (DA SURVEY ONLY)</td>
<td>Yes 56%</td>
<td>Yes 53.4%</td>
<td>N.A.</td>
<td>N.A.</td>
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<td>I have lost some benefits since the initiation of HB 2724. (DA SURVEY ONLY)</td>
<td>N.A.</td>
<td>N.A.</td>
<td>Yes 5.0%</td>
<td>Yes 8.0%</td>
</tr>
<tr>
<td>I am unemployed because of the initiation of HB 2724. (DH SURVEY ONLY)</td>
<td>N.A.</td>
<td>N.A.</td>
<td>No 0%</td>
<td>Yes 3.1%</td>
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*Likert scale: 1=strongly disagree; 5=strongly agree
cent of dental assistants consider manpower issues in Kansas to have been relieved since the initiation of the bill, while only 19 percent of dental hygienists believe this to be true.

Discussion

Although the difference in response rates between the two provider types is somewhat disappointing, these response rates are not different enough to cause concern because the primary comparisons under study are within, rather than between, provider types. However, it should be noted that when the mailing lists for both groups were requested from the Kansas Dental Board, the staff could not assure the investigators that the list of the scaling dental assistants was comprehensive as it is possible that not all scaling dental assistants have supplied the board with certification showing completion of the board-approved course. Paragraph 71-6-5 of the practice act states that, within thirty days of obtaining the certificate, the scaling assistant must provide a copy of the certificate to the board.13 In 2000, the board provided the names of 150 scaling dental assistants. In 2004, the number of scaling dental assistants increased by only 100, which averages to twenty new assistants per year that have taken the board-approved course.

In the initial study, the Northwest region of the state had a number of counties that had no allied den-

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<tr>
<th>Table 8. Perceptions of increased access to care</th>
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<tr>
<td>As a result of the legislation in Kansas, are you aware of the opening of additional sites for Kansas residents to receive dental care?</td>
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<tr>
<td>Are more patients being seen at your office as a result of this legislation?</td>
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<tr>
<td>&lt;sup&gt;a&lt;/sup&gt;DA&gt;DH, p&lt;0.05, 2-tailed</td>
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<td>&lt;sup&gt;b&lt;/sup&gt;DA&gt;DH, p&lt;0.001, 2-tailed</td>
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<th>Table 9. Perceptions of delivery of care</th>
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<tr>
<td>My perception of how dental care is delivered in Kansas hasn’t changed since the initiation of HB 2724.*</td>
</tr>
<tr>
<td>HB 2724 has not changed my views of how dental hygiene is practiced in Kansas. (DH SURVEY ONLY)*</td>
</tr>
<tr>
<td>&lt;sup&gt;*2005&lt;/sup&gt;different from 2000, p&lt;0.05, 2-tailed</td>
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<tr>
<td>&lt;sup&gt;2&lt;/sup&gt;DH different from DA in same year, p&lt;0.01, 2-tailed</td>
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<td>&lt;sup&gt;a&lt;/sup&gt;Likert scale: 1=strongly disagree; 5=strongly agree</td>
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<th>Table 10. Perceptions on manpower</th>
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<tr>
<td>The dentist views dental assistants scaling teeth as a solution to manpower needs in Kansas.</td>
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<tr>
<td>I believe HB 2724 has relieved some dental hygiene manpower issues in Kansas.</td>
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<tr>
<td>I believe HB 2724 has increased other unexpected issues in Kansas.</td>
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<tr>
<td>&lt;sup&gt;1&lt;/sup&gt;Stronger disagreement in 2004 than in 2000; p&lt;0.01, 2-tailed</td>
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<tr>
<td>&lt;sup&gt;2&lt;/sup&gt;DH different from DA in same year; p&lt;0.01, 2-tailed</td>
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tal health care provider. In the fall of 2005, Colby Community College will begin its eighth year of providing dental hygiene education to that region of the state. The school graduates about eleven students per year. Located in Thomas County, which is about 220 miles east of Denver, it is realistic to assume that since the initial study, this area of the state has seen a growth in the number of allied dental health care providers due to the number of students it graduates per year. Garden City, located in the Southwest portion of the state, has a population of approximately 28,000. Currently, neighboring counties of Wichita and Ness have no allied dental health care provider. Perhaps the opening of another dental hygiene program in this area would alleviate that shortage. Fort Scott Community College, located in Southeast Kansas, has received a grant to start a dental hygiene program at its institution. With nearby Wichita State University already providing dental hygiene education, perhaps opening a program in the Northeast would better benefit the state in covering areas with shortages.

