JAOA LETTERS

As the premier scholarly publication of the osteopathic medical profession, *JAOA—The Journal of the American Osteopathic Association* encourages osteopathic physicians, faculty members and students at colleges of osteopathic medicine, and others within the healthcare professions to submit comments related to articles published in the *JAOA* and the mission of the osteopathic medical profession. The *JAOA*'s editors are particularly interested in letters that discuss recently published original research.

Letters to the editor are considered for publication in the *JAOA* with the understanding that they have not been published elsewhere and that they are not simultaneously under consideration by any other publication. Although the *JAOA* welcomes letters to the editor, readers should be aware that these contributions have a lower publication priority than other submissions. As a consequence, letters are published only when space allows.

All accepted letters to the editor are subject to editing and abridgement. Letter writers may be asked to provide *JAOA* staff with photocopies of referenced material so that the references themselves and statements cited may be verified.

Readers are encouraged to prepare letters electronically in Microsoft Word for Windows (.doc) or in plain (.txt) or rich text (.rtf) format. The *JAOA* prefers that readers e-mail letters to jaoa@osteopathic.org. Mailed letters should be addressed to Gilbert E. D'Alonzo, Jr, DO, Editor in Chief, American Osteopathic Association, 142 E Ontario St, Chicago, IL 60611-2864. Mailed submissions and supporting materials will not be returned unless letter writers provide self-addressed, stamped envelopes with their submissions.

Letter writers must include their full professional title(s) and affiliation(s), complete preferred mailing address, day and evening telephone numbers, and preferred fax number and e-mail address. In addition, writers are responsible for disclosing financial associations and other conflicts of interest.

Although the *JAOA* cannot acknowledge the receipt of letters, a *JAOA* staff member will notify writers whose letters have been accepted for publication.

All osteopathic physicians who have letters published in the *JAOA* receive continuing medical education (CME) credit for their contributions. Writers of original letters receive 5 hours of AOA Category 1-B CME credit. Authors of published articles who respond to letters about their research receive 3 hours of Category 1-B CME credit for their responses.

DOs Need to Define Value of Osteopathic Medicine

To the Editor:

While proponents of osteopathic medicine cite osteopathic manipulative treatment (OMT) as one of the overt measurable behaviors that delineate the unique features and demonstrate the value of our profession, researchers have been developing methodologies to better quantify the effect of OMT on patient outcomes. As of 2008—116 years after the founding of the first school of osteopathic medicine—these efforts have yielded mixed results. Research has shown that when there is an emphasis on manual diagnosis and treatment for patients with musculoskeletal disorders, osteopathic physicians demonstrate a distinctive approach to patient care, compared with their allopathic colleagues.[1] However, there is little evidence to support such a distinction between osteopathic and allopathic physicians in regard to other medical conditions.[2]

Certainly, there is evidence for the beneficial effects of OMT for patients with low back pain, as was recently reported in a systematic review of randomized clinical trials by investigators at The Osteopathic Research Center in Fort Worth, Tex.[3] In evaluating the effect of OMT on patients' respiratory conditions for a chapter in *Foundations for Osteopathic Medicine*, Gilbert E. D'Alonzo, Jr, DO,[4] concluded the following:

> Osteopathic physicians are convinced of the efficacy of manipulative treatment. Our experience has been that this form of therapy is helpful for our patients. There are limited data demonstrating the clinical efficacy of manipulative intervention in certain disease states. It is imperative that further clinical investigation be pursued to advance the science of osteopathic medicine.

Few randomized controlled trials have evaluated the effectiveness of OMT or other aspects of osteopathic medicine for conditions other than low back pain. To fill this gap, researchers are currently involved in a number of randomized controlled trials that focus on the unique contribution that osteopathic medicine makes to patient outcomes.

