

Inpatient Osteopathic Structural Examinations: Is “Red Tape” Getting in the Way of Personalized Patient Care?

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Context: Previous studies suggest that the use of osteopathic structural examinations and osteopathic manipulative treatment (OMT) have declined dramatically in the hospital setting.

Objectives: To determine frequency of use for osteopathic medicine’s traditional manual diagnostic and treatment model and to evaluate the possible effects of required documentation.

Design: A retrospective review of patients’ medical records at nine Midwestern osteopathic hospitals.

Methods: Medical records for patients admitted to participating hospitals during February 2006 were examined for documented use of osteopathic structural examinations and OMT. Analysis evaluated the effects of using standardized forms to meet criteria established by the American Osteopathic Association (AOA). Subanalysis compared records from hospitals that used such forms with those that did not.

Results: A total of 1047 patient medical records were evaluated, 418 (40%) of which met AOA criteria. Two-hundred twenty (35%) of the 629 non-AOA-compliant records showed that detailed osteopathic structural examinations were conducted. The use of standardized forms correlated with an increased use of OMT and an increased likelihood that examinations met AOA criteria ($P<.001$). However, standardized forms also led to fewer narrative descriptions of clinical findings.

Conclusion: Although many records documented the use of these examinations, this paperwork often failed to meet AOA criteria. To ensure high-quality, personalized patient care, expectations for hospital osteopathic structural examinations—including the importance of physician narratives in patient records—should be emphasized for osteopathic physicians-in-training.

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The distinction between osteopathic and allopathic medicine is fading.¹ According to Norman Gevitz, PhD,¹ the rapid advancements in pharmacotherapeutics within the past half century have allowed osteopathic physicians to shift from using osteopathic manipulative treatment (OMT) alone to incorporating a wide range of medications in patient treatment. Yet, there remains a major philosophical difference between the two medical professions.

Osteopathic medical philosophy is based on a holistic approach to patient care that consists of the following four fundamental principles or tenets:

- The body is a unit, a combination of body, mind, and spirit.
- The body is capable of self-regulation, self-healing, and health maintenance.
- Structure and function are reciprocally interrelated.
- Rational treatment is based on an understanding of body unity, self-regulation, and the interrelationship of structure and function.²

The use of osteopathic structural examinations and OMT for inpatient care are vital to the expression of the osteopathic medical philosophy in the hospital setting.³ Adherence to the four fundamental osteopathic principles and their expression in the osteopathic structural examination and OMT is frequently impressed on osteopathic medical students during the first 2 years of their training.⁴

Osteopathic physicians use the osteopathic structural examination to assess patient posture, balance, and range of motion.³ They use palpation to assess tendons, ligaments, and muscles of the patient’s back and extremities, looking for asymmetry, tenderness, and boggiess.^{3,5} It is during this type of physical examination that osteopathic physicians may also detect visceral problems or somatic dysfunction via the common pathways of visceral afferents and somatic motor efferents.³ Palpatory skills can be of great assistance when making diagnoses for complex somatic and systemic dysfunctions.

The American Osteopathic Association (AOA) requires that osteopathic physicians meet certain criteria when conducting physical examinations for inpatient hospital admissions. Although the AOA has since revised their guidelines

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(Resolution 258 [A/2007]—Osteopathic Musculoskeletal Evaluation), those shown in *Figure 1* were in effect at the time of study initiation (ie, 2000), having been amended most recently in 1994.^{6,7} The most recent guideline revisions, which addressed some of the concerns about documentation and paperwork burdens described in the present study, are further discussed in “Comments” on page 330.

According to these guidelines, patients must be examined in two or more positions and TART (tissue texture abnormality, asymmetry, restriction of motion, and tenderness) features must be addressed in patient medical records.^{6,7} To help osteopathic physicians meet these requirements, standardized examination forms were developed for use in osteopathic postdoctoral training institutions associated with the Centers for Osteopathic Research and Education (CORE) system of Ohio University College of Osteopathic Medicine (OU-COM) in Athens.