While the number of counties without an individual providing scaling services has decreased, the fundamental issue still remains that Kansas chose to address access to care by adding scaling dental assistants to the workforce. Other states, as previously noted, have successfully addressed access to care by providing alternative practice settings for licensed and registered dental hygienists. The literature has shown that these methods pose no threat to the health or safety of the public. The question still remains as to whether Kansas has truly solved the dilemma of access to quality care for its residents by adding dental assistants to scale teeth coronally.

On the surface, the data presented in Table 7 point to a serious difference in perceptions between the two provider groups, with the dental assistant perceptions being closer to the reality of increased access to care as shown in Table 3. However, it should be noted that the survey questions included the wording “as a result of the this legislation.” It may well be that the hygienist respondents were aware of the opening of additional sites and may have experienced more patients being seen in their practices, but did not attribute these to the legislation. In light of the data presented in Table 4, that appears to be an accurate perception since the majority of the increased access to care was due to the addition of dental hygienists to underserved areas, which was irrespective of the legislation.

Baseline data found that these scaling dental assistants were not eliminating job opportunities for dental hygienists. One conclusion from the initial study was that perhaps data were gathered too early in the legislation to fully determine the loss of traditional dental hygiene employment positions to scaling dental assistants. It is reassuring to note that, four years after the initial study, it appears that dental hygienists are not losing jobs on a large scale to scaling dental assistants.

While initial perceptions from both groups held different views on the legislation, current attitudes tend to be geared more towards the mean where both groups are still happy in their chosen careers. Respondents had an opportunity to write in comments about the bill on the questionnaires. Many hygienists were concerned about legal issues, especially undetected periodontal disease and patients not being aware of who is cleaning their teeth. One hygienist reported working a temporary assignment where dental assistants were scaling and “these assistants had not completed the required Kansas . . . training.” One dental assistant wrote that “hygienists are upset . . . because they feel their jobs are at stake. . . . we are just trying to help those in need . . . who would probably go without (oral hygiene care).” Another dental assistant reported knowing a scaling assistant who had not taken the board-approved training. Despite the fact that change can set off initial anxiety and apprehension, four years after baseline data was gathered it is encouraging to see that the two groups have similar views with other areas of the legislation now that time has passed. Although the investigators do not support the idea of minimal training in providing dental hygiene care, it is reassuring to note that dental hygienists are not losing jobs and opportunities for employment to scaling dental assistants.

Kansas has established programs such as Medicaid and HealthWave programs, which are intended to supply a source of financing and access for medical and dental care. Although comprehensive dental benefits are available for children, only emergency dental services are available for adults. Dentists in private practice settings are free to choose whether to participate in the Medicaid and HealthWave programs. Those that do participate can decide how many of these plan participants to see in their practices. A 1999 study by Davis et al. found only one-quarter of children enrolled in Kansas Medicaid received dental services in fiscal year 1998 and over half of parents with a child on Medicaid thought that the child currently needed dental care. In addition, the authors concluded that the supply of dentists in Kansas was not a meaningful measure of the acces-
sibility of dental services to Medicaid participants due to the small number of Kansas dentists that accepted Medicaid patients.15 With the increase of additional providers performing preventive services to the residents of Kansas in the form of scaling assistants, restorative care is still an issue that needs to be addressed.