Most educators in osteopathic medicine believe that—beyond the use of OMT—a unique philosophy of practice distinguishes the osteopathic medical profession from its allopathic counterparts, and that this philosophy contributes to improved outcomes in patients. With patients, private insurers, and government healthcare agencies increasingly demanding evidence to support the value of the more than $2 trillion spent annually on healthcare in the United States,[5] the need to demonstrate osteopathic medicine's distinctive contribution to healthcare is growing dramatically.

Evaluation of the unique contribution of osteopathic medicine needs to expand to include broader measurements of how osteopathic physicians

prevent disease, maintain health in individuals who have no illnesses, and sustain health in patients who have chronic diseases. These broader measurements would evaluate not only the use of medications and other conventional treatments, but also physician interaction with patients, and patient motivation; coordination with available community and healthcare resources; and ability to manage systems-based care and track progress toward healthcare goals at both the patient and population-at-large levels. Such an approach would be consistent with the principle of osteopathic medicine that emphasizes treating the whole person with all available evidenced-based modalities and preventive services—including OMT when appropriate.

Various unique dimensions that reflect the value of osteopathic medicine can be found in a study by Carey et al[6] that evaluated differences in patient interactions with osteopathic vs allopathic physicians. Using a 26-item index of current osteopathic principles derived from the original principles of Andrew Taylor Still, MD, DO, researchers found that the patient interactions of osteopathic physicians were easily distinguishable from those of allopathic physicians. According to these researchers,[6] DOs were more likely than MDs to use patients' first names, explain etiologic factors, and discuss the social, family, and emotional impact of illness with patients.

The results of Carey et al[6] were consistent with the holistic and systematic approach to patient treatment taught during the training of primary care osteopathic physicians, and they may be reflective of the philosophical differences in education and training that DOs receive compared with MDs. However, research has not demonstrated if osteopathic physicians are more, less, or equally effective when compared with allopathic physicians in terms of managing the health of patients and populations.

Determining the unique contribution of osteopathic medical care should be a top priority in the profession's research agenda. The Osteopathic Heritage Foundation and the Foundation for Osteopathic Health Services are currently investigating methodologies and hypotheses for the development of a registry to identify, measure, and document the unique values of osteopathic medical care. Capturing appropriate clinical data through a registry mechanism, such as the American Osteopathic Association's Clinical Assessment Program (AOA CAP), is a key factor in such an evaluation.

While researchers working with the Osteopathic Heritage Foundation and the Foundation for Osteopathic Health Services are focusing on defining the unique attributes of osteopathic medicine, an opportunity also exists for practicing osteopathic physicians to define—at a practice level—their individual contributions to the health of their patients. The AOA CAP registry provides the framework for DOs to define the frequency of their evidence-based practices and the outcomes of their patient care. The information captured through AOA CAP can be used to improve medical care through such activities as changing practice patterns, engaging patients in self-management, and marketing the value of osteopathic medical care to patients, employers, and private and public insurance entities.

Recently, the Centers for Medicare and Medicaid Services (CMS) invited AOA CAP to join a congressionally mandated pilot project that will test the ability of registries to interact with the Physician Quality Reporting Initiative (ie, CMS Value-Based Purchasing Program).[7] Other registries that were invited to participate in this pilot project include those of the American College of Cardiology's National Cardiovascular Data Registry and the Society of Thoracic Surgeons. Some DOs may see participation in the CMS program as an additional burden that will interfere with patient care. However, we see it as an opportunity for osteopathic physicians to define—at a community and national level—their commitment to a quality healthcare agenda, as well as a means for improving patient care.

Since its inception, osteopathic medicine has flourished and contributed to medical care in the United States. Perhaps it is now time to define the intrinsic value of that contribution.

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Editor's Note: Dr Seffinger serves as a member of the Editorial Advisory Board for *JAOA—The Journal of the American Osteopathic Association*.