The detailed criteria used for osteopathic structural examinations are intended to assist physicians in making more accurate diagnoses and more thorough treatment plans for patients. Despite the potential benefits to patients of the information derived from these evaluations, few osteopathic physicians complete osteopathic structural examinations in the hospital setting.⁷ Shubrook and Dooley⁸ noted a decline in the use of osteopathic structural examinations in 2000. They suggested that the declining use of osteopathic structural examinations may be related to inconsistencies in the training of osteopathic medical students, interns, and residents in the hospital setting.⁸

Although osteopathic medical students typically receive thorough instruction on providing osteopathic structural examinations in the first 2 years of medical school,⁴ continued training in examination techniques varies during clinical rotations.^{8,9} Studies have shown a decrease in the use of OMT among osteopathic physicians as well as more advanced osteopathic medical students, interns, and residents.^{8,9} In a study with 554 participants, Shubrook⁹ reported in 2002 that 58% of third-year osteopathic medical students were comfortable using OMT to treat patients with somatic dysfunction. However, this proportion decreased to 29% by the beginning of internship and to 16% by the time of residency training.¹⁰

Shubrook and Dooley⁸ further reported that osteopathic medical students' perceptions of barriers to OMT use in hospitals first manifest during the third and fourth years of medical school—and that these perceptions continue into internship and residency training. The investigators found that factors contributing to the negative perceptions about OMT included a lack of role models who use OMT, time constraints, issues regarding financial reimbursement, inadequate clinical training, a lack of suitable facilities for practicing OMT, and declining confidence in one's OMT abilities.⁸

In 2003, Chamberlain and Yates¹⁰ attributed the decline in OMT use to a lack of confidence among osteopathic medical students in their academic training and preparation for clinical

Checklist

- The examination should be conducted by osteopathic physicians and shall be carried out with the patient in two or more positions—unless this requirement is precluded by the patient's condition.
- The examination should include inspection, palpation, segmental motion testing, and overall motion testing of the major areas of the spine, cranium, thoracic cage, and pelvis. Major (ie, pertinent) findings of the extremities should be included.
- Mention should be made of anteroposterior spinal curves, any lateral curves, areas of tenderness, tender points, muscle contracture, and other soft tissue changes, spasm, and limited range of motion.
- The report of the examination shall be in a form that details positive and negative findings.
- If the structural examination is not performed at least referable to the area of chief complaint, this fact shall be noted and the reason stipulated.
- A correlation shall be made between the patient's structural abnormalities and chief complaint.

Figure 1. American Osteopathic Association (AOA) guidelines, as amended in 1994, for documenting the use of osteopathic structural examinations for inpatient hospital admissions.^{6,7} These guidelines were in effect when the present study began. Subsequent changes to AOA standards encouraged osteopathic physicians to integrate the osteopathic structural examination with patient evaluation, documenting all relevant findings in the patient's treatment plan (Resolution 258 [A/2007]—Osteopathic Musculoskeletal Evaluation).

rotations. In a preclinical survey of 135 second-year osteopathic medical students, Chamberlain and Yates¹⁰ found that 45% of students believed they were either minimally qualified or unqualified to conduct an osteopathic structural examination. Similarly, in the same study, 48% of students believed they were minimally qualified or unqualified to provide OMT.¹⁰

Standards required for AOA hospital accreditation include completion of osteopathic structural examinations as part of each inpatient medical history and physical examination.⁶ Yet, previous studies have demonstrated that the use of osteopathic structural examinations is far from universal among osteopathic physicians in that clinical setting.^{7,8}

To meet AOA standards for osteopathic structural examinations, we believe that many osteopathic hospitals have tried to simplify routine documentation by using standardized forms and checklists. We have concerns, however, that the completion of a standardized form may not necessarily indicate the thoroughness of a structural examination.

In the present study, we seek to determine the incidence

of osteopathic structural examinations in osteopathic hospitals. We also seek to determine whether either AOA criteria for documentation of osteopathic structural examinations or the use of standardized forms are barriers to the completion of these physical examinations.

Methods

The present study was approved by the Institutional Review Board of Ohio University in Athens and the institutional review boards of the nine charter osteopathic hospitals that are members of the CORE system of OU-COM.

Lists of patient medical records were obtained from the information technology and medical records departments of all participating hospitals. These medical records consisted of patients who were discharged during February 2006. The inclusion criteria for medical records consisted of inpatient admissions to see osteopathic family physicians or osteopathic physicians specializing as general internists or in geriatric medicine. Medical records were excluded from study if patients were neonates or infants, admitted for observation or outpatient procedures only, or received care from hospital OMT specialists. The latter group was excluded from the current investigation because OMT specialists were not available at all of the participating hospitals. Thus, the inclusion of these specialists would have been a confounding variable for the study.