The results of this study should be interpreted in light of several limitations. All survey research is subject to influence by the respondent pool, in which the most likely to respond are those with the most polarized opinions. Kansas is still the only state that allows dental assistants to perform dental hygiene services in the form of supragingival scaling. Besides the initial study by Mitchell et al., there are no other studies on the impact of this legislation to which to compare the results of the current study. Future studies should look at patient perceptions on this legislation as well as how restorative care is being addressed in Kansas. The investigators plan to replicate this study in five years to assess long-term effects.

Conclusions

Overall perceptions on access to care and manpower have not changed over the four-year span of this study. Both dental hygienists and scaling dental assistants are happy in their professions. Dental hygienists are not losing their jobs to scaling dental assistants. The majority of dental hygienists and scaling dental assistants are located in urban/suburban areas of Kansas, while the Northwest region of the state has seen a growth in the number of allied dental health care providers since the initial study.

REFERENCES

APPENDIX

KANSAS DENTAL HYGIENISTS’ PERCEPTIONS ON THE IMPACT OF HB 2724

The following questions deal with the perceptions of dental hygienists in Kansas. It is your personal experiences that count; therefore, there are no right or wrong answers. All answers will be treated with anonymity and confidentiality. For each of the following statements please circle the number that best represents your level of agreement with 1 being “strongly disagree” and 5 being “strongly agree.”

IF YOU ARE A HYGIENIST WHO IS LICENSED IN KANSAS, BUT YOU PRIMARILY WORK IN ANOTHER STATE, CHECK BELOW AND PLEASE DO NOT ANSWER THE QUESTIONS ON THIS SURVEY.

PLEASE RETURN THE SURVEY IN THE ENVELOPE PROVIDED.

PART ONE

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The dentist acknowledges and respects my role as a dental hygienist.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>The dentist views dental assistants scaling teeth as a solution to the manpower needs in Kansas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>The dentist acknowledges the unique role and specialized areas of expertise of the dental hygienist.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>I believe other states will someday allow dental assistants to scale teeth as a way of increasing access to dental care.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>HB 2724 has not changed my views of how dental hygiene is practiced in Kansas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>I believe more individuals are receiving oral health care as a result of HB 2724.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7.</td>
<td>I believe the enactment of HB 2724 was the best answer for Kansas to increase access to preventive oral hygiene care.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8.</td>
<td>My perception of how dental care is delivered in Kansas hasn’t changed since the initiation of HB 2724.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.</td>
<td>The dentist demonstrates respect for my educational background and technical skills.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10.</td>
<td>The dentist follows strict guidelines when hiring dental assistants to scale teeth.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11.</td>
<td>I am happy in my current profession as a dental hygienist.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
PART TWO

12. Do you know a dental hygienist who has lost his or her job to a dental assistant as a result of HB 2724? (check one)
   ___ Yes ___ No

13. I believe HB 2724 has relieved some dental hygiene manpower issues in Kansas. (check one)
   ___ Yes ___ No

14. I believe HB 2724 has created other unanticipated issues in Kansas. (check one)
   ___ Yes ___ No

   Explain:
   __________________________________________________________________________________
   __________________________________________________________________________________

15. I see the enactment of HB 2724 as a method of increasing the availability of oral health care to the residents of Kansas. (check one)
   ___ Yes ___ No

16. I am licensed to practice dental hygiene in Kansas, but choose to practice in another state as a result of HB 2724. (check one)
   ___ Yes ___ No

   If you answered “yes” to question #16, which state(s) do you currently practice in? (fill in the blank)
   _________________________________

17. I practice in a setting where dental assistants are scaling teeth. (check one)
   ___ Yes ___ No

   If you answered “yes” to question #17, go to #18. If you answered “no” to question #17, go to #27.

