Two computer-assisted clinical case SOAP (subjective, objective, assessment, plan) note exercises were used for second-year osteopathic medical students, and a standardized patient was used during third year to measure recording behaviors regarding structural examinations and osteopathic manipulative treatment (OMT). Students were questioned before leaving campus for clinical rotations and at pregraduation to determine their attitudes toward use of these skills. Ninety-one percent of the students recorded structural examination findings in both computer-assisted clinical case SOAP notes, and 61% suggested OMT be given on their basic science SOAP (pneumonia). All of the students in the osteopathic theory and methods exercise suggested OMT. On a standardized patient with chronic obstructive pulmonary disease, 11% of the students performed a structural examination, and 0.7% suggested OMT.

Preclinically, 73% of the students believed they were prepared to conduct structural examinations, and 71% believed they were prepared to use OMT. Between 64% and 73% of pregraduation students, however, reported they had few opportunities to use these skills during clinical rotations. Most of the students believed they would use palpatory diagnosis and OMT for fewer than 25% of their future patients and primarily for patients with musculoskeletal problems.

As today’s osteopathic medical students are tomorrow’s osteopathic physicians, the way in which they view manipulative medicine will significantly affect the distinctiveness of osteopathic health care. One of the most obvious expressions of this distinctive health care philosophy is the use of palpatory skills to diagnose and treat somatic dysfunction. Gevitz1 believed that the application of osteopathic manipulative treatment (OMT) continues to be the most identifiable feature that distinguishes osteopathic medicine from allopathic medicine. Many of today’s osteopathic physicians agree with this statement. In their 2002 national survey of osteopathic physicians, Johnson and Kurtz2 found that 59% believed they practiced medicine differently than allopathic physicians, and 72% of the respondents believed the osteopathic approach to treatment was a primary distinguishing feature of osteopathic physicians. In the survey, the osteopathic approach was described as including application of OMT, a caring physician-patient relationship, and a hands-on treatment style.

Six studies that occurred between 1972 and 2002 used questionnaires to obtain information regarding osteopathic physicians’ use of OMT. In 1972, Leahy3 surveyed osteopathic physicians from Arizona, Colorado, Delaware, Florida, Georgia, Iowa, New Jersey, New York, Ohio, and Washington. He found that 34% of the 234 respondents used OMT for more than half of their patients, while approximately 37% used OMT for fewer than 20% of their patients. Two decades later, four studies4-7 found that between 6% and 14% of the respondents used OMT for more than half of their patients, while between 71% and 90% of the respondents used OMT for fewer than 25% of their patients. A nationwide study8 of office-based osteopathic physicians with direct patient care found that 85% of them used OMT and, on average, 21% of their patients were treated with OMT.

Studies by Johnson et al5,6 indicate that today’s osteopathic medical school graduates are less likely to use OMT in their practices than their more experienced colleagues. Other studies found that students entering osteopathic medical schools were open-minded to the effectiveness of palpatory and manipulative skills in diagnosing and treating symptoms. By the end of their second year, however, only 62% of the students were convinced that OMT is a viable mode of therapy.9 Unfortunately, by the time osteopathic medical students complete their internships or residencies, they use OMT less than expected.4

Other reasons could account for the lack of OMT use. Johnson et al10-12 found that obstacles to applying OMT in a clinical setting still exist in the hospitals and clinics in which students do their rotations. These obstacles include the lack of OMT tables, insufficient knowledge of procedures for obtaining reimbursement for OMT, lack of available time
for structural examination and OMT, lack of instruction as to the application of OMT for bedridden patients, and the lack of clinical role models who use OMT in patient care. A final reason may be the belief that there are few patient problems deemed appropriate for treatment with OMT.

Responses to a survey by Spaeth and Pheley7 indicate that between the end of their second year of medical school and the end of their internships or residencies, osteopathic medical students become less likely to use palpatory diagnosis and OMT. Rather than relying solely on information obtained from questionnaires, in our investigation we chose to see how students regard the use of OMT in the diagnosis and treatment of patients in SOAP (subjective, objective, assessment, plan) notes on clinical cases during their second and third years of medical school. We also used questionnaires to assess student attitudes toward use of palpatory skills and OMT before leaving for rotations (preclinical questionnaire) and during graduation week (senior questionnaire). The senior questionnaire also included questions to determine whether students were more likely to use palpatory skills to diagnose and OMT to treat certain patient problems. We hoped that this study might pinpoint the time at which students choose not to include osteopathic palpatory findings and OMT treatment plans in their SOAP notes when caring for patients and to determine the patient problems these students believe are appropriately treated with OMT.

