Comparing Comprehensive Care and Departmental Clinical Education Models: Students’ Perceptions at the University of Tennessee College of Dentistry

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Abstract: In summer 2012, the University of Tennessee Health Science Center College of Dentistry transitioned from a departmental clinical education model to a comprehensive care/group leader model. The aim of this study was to investigate the perspectives of the fourth-year class of dental students who, because the transition took place during their training, had experienced treating patients under both educational models. To achieve this objective, a questionnaire was designed to assess the students’ opinions on the efficiency of their effort, availability of specialty faculty, stress, collaboration with classmates, and availability of exposure to different practice styles and techniques under the two systems. The students were also given an opportunity to provide open-ended feedback on the shortcomings and advantages of the systems. The Class of 2013 had 81 students, 55 of whom participated in the survey for a response rate of 67.9%. The majority (86%) of the respondents preferred the comprehensive care model and reported feeling that, in it, they were able to accomplish more comprehensive dentistry with greater consistency of supervision from faculty in a more patient-centered environment than in the departmental model. However, 56 percent considered having the same group leader for two years a disadvantage and recommended rotation of at least one group leader every six months. The results of this survey can help this college and other dental schools that are seeking to optimize their educational model to best serve students’ educational experience and the dental needs of their patient population.

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The goal of all dental schools is to establish an optimal system to educate their students effectively while serving the needs of their patient population. The two main clinical education models used in U.S. dental schools are the comprehensive care model and the traditional, departmental model. The traditional model has been described as focusing more on students’ educational needs and less on the dental needs of patients.1,2 A comprehensive care model, by contrast, is more patient-centered, capable of providing patients with comprehensive and timely dental treatment, while providing students with an enhanced educational experience.3,4 Haden et al. described the clinical group practice model as the most frequently incorporated innovation in U.S. dental curricula in the last decade.5

In summer 2012, the University of Tennessee Health Science Center College of Dentistry underwent an immediate transition from a departmental to a comprehensive care/group leader model. Our school was thus in the unique position of being able to survey a group of graduating seniors who had treated patients under both systems. Assessing their perceptions is consistent with Commission on Dental Accreditation (CODA) standards requiring student feedback as part of a curricular change.6 The aim of our study
was thus to analyze these fourth-year dental students’ perceptions of the new comprehensive care model in contrast with the previous departmental model.

### Change to Comprehensive Care Model

Our traditional departmental clinical curriculum for third- and fourth-year (D3 and D4) students operated on the premise that each individual discipline would supervise procedures only in its own domain, relying on a treatment plan initiated by a remote group of oral diagnosis/oral medicine faculty members. Under this system, faculty members and students who would be treating the patient frequently did not prepare the treatment plan for him or her. After the treatment plan was finalized, a clinical faculty coordinator assigned it to any student whose clinical experiences were compatible with the patient’s treatment needs. The student would then provide treatment under supervision in designated departmental areas. When all treatment was completed, the student had a faculty member from any department review the completed treatment and implement any revisions and/or recalls required. The patient then remained with the student to which he or she was originally assigned. If treatment was not completed by the time of that student’s graduation, a coordinator would reassign the patient to another D3 or D4 student. One of the shortcomings of this system was the lack of continuity of care by a single faculty member overseeing the patient’s complete treatment and follow-up. Hence, it became difficult to ensure timely comprehensive care for patients and to ensure a comprehensive general education for students.

In summer 2012, the school’s clinical education model transitioned to a comprehensive care system. It is based on the premise that continuity of timely patient care and the educational process for students can be best maintained by oversight of two primary educators per group of students and their assigned patients. In this new system, the D3 and D4 classes are divided into eight groups, with each group having a roughly equal number of students and two faculty members as group leaders (GLs); one patient coordinator is assigned to two groups. The GLs have clinical contact with their group of students for six half days per week. Wednesday is an overlap day when both GLs have clinical student contact at the same time and have a meeting time to ensure calibration, develop policy, and address issues that arise.