18. Since dental assistants are now performing coronal scaling in my place of employment, my job description and duties have changed. (check one)
   ___ Yes ___ No

19. Since the initiation of HB 2724, my hours of employment have (check only one).
   ___ Increased
   ___ Decreased
   ___ Stayed the same
20. How many dental assistants who have completed the required scaling training are employed in your office setting? (check one)
   ___ One
   ___ Two or more

21. Since the initiation of HB 2724 and dental assistants’ scaling teeth in my place of employment, the dentist has had to increase the number of employees due to an increase in patient load.
   ___ Yes ___ No

22. As a result of HB 2724 and dental assistants’ being able to scale teeth in my place of employment, the office is now able to schedule more recall appointments. (check one)
   ___ Yes ___ No

23. Are there dental assistants in your practice scaling teeth who have not completed the required Kansas Dental Board training? (check one)
   ___ Yes ___ No

24. Even before the initiation of HB 2724, dental assistants in my practice were scaling teeth. (check one)
   ___ Yes ___ No

25. Besides supragingival scaling, the dental assistants are performing the following procedures. (fill in the blank)

   ____________________________________________________________________________________
   ____________________________________________________________________________________

26. The credentials of the dental assistants scaling teeth, stating successful completion of training required by the Kansas Dental Board, are displayed for the patient to see. (check one)
   ___ Yes ___ No

27. I am currently an unemployed dental hygienist. (check one)
   ___ Yes ___ No

If you answered “yes” to question #27, go to #28. If you answered “no” to question #27, go to #29.

28. I am unemployed because of (check the one that best applies to you)
   ___ Can’t find a job
   ___ Personal choice
   ___ Involuntary loss of job
   ___ The initiation of HB 2724

   Explain: ____________________________________________________________________________
   ____________________________________________________________________________________

---

*Appendix, cont.*
29. I have lost some benefits in the form of wages, vacation, sick pay, health insurance, retirement benefits, or profit sharing since the initiation of HB 2724. (check one)
   ___ Yes ___ No

   Explain: __________________________________________________________
   ________________________________________________________________

30. I am currently practicing clinical dental hygiene. (check one)
   ___ Yes ___ No ___ NA

   Explain: __________________________________________________________
   ________________________________________________________________

31. I have experienced a change in salary since the initiation of HB 2724. (check one)
   ___ Loss ___ Gain ___ No change

32. As a result of the legislation in Kansas, are you aware of the opening of additional sites for Kansas residents to receive dental care?
   ___ Yes ___ No

   Explain: __________________________________________________________
   ________________________________________________________________

33. Are more patients being seen at your office as a result of this legislation?
   ___ Yes ___ No

   Explain: __________________________________________________________
   ________________________________________________________________

PART THREE

34. Highest level of dental hygiene degree earned. (check one)
   ___ Certificate ___ Associate’s ___ Bachelor’s ___ Master’s

35. In how many offices do you work? (check one)
   ___ One ___ Two ___ Three or more
36. In what county are you employed? (fill in the blank)

______________________________________

37. Which of the following best describes your practice setting? (check one)

___ General dentist
___ Periodontist
___ Orthodontist
___ Public health
___ Pedodontist
___ Endodontist
___ Other

38. What is your gender?

___ Male ___ Female

39. Approximately how many years have you been practicing? (fill in the blank)

______________________

40. Besides yourself, how many hygienists are currently working in the same practice setting as you? (check one)

___ Zero
___ One
___ Two
___ Three or more

41. What is your age? (check one)

___ 20-30
___ 31-40
___ 41-50
___ 51+

42. How many patients do you see in a typical work day? (fill in the blank)

______________________________________

43. How many days per week do you work? (fill in the blank)

_______________________________________
Appendix, cont.

44. According to the map below, in what location do you work? (check one)

___ Southwest
___ South
___ Southeast
___ Northeast
___ Northwest
___ Kansas City

Please mail the completed survey to Dr. Ralph Peters, Director of Analysis and Planning, University of Missouri-Kansas City, School of Dentistry, 650 E. 25th Street, Kansas City, MO 64108-2784.