Methods

During the Infectious Diseases course and the Osteopathic Theory and Methods: Systemic Diseases course, second-year osteopathic medical students were asked to complete a computer-assisted clinical case SOAP note (CACC-SOAP note) exercise.10 Approximately 10 months into their third year, the students were required to complete SOAP notes on a standardized patient.11 Before leaving campus to begin rotations, the same students completed a preclinical rotation questionnaire that asked whether they believed they were prepared to use their osteopathic palpatory skills and OMT in the clinical setting as well as their plans to use OMT in their future practices. During graduation week, the same students completed a senior questionnaire that asked whether they believed they were prepared to use their osteopathic palpatory skills and OMT in the clinical setting, their plans to use OMT in their future practices, and patient problems they believed they would diagnose using palpatory techniques and treat with OMT. The procedures in this study were reviewed and approved by the institutional review board at Kirksville College of Osteopathic Medicine (KCOM), Kirksville, Missouri.

CACC-SOAP Note Exercises

Single patient encounter Web-based CACC-SOAP note exercises (http://www.kcom.edu/faculty/chamberlain/Website/Roberts/complain.htm and http://www.kcom.edu/faculty/chamberlain/white/default.htm) were developed to emphasize data collection and encourage integration of osteopathic principles in the examination and treatment of patients. Details on the design of a CACC have been described previously.10,12

After completing the CACC, students in our investigation were required to submit a SOAP note for both the Infectious Diseases and the Osteopathic Theory and Methods: Systemic Diseases course. The SOAP notes contained their subjective findings (S), objective findings (O), assessment of the findings (A), and a treatment plan (P). Osteopathic diagnosis and treatment had been discussed in previous osteopathic medical theory and methods courses; however, application of these techniques to diseases had not been discussed until the Osteopathic Theory and Methods: Systemic Diseases course.

Students were given 2 weeks to complete the CACC-SOAP note exercises in both courses and were encouraged to include somatic dysfunctions and manipulative modes of therapy in their SOAP notes during the CACC-SOAP exercises. To motivate students to participate in the CACC-SOAP note exercises, SOAP notes were graded, and points were assigned to the students in each of the second-year courses. The points assigned for completion of these exercises were less than 2% of the total points the students needed to successfully complete the courses. Students received instruction on preparing a SOAP note by physicians in the Department of Family Practice 6 months before the CACC-SOAP note exercise in the Infectious Diseases course.

The infectious diseases’ CACC was a Web-based virtual patient with acute typical pneumonia. This exercise was offered during the first quarter of the second year of osteopathic medical school after all basic science courses, except pharmacology, had been completed. Six months before the CACC-SOAP note exercise in infectious diseases, the students had completed three exercises in SOAP note-taking using standardized patients. The Osteopathic Theory and Methods: Systemic Diseases course was offered during the second quarter of the students’ second year in medical school. This CACC was a Web-based virtual patient with acute bronchitis and sinusitis.

Standardized Patient SOAP Note Exercise

Approximately 10 months into their third year at KCOM, students were required to evaluate several standardized patients and fill out SOAP notes using a Web-based computer program called SOAP Notes Plus13 (Future Vision, Tustin, Calif). The third year of medical school at KCOM consisted mostly of the following required clinical rotations: family practice (4 weeks), rural or underserved family practice (4 weeks), adult general internal medicine (8 weeks), surgery (4 weeks), pediatrics (4 weeks), obstetrics and gynecology (4 weeks), radiology (2 weeks), psychiatry (4 weeks), anesthesiology (4 weeks), and primary care selectives (4 weeks). By the time students were required to complete the standardized patient SOAP note exercises, they had finished most of their required clinical rotations.
The Medical Education and Development Department at KCOM trained the standardized patients and administered the exercises at four of KCOM’s regional sites (Kirksville, Mo; Detroit, Mich; Cleveland, Ohio; and Phoenix, Ariz). The students were given 30 minutes to interview each patient and another 30 minutes to type their findings in a Web-based SOAP Notes Plus program.11

The standardized patient used in this study was a simulated patient that portrayed a person with chronic obstructive pulmonary disease (COPD). Completing SOAP notes on the standardized patient was required of all students except for the nine students who served as case logistics testers during dry runs of the standardized patient. These nine students were excluded from this part of the study.