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AOA is Strong Advocate for Debt Relief and Primary Care

To the Editor:

As the number of osteopathic medical students increases, the burden of debt carried by these students likewise grows. The high cost of medical school education, osteopathic or otherwise, has gained increasing scrutiny over the past several years as annual tuition increases at medical schools escalate and Medicare and private-sector physician payment rates stagnate.[1-3]

Ethan Wagner, DO,[4] in his February 2008 letter to the editor, initiated impassioned profession-wide discussions[5-8] about what the American Osteopathic Association (AOA) and the colleges of osteopathic medicine (COMs) can do to help lessen the burden of student debt and encourage responsible growth in the profession. As some AOA members wrote in the May 2008 issue of *JAOA—The Journal of the American Osteopathic Association*,[5,6] high tuition is not a direct corollary with excellent education.

The student debt problem is worsened by the reality that physician payment rates as established by Medicare, especially in primary care fields, are not certain and have not kept pace with inflation.[9,10] This fact has raised warning flags for the medical profession at large, particularly for those primary care physicians who face tremendous debt loads after graduation without the assurance of high salaries.

However, Dr Wagner[4] makes some factual mistakes in his letter, such as his statement that "...the [COMs] and the [AOA] are directly responsible for the financial woes endured by many young osteopathic medical students and residents." The truth is that the AOA has absolutely no jurisdiction over the amount of tuition a COM can charge. We could ask the COMs to charge less, but we have no authority to require compliance.

In the letter by Chadd K. Kraus, MPH, OMS II,[6] in the May 2008 *JAOA*, aspersions were cast against the AOA Commission on Osteopathic College Accreditation (AOA COCA) for authorizing branch campuses at osteopathic medical schools with high tuition rates. For those who are unaware, AOA COCA is not a business manager, and it cannot dictate how COMs conduct their governance. Similarly, if a COM applies for accreditation and/or expansion and meets all the required standards, AOA COCA must grant the application. Accreditation cannot be denied by AOA COCA solely for an arbitrary reason, such as a COM's for-profit status or tuition rates.

The AOA can and will continue to advocate and educate state and federal policymakers, the public, and our own members regarding this important issue and the steps we all must take together to rectify the problem. As I discussed in my April 2008 "Executive Director's Desk" column in *The DO*,[11] it is time for us to join such high-profile educational institutions as Harvard University, Yale University, and Massachusetts Institute of Technology in linking tuition rates to students' financial needs. These and other schools, including Cleveland Clinic Lerner College of Medicine Case Western Reserve University, recently set tuition at $0 or a greatly reduced rate for students who have the academic qualifications—but not the money—to attend their institutions.[12,13] As I previously wrote,[11] "Wouldn't it be great if we could add an osteopathic medical school to this list or reduce [students'] debt if they go into osteopathic primary care?"

Advocating for payment incentives for physicians practicing in primary care is another way that the AOA actively addresses this problem. The AOA is a founding member of the Patient-Centered Primary Care Collaborative, a coalition of large employers, consumer groups, and major physician organizations that have joined together to develop and promote the patient-centered medical home model of care as the way to transform the US healthcare delivery system.[14] By placing the primary care physician at the center of a healthcare team, the medical home model recognizes the crucial role that these physicians play in patient health. With a growing number of public and private entities signing on in support of this model, the AOA brings greater force to our advocacy for fair and equitable payment rates for primary care physicians.

In addition, the AOA and the American Association of Colleges of Osteopathic Medicine were recently successful in urging the US Congress to keep intact, at least through the fall of 2008, the debt-to-income ratio (ie, "20/220 pathway") provision for medical student loan deferment in the Higher Education Act.[15] The reinstatement of this provision means that all fourth-year osteopathic medical students and current residents will continue to be eligible for hardship deferment during the next year. Furthermore, our advocacy to keep this pathway intact even longer will continue.

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Something Wrong With This Picture

To the Editor:

The case report by Christopher M. Rancont, DO,[1] in the September 2007 issue of *JAOA—The Journal of the American Osteopathic Association* describes the use of standing postural radiographs of the pelvic region and hips to identify the absence of leg length discrepancy in a patient who had undergone hip arthroplasty.