Figure 1 shows the organizational chart for the revised educational model. GLs were chosen from

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**Figure 1. Organizational chart for comprehensive care model for clinical education at University of Tennessee College of Dentistry**
the existing faculty members with practice experience and the newly hired dentists of varying practice experience (a five-year minimum was required) and teaching experience (0 to 20+ years). This mix was designed to address the limitations caused by varying levels of educational experience among new dental school faculty members described by Henzi et al.\(^2\)

GLs work with the same students for a period of two years, ensuring that they are able to follow patient treatment and provide for continuity of care. Students acquire patients by making screening appointments based on initial patient applications. They finalize treatment plans with their GLs, thus taking ownership of their patients’ treatment from the beginning. The GLs finalize the assignment of patients to students based on the students’ requirements and ability to complete the treatment. Patient procedures in most disciplines may be completed from beginning to end with the GLs; however, students and GLs have the option of assigning the procedures or working with departmental faculty on the floor during clinic periods. Any revisions and/or recalls are assigned by the GLs to students in their group. The GLs retain the responsibility of monitoring the progress and completion of treatments for individual patients. The GLs are also responsible for monitoring student progress, timeliness of patient care, student/patient scheduling, completeness and accuracy of electronic health records, and quality assurance among other duties, including teaching patient care and practice management conducive to a private practice enterprise. GLs have weekly meetings with the administrators and directors of the program. The system is constantly evolving to improve the model.

When this system was introduced, we believed that it would result in improved comprehensive quality care for patients in addition to role modeling the private dental practice for students. The University of Illinois at Chicago College of Dentistry, for example, transitioned to a group practice comprehensive care model in 2002, resulting in both a significant increase in on-time graduation rate and enhanced clinical productivity.\(^5\) The production changes that occurred as a result of this model change will be reported elsewhere.

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**Materials and Methods**

This study was submitted for review to the Institutional Review Board at the University of Tennessee Health Science Center, which determined the study was exempt under 45CFR46.101 (Reference # 14-03051-XM). A questionnaire was designed to ask the fourth-year students about those aspects of the clinical curriculum affecting their satisfaction and engagement with their education, based on previous studies of student perceptions of curriculum change including that of Henzi et al.\(^2\) We chose to ask our students about efficiency of effort, availability of specialty faculty, stress, collaboration with classmates, and availability of exposure to different practice styles or techniques in the two systems.

Six questions were asked, to which students responded on a scale from 1=preference for departmental model to 10=preference for comprehensive care model. The students were also encouraged to give feedback in their own words and provide ideas on how to improve the program with specific suggestions. Paper questionnaires were distributed to the students after one of their final lectures towards the end of May when most of them had completed their clinical requirements and were ready to graduate. They were assured of the confidentiality of the survey and informed that their input would be used to improve the program for future patients and classes.

All data (including open-ended comments) were entered into an Excel Spreadsheet (Microsoft, Redmond, WA) and then imported into a statistical package (SPSS V20.0, IBM, Armonk, NY) for analysis. Descriptive statistics (means where appropriate and percentages) were generated for all variables. Student preference variables that were coded on the 1-10 scale were treated as ratio level variables. Differences between means on these variables were assessed using a two-sided independent sample t-test or one way ANOVA, and p-values <0.05 were considered to be statistically significant.

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**Results**

The Class of 2013 had 81 students, 55 of whom participated in the survey for a response rate of 67.9%. Among the respondents, 68.5% were male and 31.5% were female. With respect to future practice plans, the distribution of responses was as follows: solo practice (20.0%), associate (43.6%), group practice (3.6%), residency (21.8%), and military or other (10.9%).

Table 1 shows the means and standard deviations on each of the questions for the entire sample, as well as means and standard deviations by gender. When asked which system better allowed them to
address a patient’s chief complaint and which better allowed them to provide multiple restorations or quadrant dentistry for their patients, the students expressed a clear preference for the GL model with means of 8.84 and 8.85, respectively. Means on the other preference variables indicated greater ambivalence among the students: mean scores ranged from 4.13 regarding the system under which they felt more stress while providing treatment to 6.71 regarding the system that provided more collaboration with classmates in treating patients. Standard deviations were also larger for the last four questions (ranging from 2.50 to 3.00) than for the first two questions (1.64 to 1.08), indicating a greater variation in responses. There were no statistically significant differences in means on the preference questions by gender. A one-way ANOVA (not shown) indicated there were no statistically significant differences in means by future practice plans.

To better understand the variation in the students’ responses to the preference questions, the responses were collapsed into three categories. Combined categories 1, 2, and 3 indicated a clear preference for the departmental practice model; combined categories 4, 5, 6, and 7 indicated a middle range (with no clear preference for either model over the other); and combined categories 8, 9, and 10 indicated a clear preference for the GL practice model.