Preclinical Rotation Questionnaires
At the end of their second year at KCOM, students were asked to complete a preclinical rotation questionnaire, which contained questions to determine how prepared the students believed they were to embark on clinical rotations. One hundred thirty-five students turned in the questionnaire, though between 1% and 2% of the students did not answer certain questions. All questionnaires were included in the analysis.

Two questions asked the students how well the osteopathic theory and methods courses prepared them to use osteopathic palpatory skills and OMT to treat patients on clinical rotations. Students were asked to respond on a 5-point scale (extremely prepared, 5; well prepared, 4; adequately prepared, 3; minimally prepared, 2; or not prepared, 1). These data are shown in Figure 1.

The preclinical questionnaire also asked the students about the percentage of their future practices they planned to devote to osteopathic palpatory skills, as well as the percentage of their future practices they planned to devote to OMT (none, 1; 1% to 24%, 2; 25% to 49%, 3; 50% to 74%, 4; or 75% to 100%, 5). These data are shown in Figure 2.

Senior Questionnaires
During the week before graduation, the same students were asked to complete a senior questionnaire designed to determine how prepared students believed they were while on clinical rotations. One hundred twenty-three students turned in the questionnaire, though some students did not answer all of the questions. All questionnaires were included in the analysis.
Questions used in the preclinical rotation questionnaire concerning how well the osteopathic theory and methods courses prepared students to use their osteopathic palpatory skills and OMT during clinical rotations were used on the senior questionnaire. These data are shown in Figure 3.

Questions on the senior questionnaire asked students to specify the number of the 14 required clinical rotations that gave them opportunities to use their osteopathic palpatory skills and OMT. They were asked to respond on a 5-point scale (1 had opportunity on all 14 required rotations, 5; I had opportunity on 10 to 13 required rotations, 4; I had opportunity on 5 to 9 required rotations, 3; I had opportunity on 1 to 4 required rotations, 2; or no rotations at all, 1). These data are shown in Figure 4.

On the senior questionnaire, students were again asked what percentage of their future practices they planned to devote to osteopathic palpatory skills, as well as the percentage of their future practices they planned to devote to OMT. These data are shown in Figure 5. Students were also asked to determine whether they would use osteopathic palpatory skills in the diagnosis of 21 patient problems and whether they would use OMT for those patient problems in their future practices. The problems listed were hypertension, acute upper respiratory tract infection, back pain, neck pain, diabetes (type I or type II), pharyngitis, normal pregnancy, soft tissue disorders, pneumonia, chronic sinusitis, lacerations, osteoarthritis and allied disorders, suppurative and unspecified otitis media, sacroiliac region pain, bronchitis, neurotic disorders, gastroenteritis or colitis, allergic rhinitis, somatic dysfunctions, COPD, and emphysema. These data are shown in Tables 1 and 2. Students who completed the questionnaire were included in the study even if they did not complete all three of the SOAP note exercises.

Figure 3. Students’ attitudes toward their preparation to perform osteopathic structural examinations and treat with osteopathic manipulative treatment—senior questionnaire.

Figure 4. Percentage of students who had opportunity to use various osteopathic skills versus the number of rotations they had opportunities to use these osteopathic skills—senior questionnaire.
Analysis of Student SOAP Notes

Only students who had completed all three SOAP note exercises (138 of 147) were included in this portion of the study. The objective portions and the treatment plans of the SOAP notes were analyzed to assess the students’ inclusion of osteopathic structural examination findings and OMT plans. The CACC patients’ osteopathic structural examination findings were given to the second-year students. The third-year students had to perform an osteopathic structural examination on the standardized patient to obtain osteopathic structural examination findings. To receive full credit for doing the exercise, students were required to write a SOAP note that included their treatment plans for the standardized patient. Any mention of an osteopathic structural examination finding or OMT plan was counted as recorded.