We reviewed each medical record for a hospital admission note, medical history, physical examination report, osteopathic structural examination form (as applicable), osteopathic physician consultations and orders, daily progress notes, and a discharge summary. The following information was documented for each subject:

- ☐ hospital name
- ☐ length of hospital stay
- ☐ primary diagnosis
- ☐ completion of osteopathic structural examination conforming to AOA criteria
- ☐ completion of osteopathic structural examination not conforming to AOA criteria
- ☐ involvement of house staff (ie, osteopathic students, interns, or residents) in patient admission and examination
- ☐ OMT use

Data were manually entered into an Excel database (Microsoft Corp, Redmond, Wash). Basic frequencies were compiled using SPSS statistical software (version 14.0; SPSS Inc, Chicago, Ill). Frequencies were calculated to determine incidence rates for osteopathic structural examinations that met AOA standards as well as for those that did not conform. In addition, frequency of house-staff involvement with admissions and examinations was calculated. Cross tabulations were performed to determine the significance of the relation between house-staff involvement with patient admissions and the use

of osteopathic structural examinations. Chi-square (χ^2) tests were used to evaluate the significance of house-staff involvement with examinations that were not documented according to AOA criteria. Statistical significance was defined as $P < .05$.

Results

A total of 1319 patient medical records were reviewed. Of these, 272 medical records failed to meet inclusion criteria and were excluded from further analysis. Thus, 1047 patient medical records were included in the current analysis.

The mean (SD) length of hospital stay for subjects was 5.7 (3.8) days. The five most common diagnoses were gastrointestinal disease/colitis (154 [15%]); angina, coronary artery disease, or acute coronary syndrome (89 [9%]); pneumonia (89 [9%]); chronic obstructive pulmonary disease (86 [8%]); and congestive heart failure (84 [8%]) (Table).

Osteopathic manipulative treatment was provided to 63 subjects (6%). The diagnoses that were most commonly associated with the use of OMT in these subjects were pneumonia (11 [18%]); angina, coronary artery disease, or acute coronary syndrome (8 [13%]); congestive heart failure (8 [13%]); and dyspnea (8 [13%]).

Figure 2 is a flow diagram that illustrates the progress of subjects' medical records through the current investigation. Variables are the use and documentation of osteopathic structural examinations and involvement of hospital house staff in admissions and physical examinations. The patient medical records revealed that an AOA-compliant osteopathic structural examination was conducted for 418 (40%) of patient admissions, documenting the use of at least two patient positions and TART descriptors.

The remaining 629 patient medical records (60%) did not meet AOA criteria for an osteopathic structural examination. Although 220 (35%) of these 629 records included narrative notes that indicated physicians had completed the required examination, documentation of this work was incomplete (Figure 2). The most common reason these records were judged noncompliant was a lack of documentation regarding the use of two or more patient positions. One-hundred forty-two (64.5%) of these cases had house-staff involvement. In fact, such house-staff involvement decreased the likelihood to a statistically significant level ($P < .001$) that an osteopathic structural examination meeting AOA documentation requirements would be completed.

Standardized osteopathic structural examination forms were used during physical examinations of 346 subjects (33%) at six of the nine participating osteopathic hospitals. Of these examinations, 259 (75%) met all the criteria for an AOA-approved osteopathic structural examination. This result suggests that the use of a standardized examination form increases the likelihood of patients receiving AOA-compliant osteopathic structural examinations and OMT ($P < .001$). Eighty-one percent of attending osteopathic physicians used such forms, compared with 63% of hospital house staff ($P < .001$).

Table
Centers for Osteopathic Research and Education System:
Most Common Inpatient Diagnoses Made With Osteopathic Structural Examinations

Diagnosis	No. (%)
■ All patients	1047 (100)
□ Gastrointestinal disease or colitis	154 (14.7)
□ Angina, coronary artery disease, or acute coronary syndrome	89 (8.5)
□ Pneumonia	89 (8.5)
□ Chronic obstructive pulmonary disease	86 (8.5)
□ Congestive heart failure	84 (8.0)
■ Patients receiving osteopathic manipulative treatment	63 (6.0)
□ Pneumonia	11 (17.5)
□ Angina, coronary artery disease, or acute coronary syndrome	8 (12.7)
□ Congestive heart failure	8 (12.7)
□ Dyspnea	8 (12.7)

Comments

The results of the present study indicate that osteopathic structural examinations are provided more frequently than previously suggested.⁸ Proper documentation—as defined by the AOA at the time of study initiation—required osteopathic physicians to conduct structural examinations with patients in two or more positions—or to document why this step could not be completed for a given patient.^{6,7} As demonstrated in this study, this requirement limited the number of examinations that fulfilled AOA guidelines.