These students expressed a clear preference for the GL model on the first two questions. When asked which system better allowed them to address the patient’s chief complaint, 83.6% preferred the GL model; and when asked which system better allowed them to provide multiple restorations or quadrant dentistry for their patients, 87.3% preferred the GL model (Figure 2). Less than half of the students (47.3%) perceived that the GL model provided more opportunity for collaboration, and just over half (50.9%) thought the former departmental model was more stressful. Finally, 45.5% fell in the middle range of responses when asked which program type provided greater access to specialists; and the students were nearly evenly distributed across categories (37.7%, 32.1%, and 30.2%, respectively) when asked which program exposed them to more clinical styles or techniques.

Currently, students remain in the same group (with the same group leaders) for the entire length of their two years of clinical training. When the students were asked if they thought it was a disadvantage to have the same group leader for two years, 56.4% responded yes. Those students who agreed (n=31) were then asked how frequently they would prefer to rotate group leaders. The distribution of the responses was three months (12.9%), six months (22.6%), nine months (3.2%), and 12 months (16.1%). The remaining 45.5% fell in the middle range of responses when asked which program type provided greater access to specialists; and the students were nearly evenly distributed across categories (37.7%, 32.1%, and 30.2%, respectively) when asked which program exposed them to more clinical styles or techniques.

Table 1. Responding students’ preferences regarding departmental versus comprehensive care clinical education models, by entire sample and by gender

<table>
<thead>
<tr>
<th>Question</th>
<th>Entire Sample</th>
<th>Males</th>
<th>Females</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Which system better allowed you to address the patient’s chief complaint?</td>
<td>8.84 1.64</td>
<td>8.78 1.78</td>
<td>8.88 1.36</td>
<td>0.841</td>
</tr>
<tr>
<td>2. Which system better allowed you to provide multiple restorations or quadrant dentistry for your patients?</td>
<td>8.85 1.08</td>
<td>8.73 2.00</td>
<td>9.18 1.38</td>
<td>0.408</td>
</tr>
<tr>
<td>3. Which system provided more collaboration with your classmates in treating your patients?</td>
<td>6.71 2.99</td>
<td>6.92 3.09</td>
<td>6.29 2.91</td>
<td>0.625</td>
</tr>
<tr>
<td>4. Under which system did you feel more stress during patient treatment?</td>
<td>4.13 2.50</td>
<td>4.24 2.44</td>
<td>3.82 2.72</td>
<td>0.574</td>
</tr>
<tr>
<td>5. Which system provided better availability of specialist faculty members to assist you in treating your patient?</td>
<td>5.25 2.57</td>
<td>5.14 2.61</td>
<td>5.53 2.63</td>
<td>0.611</td>
</tr>
<tr>
<td>6. Which system do you think exposed you to more clinical styles or different techniques?</td>
<td>5.60 3.00</td>
<td>5.92 2.94</td>
<td>4.87 3.20</td>
<td>0.283</td>
</tr>
</tbody>
</table>

Note: Response options ranged from 1=departmental model to 10=comprehensive care model.
Although the majority of the students made positive comments about the GL program, they also expressed some reservations about the new model. About 30% expressed some reservations about being “stuck” with the same faculty member for two years and not having the opportunity to learn from the expertise of other faculty members with whom they enjoyed interacting in the departmental system. One of the students commented, “I was only exposed to one person’s perspective on dentistry.” Another wrote, “If a group leader is uncomfortable with one procedure, you will never be able to learn that procedure.” Several students expressed frustration about being assigned to GLs who did not teach much and limited their learning. In general, in cases in which the students were compatible with their GLs and respected their credentials, they seemed to have a positive learning experience. However, the few students who did not feel comfortable or get along with their GLs felt stuck in an uncomfortable situation for two years. One student complained that a GL system can create a larger possibility for conflict of personalities, defeating the whole purpose of a dental school experience, which in his or her opinion is the opportunity to learn from a variety of instructors and learn from their wealth of knowledge. Many students recommended a rotation of the group leaders every three, six, or 12 months to give students the flexibility

**Discussion**

In the comment section of the questionnaire, the students were asked to briefly describe what they liked the least and the most about the comprehensive care model. The majority of the students reported that they liked the sense of community they experienced in the GL model and felt they were able to accomplish more dentistry at every appointment period. The students said they enjoyed having the consistency of supervision from the same faculty member who was familiar with the student and the patient. They reported feeling that, under these circumstances, they were able to achieve more efficiency in delivering restorative work and completing the patient’s dental treatment plan. Under the GL program, the students reported that they were able to create a personal relationship with their faculty mentor, which not only facilitated their patient care but provided them with a mentor from whom to seek advice about their career. One student wrote, “I liked the ability to work with one consistent instructor, who knew me well enough to help me with my weaknesses and help me master my strengths.” Another student commented, “Treatment plans don’t change every appointment; group leaders get to know your strengths and weaknesses, allowing you to do multiple procedures in one appointment.”