Some students who performed an osteopathic structural examination on the standardized patient forgot to record their findings on the SOAP note. Others forgot to perform an osteopathic structural examination but included osteopathic structural findings in their SOAP note to ensure that they passed the exercise. To guarantee that students who did osteopathic structural examinations were counted, all standardized patient encounters were recorded with a videocassette recorder. Videotapes were then viewed to see which students actually performed an osteopathic structural examination.

Results

CACC-SOAP Note and Standardized Patient SOAP Note Plus Exercises

All second-year students (147) participated in the CACC-SOAP note exercises. During their third year, nine students served as logistics testers for the standardized patient SOAP note exercise and, as a result, only 138 (93%) students turned in SOAP notes on all three exercises. Only students who turned in all three SOAP notes were included in this portion of the study.

We first determined how many students included osteopathic structural examination findings in their SOAP notes, all of which were accepted as recorded findings regardless of their appropriateness. One hundred twenty-six (91%) students included osteopathic structural examination findings in the “O” portion of their SOAP notes during the Infectious Diseases course. The same number of students included osteopathic structural examination findings in their SOAP notes during the Osteopathic Theory and Methods: Systemic Diseases course.

One hundred seventeen (85%) students included osteopathic structural examination findings in their SOAP notes for both courses. Nine (6.5%) students included osteopathic structural examination findings in only the infectious diseases CACC-SOAP note exercise. Nine (6.5%) other students only included the osteopathic structural examination in the Osteopathic Theory and Methods: Systemic Diseases CACC-SOAP note exercise. Only 3 (2%) students failed to record osteopathic structural examination findings in both of the second-year CACC-SOAP note exercises.

Only 15 (11%) of the 138 third-year students observed on videotape actually performed an osteopathic structural examination on the standardized patient with COPD. Of those observed conducting an osteopathic structural examination, eight recorded their findings in their SOAP note. Ten students recorded osteopathic structural examination findings in their SOAP note; however, two of these students were not seen conducting an osteopathic structural examination on the videotape recording.

Only eight (6%) students recorded osteopathic structural examination findings on all three SOAP note exercises. Thirteen (9.4%) students were observed conducting an osteopathic structural examination on the standardized patient and recorded their osteopathic structural examination findings on both of the second-year CACC-SOAP note exercises. Two students were observed conducting an osteopathic structural examination on the standardized patient but did not record...
their findings in their SOAP notes.

The SOAP notes were examined to see how many students included OMT in their treatment plans. For the purposes of this study, all recorded OMT treatment plans were accepted. During the infectious diseases CACC-SOAP note exercise, 84 (61%) students included OMT in their treatment plans. All of the students included OMT plans in their SOAP notes during the Osteopathic Theory and Methods: Systemic Diseases class. However, only one (0.7%) third-year student included an OMT plan in his or her SOAP note during the standardized patient exercise. That student included OMT plans on the Osteopathic Theory and Methods: Systemic Diseases CACC-SOAP note as well.

**Preclinical Rotation and Senior Questionnaires**

The preclinical rotation and senior questionnaire were filled out anonymously. One hundred thirty-five students (92%) turned in the preclinical rotation questionnaire, and 123 (84%) students turned in the senior questionnaire. All questionnaires were included in the analysis.

On the preclinical rotation questionnaire, approximately half of the students believed they were adequately to extremely prepared by their OMM courses to do osteopathic structural examination and use OMT for patients during their clinical rotations (Figure 1). On the same questionnaire, 55% of the students believed they were adequately to extremely prepared to use their osteopathic palpatory skills, and 52% of the students believed themselves adequately to extremely prepared to use OMT (Figure 1). The average student response on the 5-point scale was 2.68 for use of palpatory skills and 2.66 for use of OMT on patients during their clinical rotations.

On the senior questionnaire, 73% of the students believed they were adequately to extremely prepared to use their osteopathic palpatory skills, and 71% of the students believed they were adequately to extremely prepared to use OMT (Figure 3). The average student response on the 5-point scale was 3.04 for use of palpatory skills and 2.91 for use of OMT during their clinical rotations.

Responses on the senior questionnaire indicated that few students had what they considered sufficient opportunities to use their osteopathic palpatory skills and OMT during 14 required rotations, and only 28% had the opportunity to use OMT on between 5 and 14 of their required rotations. The average student response on the 5-point scale was 2.39 for use of palpatory skills and 2.27 for use of OMT during clinical rotations.