In the present study, only 40% of subjects received an examination that met AOA standards. Thirty-five percent of the individuals whose medical records were excluded from study because of noncompliance with AOA criteria nevertheless received detailed structural examinations. If these records were included among the completed examinations, the total number of completed osteopathic structural examinations increases to nearly two-thirds of eligible patients. Excluded records met the basic osteopathic principles described by the AOA for osteopathic structural examinations, but they did not meet the “letter of the law.” In terms of patient care, we believe that these individuals benefited from the osteopathic approach to their structural examinations—despite the fact that the examinations did not meet AOA standards.

The most important information that needs to be documented about a patient’s structural examination is not whether the examination was conducted, but the nature of the diagnostic findings and how those findings relate to the patient’s illness. Subsequent changes to AOA policy regarding documentation for osteopathic structural examinations in hospitals encourage physicians to more closely integrate evaluation of the patient’s underlying illness with all relevant findings documented in the patient’s treatment plan (Resolution 258 [A/2007]). We believe that revisions to these guidelines better reflect the philosophic goals behind institutional insistence on

the use of osteopathic structural examinations.

As previously noted, six of the nine osteopathic hospitals belonging to the OU-COM CORE system included standardized osteopathic structural examination forms with patient records. The use of these forms seemed to affect the quality of the osteopathic structural examinations adversely, however, as indicated by the lack of narrative findings in those records.

In patient narratives, physicians customarily describe features that are unique to individual patients and how those features relate to his or her current condition. Ideally, the osteopathic structural examination would first focus on the patient’s chief complaint and then progress to diagnosis and treatment considerations based on palpatory findings and the intuition of the osteopathic physician. Such steps could be more clearly described in a narrative than in the structured format of a standardized form. Standardized forms do not and cannot ensure that patients’ examinations are conducted skillfully.

It is of particular concern that many (142 [65%] of 220) of the detailed structural examinations excluded from study for noncompliance with AOA criteria were provided by the hospitals’ house staff. A number of explanations may help elucidate this finding. First, the relative inexperience of house staff may have played a role in the lack of adherence to documentation standards. Second, the attending osteopathic physician may not have noticed the omission of positional information on a patient’s medical record before signing off on the examination. Third, just as time constraints could be considered a barrier to OMT use, this factor may also have an impact on documentation of physical examinations. Lastly, it is likely that the hospital house staff and attending physicians may not have been taught AOA documentation requirements.

To improve the achievement of AOA national standards for osteopathic structural examinations in the hospital setting,