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to work with a variety of instructors. These results are consistent with those of the Henzi et al. study that assessed students' perceptions of curricular strengths and weaknesses at 20 North American dental schools in 2006. In another report from the same study, Henzi et al. reported that the students' main concerns when evaluating dental programs were limited faculty availability in the clinic along with insufficient and inconsistent faculty feedback.

In our study, there was also a consensus of opinion regarding utilization of more specialty faculty members in the removable and fixed prosthodontics and periodontics departments, so that they could directly teach the same students about those specialty areas. One student commented, “Being with the same group of students and leaders creates more opportunities for drama outside of patient care, and seeing only one or two views for treating hinders our education in the group leader program.” Several students also recommended giving students permission to exchange patients in their group with the approval of the GL.

The second question in the comment question of the survey asked students what they liked least and most about the departmental model. The majority of the students reported disliking the inconsistency of treatment planning under the departmental model and felt their patients suffered from changing their treatment midstream. Students reported that faculty members in specialty departments would change procedure codes and treatment, resulting in wasted appointments and frustration on the part of students and patients. One student summed it up by writing, “The worst part was changing treatment plans mid-appointment, and the best thing was the exposure to different personalities and techniques.” Another student noted, “I least liked having faculty change the treatment plan if they thought it should be and having to get consults for everything and most liked being exposed to more/different faculty techniques.” There was a consensus among the students in the study that they enjoyed being exposed to different techniques and expertise under the departmental model and felt they had a greater opportunity to interact with specialty faculty members on a one-to-one basis.

The third and final question in the comments section of the survey asked what changes the students would recommend for the two-year clinical experience at our school. The majority of the students reported being pleased with the transition to a GL model, but felt it would improve their learning experience if the GLs were rotated at least once or twice during their two-year clinical program. These students felt rotating the GLs would allow a better learning experience by exposing them to different faculty members and various techniques. One student wrote, “I feel it is needed to rotate group leaders at least once during the two-year period. I feel like I could have learned much more by having time to work with other group leaders.” Another student commented, “Stay with the group leader program, but by rotating group leaders, allow students to get a wider perspective.”

Although this study achieved an acceptable response rate, it was conducted at only one dental school, so its findings may not be generalizable to other schools. Another limitation is that, as with any survey, more students with strong opinions about one or other model may have been more likely to participate. Finally, this study was limited to assessing students’ perceptions of the two models. A future study will analyze student productivity by tracking the total number of procedures completed in both educational models.

**Conclusion**

The University of Tennessee Health Science Center College of Dentistry clinical education recently underwent a transition from a traditional departmental model to a comprehensive care model. We were thus in a position of being able to survey a group of graduating seniors who had treated patients under both systems in order to assess their perceived advantages and disadvantages of the two. The students were asked to rate their efficiency of effort, availability of specialty faculty, stress, collaboration with classmates, and availability of exposure to different practice styles or techniques regarding the two systems. The majority (86%) of the students clearly preferred the comprehensive care model, reporting that they felt able to accomplish more comprehensive dentistry with greater consistency of supervision from faculty members who were familiar with both students and patients, hence addressing the patient’s chief complaint in a more effective fashion. However, 56% considered having the same group leader for two years a disadvantage and recommended rotation of at least one group leader every six months. These students reported experiencing more stress under the traditional model, but they considered exposure to different faculty members and expertise and frequent interaction with other students and specialty faculty...
members an advantage in that system. Results of this study show student satisfaction with and support for the transition from a traditional departmental to comprehensive care model at this dental school; however, important modifications in the selection, training, and rotation of group leaders may be necessary to optimize the students’ educational and patients’ dental experience. The outcomes of this study can be beneficial for other dental schools in the United States or abroad that are contemplating a change in their clinical education model.

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REFERENCES