On both questionnaires, only a small percentage of the students planned to use osteopathic palpatory skills and OMT for 25% or more of their patients in their future practice (Figures 2 and 5). On the preclinical rotation questionnaire, only 27% of the students planned to use their osteopathic palpatory skills for 25% or more of the patients in their future practice (Figure 2), while 20% of the students planned to use OMT for 25% or more of the patients in their future practice (Figure 4). The average student response on the 5-point scale was 2.13 for use of palpatory skills and 2.04 for use of OMT during their future practice.

Student responses on the senior questionnaire indicated that only 10% of the students planned to use osteopathic palpatory skills on 25% or more of their patients in their future practice, and 7% of the students planned to use OMT for 25%
or more of their patients in future practice (Figure 5). The average student response on the 5-point scale was 1.76 for use of palpatory skills and 1.72 for use of OMT in their future practice.

Responses on the senior questionnaire indicated that most of the students planned to use osteopathic palpatory skills in the diagnosis of musculoskeletal problems and that OMT would be reserved for patients with musculoskeletal problems (Tables 1 and 2). The only other category most (66%) students believed osteopathic palpatory skills could be used in diagnosis was the general medical examination.

Discussion
Incorporating osteopathic palpatory findings and OMT in the care of patients with structural problems is an important distinction of the osteopathic medical philosophy. Studies conducted by the National Center for Health Statistics on patient visits to osteopathic physicians during 1975 and 1985 concluded that these two aspects of osteopathic medicine are the only distinctions between osteopathic family practice physicians and allopathic family practice physicians. The osteopathic medical students of today are the osteopathic physicians of tomorrow. The way in which these students view and choose to apply palpatory diagnostic skills and OMT in patient care has an effect on the distinctive nature of osteopathic health care.

Surveys are useful in determining physicians’ and students’ attitudes toward OMT; however, they have limited usefulness in determining whether physicians and students are using OMT in clinical situations. Other studies highlight potential problems associated with data obtained from surveys. Self-reported data can be influenced by the respondents’ interpretation of the researchers’ intent, as well as the respondents’ own interests. Fry noted that his self-reported data could not be directly related to results of a 1975 study that analyzed actual patient office visits to osteopathic physicians. When survey data are evaluated in isolation, it seems that osteopathic physicians today are much less likely to use OMT for patients than osteopathic physicians of 30 years ago. According to National Ambulatory Medical Care Surveys, however, patient visits to office-based physicians with direct patient care during 1975, 1985, and 1997–2000 do not show dramatic changes in use of OMT during the past 25 years. The percentage of patients treated with OMT by osteopathic family practice physicians has changed little since 1975 (1975, 10%; 1985, 12%; 1997, 8.9%; 1998, 13.2%; 1999, 10%; and 2000, 7.9%). These statistics counter other studies that cite significant changes in OMT use in the past 25 years. To capture a complete picture of osteopathic physicians’ and osteopathic medical students’ attitudes toward OMT and how they are using OMT may require both survey and behavioral data.

A behavioral study at KCOM with students from a different graduating class than in the current study revealed that students were willing to complete a CACC-SOAP note exercise conducted during the Infectious Diseases course. The students believed the exercise was worthwhile and helped them integrate material from other medical school courses, including osteopathic medical theory and methods classes. Students were willing to participate in the exercise as long as points were given for completion. As in the previous study, all students in this class completed SOAP notes on the CACC patient during the Infectious Diseases course. All the students in an Osteopathic Theory and Methods class also completed a SOAP

### Table 2
Student Responses on Senior Questionnaire to “Will You Use Osteopathic Manipulative Treatment in Treatment of the Following in Your Future Practice?”