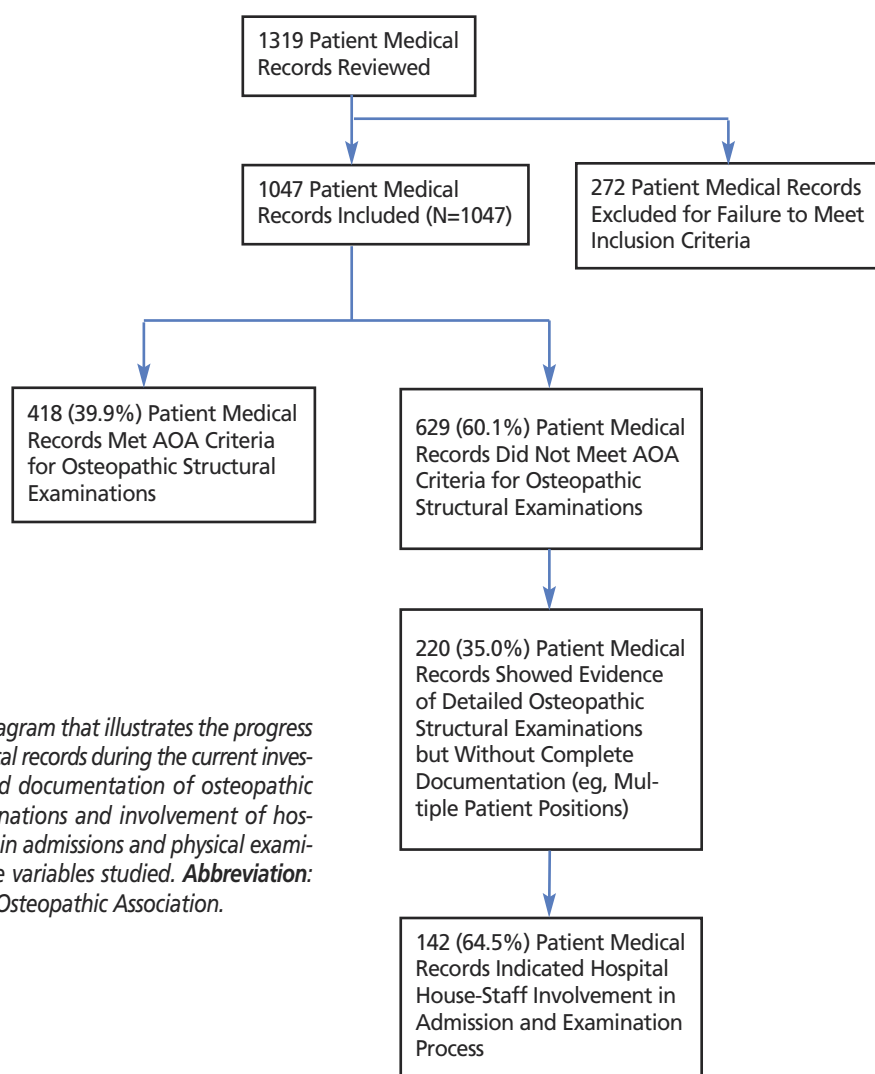


Figure 2. Flow diagram that illustrates the progress of subjects' medical records during the current investigation. Use and documentation of osteopathic structural examinations and involvement of hospital house staff in admissions and physical examinations were the variables studied. **Abbreviation:** AOA, American Osteopathic Association.

the AOA guidelines need to be widely publicized by osteopathic medical institutions and widely known and understood by those from whom adherence is expected. The standards need to be realistic in terms of the time commitment required and beneficial in their contributions to patient care.

The importance of using the osteopathic approach for the care of patients in hospitals needs to be emphasized throughout clinical training. One pillar of osteopathic medical philosophy is the importance of touch and palpatory findings in patient diagnosis and treatment. Solidifying the foundation of this mantra should be the goal of the AOA and the many institutions charged with the continuing medical education of osteopathic medical students, interns, and residents.

Limitations

The present study has a number of limitations. As is expected with any retrospective study, data collection was limited to

information already documented—in this case, inpatient medical records. Such medical records may not reflect the entirety of patient care.

In addition, our decision to exclude data from OMT specialists could have reduced the number of thoroughly documented osteopathic structural examinations available for analysis. Finally, the present study was completed in Midwestern osteopathic postdoctoral training institutions that have links to four osteopathic medical schools: OU-COM, Des Moines (Iowa) University—College of Osteopathic Medicine, Kansas City (Mo) University of Medicine and Biosciences College of Osteopathic Medicine, and Kirksville (Mo) College of Osteopathic Medicine-A.T. Still University. Thus, the training of the house staff at these institutions may not reflect national trends.

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Conclusions

Osteopathic structural examinations conforming to AOA standards were completed for less than half of the subjects in the present study. The number of AOA-approved osteopathic structural examinations would have been substantially greater if the revised AOA guidelines were in place at the time of this study.

Many osteopathic hospitals participating in the study developed standardized examination forms to help physicians meet the AOA guidelines. Although the use of such forms improves the likelihood that osteopathic structural examinations will meet AOA standards, this efficiency measure appears to have a negative effect on the quality or thoroughness of the examinations as reflected in medical records because they often do not include a narrative component.

In light of the blurring of identities of the osteopathic and allopathic medical professions, we believe it is imperative to set and adhere to clear, practical, and achievable standards that define acceptable levels of clinical care in osteopathic medicine. However, osteopathic physicians need to balance two seemingly competing goals: adherence to national standards for documentation and providing personalized and comprehensive healthcare to patients. Striking this balance is crucial for maintaining the patient-centered approach characteristic of osteopathic medicine.

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The normal structure, with its parts of the body in proper relationship, one to the other, is an architectural masterpiece for the preservation of balance and mobility against gravity's force.

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