<table>
<thead>
<tr>
<th>Category</th>
<th>Yes, %</th>
<th>No, %</th>
<th>Omit, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back pain</td>
<td>74</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>Neck pain</td>
<td>72</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>Soft tissue disorders</td>
<td>63</td>
<td>32</td>
<td>6</td>
</tr>
<tr>
<td>Sacroiliac region pain</td>
<td>62</td>
<td>33</td>
<td>5</td>
</tr>
<tr>
<td>Somatic dysfunctions</td>
<td>65</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td>General medical examination</td>
<td>37</td>
<td>59</td>
<td>5</td>
</tr>
<tr>
<td>Normal pregnancy</td>
<td>29</td>
<td>63</td>
<td>8</td>
</tr>
<tr>
<td>Allergic rhinitis</td>
<td>10</td>
<td>82</td>
<td>8</td>
</tr>
<tr>
<td>Acute upper respiratory tract infection</td>
<td>28</td>
<td>65</td>
<td>7</td>
</tr>
<tr>
<td>Bronchitis</td>
<td>15</td>
<td>78</td>
<td>7</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease or emphysema</td>
<td>15</td>
<td>72</td>
<td>13</td>
</tr>
<tr>
<td>Chronic sinusitis</td>
<td>20</td>
<td>74</td>
<td>7</td>
</tr>
<tr>
<td>Diabetes (type I or type II)</td>
<td>3</td>
<td>85</td>
<td>11</td>
</tr>
<tr>
<td>Gastroenteritis or colitis</td>
<td>15</td>
<td>76</td>
<td>8</td>
</tr>
<tr>
<td>Hypertension</td>
<td>5</td>
<td>89</td>
<td>6</td>
</tr>
<tr>
<td>Lacerations</td>
<td>5</td>
<td>89</td>
<td>6</td>
</tr>
<tr>
<td>Neurotic disorders</td>
<td>8</td>
<td>83</td>
<td>9</td>
</tr>
<tr>
<td>Osteoarthrosis and allied disorders</td>
<td>32</td>
<td>62</td>
<td>7</td>
</tr>
<tr>
<td>Pharyngitis</td>
<td>10</td>
<td>82</td>
<td>8</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>24</td>
<td>67</td>
<td>9</td>
</tr>
<tr>
<td>Suppurative and unspecified otitis media</td>
<td>11</td>
<td>82</td>
<td>7</td>
</tr>
</tbody>
</table>
note on a CACC. Participation in the standardized patient SOAP note exercise was also good (94%).

During the Infectious Diseases course, medical students in the previous study and this study were similar in their recording behaviors regarding inclusion of osteopathic structural examination findings on a patient with acute pneumonia in their SOAP notes (93.6% and 91%, respectively). Medical students in the current study appeared more willing to record use of OMT (49% and 61%, respectively). This may have been secondary to a lecture given in the Infectious Diseases course by a member of the Osteopathic Theory and Methods Department on integrated treatment of patients with infectious diseases. In the current study, it was expected that students would be more likely to place an OMT plan in their SOAP note during the CACC bronchitis and sinusitis patient exercise in the Osteopathic Theory and Methods course. One of the objectives of this course was to teach students how to use OMT for patients with systemic diseases.

A treatment plan that included OMT was crucial to gaining full credit in the exercise for the Osteopathic Theory and Methods course. Considering that in a previous study acquisition of points was the primary motivation for completing the CACC-SOAP note exercise, it is likely that the acquisition of points was the motivation for students in the current study to place a treatment plan that included OMT in their SOAP notes.

These types of student responses were expected. The initial CACC-SOAP note exercises were placed in the study to demonstrate that students could record osteopathic palpatory findings and OMT on SOAP notes. However, the reason for conducting this study was to see how students behaved when no external incentive was given for including osteopathic structural examinations and OMT plans in their SOAP notes. Only 15 (11%) third-year students were observed conducting an osteopathic structural examination on the videotaped recordings of the standardized patient with COPD. This is a significant decrease, considering that 91% of the same class was recording structural examination findings on CACC patients 14 to 15 months earlier.

One explanation for the decrease could be the nature of the exercise. Descriptions of patients in a CACC contained structural examination findings. In the case of standardized patients, however, students had to do an examination to record the structural examination findings, though some students may have forgotten to perform the structural examination. Seven of the 15 students who did such an examination forgot to record their findings in their SOAP notes. There is concern that two students recorded findings of a structural examination but were not seen doing examinations when observed on videotaped recordings. Although this behavior was uncommon, it may have implications as to the best way to assess standardized patient structural examinations.

Further studies are needed to determine the reasons for this decrease in the students’ use of an osteopathic structural examination, which does not appear to be due to a lack of preparedness. The preclinical rotation questionnaire indicated that most students believed they were adequately to extremely prepared to apply their osteopathic palpatory and OMT skills (Figure 1). Rather, it appears that with more clinical experience (as indicated on the senior questionnaire), more students believed they were adequately to extremely prepared to apply their osteopathic palpatory and OMT skills (Figure 3).

Although students believed themselves prepared to apply their osteopathic palpatory and OMT skills, this study demonstrated that after 10 months of clinical rotations, most of the students did not use these skills in the diagnosis and treatment of a standardized patient with COPD. Only 15 (11%) of the third-year students did an osteopathic structural examination, and only one (0.7%) student included OMT in the treatment plan, compared with 91% of students recording findings of an osteopathic structural examination and 61% of students including OMT in their treatment plans in a CACC patient with pneumonia.

In the current study, students had been given more than 200 hours of instruction on OMT during the first and second years at KCOM. This instruction included an osteopathic theory and methods course for applying OMT for patients with various diseases—including COPD—and an osteopathic theory and methods course that included OMT for a minimum of two patients before leaving for clinical rotations. Within 10 months, however, many students were not applying their osteopathic theory and methods instruction in using OMT for a patient with COPD. Although students believed themselves to be prepared to use OMT in the clinical setting, it appears that most of these students were afforded few opportunities to use osteopathic palpatory skills and OMT during their clinical rotations (Figure 4). This could be due to a number of previously mentioned reasons.

Another reason to account for the decrease in students’ use of OMT is a belief that there are certain patient problems deemed appropriate for treatment with OMT. In patient visit data sets from between 1997 and 2000, only 0.98% of patient visits with a diagnosis of COPD were treated with OMT by osteopathic physicians. The most common patient problems treated with OMT in 1985 and in 1997–2000 were musculoskeletal (eg, back pain, neck pain, shoulder pain). It appears from these data that many osteopathic physicians commonly use OMT for patients with musculoskeletal problems. It is understandable that students mentored by these physicians are less likely to suggest OMT for a patient with COPD. An interesting corollary to these data is the fact that the physicians who authored the COPD standardized patient case did not include OMT when they created the scoring rubric for grading our students’ performance. However, when a physician from the Osteopathic Theory and Methods Department was asked to develop a treatment plan for the COPD patient, he included OMT.

Responses on the senior questionnaire seem to confirm the belief among students that only particular patient problems are
appropriately diagnosed with osteopathic palpatory skills and treated with OMT. When students were asked which patient problems they would use osteopathic palpatory skills to diagnose, most chose musculoskeletal problems (Table 1). Most of the students also decided that musculoskeletal problems were the problems to treat with OMT (Table 2). Only a minority of the students believed that other conditions (e.g., hypertension, diabetes, COPD, pneumonia) should be diagnosed by osteopathic palpatory skills and treated with OMT.

It appears that by the end of their second year in medical school, many (73%) of our students had decided that only a small percentage of their future patients (25% or less) would be diagnosed with osteopathic palpatory skills (Figure 2). During graduation week, more (89%) of the same population of students decided that a small percentage (25% or less) of their future patients would be treated with OMT (Figure 3). During their second year, a large percentage (80%) of these students decided that a small percentage (25% or less) of their future patients would be treated with OMT (Figure 4). At graduation, many more (93%) of these students decided that a small percentage of their future patients would be treated with OMT (Figure 5). It appears that these decisions may have been made no later than 10 months into their clinical rotations, as demonstrated by their choice not to do structural examinations and use OMT on the third-year exercise with the standardized COPD patient.

Despite the many hours devoted to the teaching and application of OMT during their first 2 years of medical school, most of our students did not use OMT for a patient with COPD, though OMT techniques exist for COPD.2,8 They made this choice within 10 months of entering the clinical setting. This might portend the end of the distinct nature of osteopathic medicine. On closer look, however, it may well be that osteopathic physicians decided some time ago that certain musculoskeletal problems are amenable to OMT and that most other patient problems are treated in other ways. The osteopathic physicians of today train the osteopathic physicians of tomorrow. It behooves us to remember that what students see modeled before them in regard to OMT is what they will do in their own practice.

Acknowledgments
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References

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