As many of us know, having regularly used this radiographic technique as developed by Willman,[2] the existence of a hip arthroplasty prosthetic device in a patient presents a special challenge.

I have two issues of concern regarding Dr Rancont's case report.[1] First, the radiographs presented in the article as *Figure 1* and *Figure 3* do not include vertical plumb lines. Yet, the vertical plumb line is key to the application of Dr Willman's technique.[2] Without the plumb line, there is no accurate reference to the horizon and, therefore, measurements are subject to error. Even the measurement line superimposed on *Figure 3* was obviously added after the radiograph was taken. The lack of a plumb line is important because there is considerable wobble to the film—depending on how it is placed into the cassette—as anyone who has had the experience of loading radiographic film in a darkroom can attest. Also, whether using conventional film or a digital process, one cannot rely on the assumption that the upright Bucky support column is level to the floor. Therefore, one cannot reliably use the edges of the film as a reference.

The second issue of concern is raised by the presence of the prosthetic device in the patient's right hip.[1] With such a device, it is not clear where to draw the reference lines to evaluate the femoral head height bilaterally. My experience has been that the reference line for the femoral head on the left should be across the top of the natural femoral head, intersecting the plumb line. On the right side, the reference line should intersect the top of the artificial femoral head, not the top of the appliance at the acetabular rim.

In the radiographs shown in *Figure 1* and *Figure 3* of Dr Rancont's article,[1] it appears—even without a plumb line—that there is a significant difference in femoral head height between the left and right sides. In *Figure 3*, the femoral head height of the natural bone appears to be more superior than the femoral head height of the prosthesis. Furthermore, the author's discussion of the measurements in "Radiographic Findings" describes a difference in femoral head height of 2 mm.[1] Later in this section, there is the statement, "Sacral base unleveling was minimal at 4.4 mm toward the right."[1] If this statement is correct, that measurement is double the amount of the femoral head height difference—and certainly, in my opinion, it would represent a significant sacral tilt. Indeed, when I look at the angle of the sacral tilt in *Figure 3*, there appears to be a significant tilt warranting consideration of a heel lift for leveling the sacral base. Consideration might be given to gradual leveling of the sacral base with monthly incremental increases in heel-lift height, coupled with osteopathic manipulative treatment for preventing chronic psoas spasm.

In conclusion, I believe that the case report by Dr Rancont[1] is an excellent reminder of the importance of the mechanics of leg length difference and sacral base unleveling. However, the case report is deficient in its description of the standing postural radiographic technique used—particularly considering the presence of an arthroplasty prosthesis on one side. In addition, it is difficult to make accurate diagnostic conclusions without the use of a steel plumb line passing through the Bucky device in front of the film. This modification to the standard radiographic setup is essential for the proper administration of the technique described by Willman et al,[3] which was based on the original work of Willman.[2] Let's not forget how effective osteopathic manipulative treatment can be in conjunction with heel lifts to level the sacrum. A small change in structure can lead to a big change in function.

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Editor's Note: Dr Rancont declined to comment on this letter to the editor.

Questionable Diagnosis of Hemolytic Anemia?

To the Editor:

In their December 2007 case report, Damon L. Baker, DO, and colleagues[1] concluded that their patient's elevated lactate dehydrogenase level and reticulocyte count indicated hemolytic anemia, and that the results from a peripheral blood smear suggested normocytic anemia with granulocytosis and thrombocytosis.

The authors reported that laboratory tests showed that the patient's lactate dehydrogenase level was 263 U/L, and her reticulocyte count was 3.08%.[1] However, both of these measurements should be used only as screening tests for hemolytic anemia—not as confirmatory tests—because of their lack of diagnostic specificity.

More appropriate confirmatory tests for hemolytic anemia would be measurements of serum indirect bilirubin and haptoglobin. In fact, Marchand et al[2] reported that a haptoglobin level of 25 mg/dL or less was 96% specific and 83% sensitive in a 100-patient retrospective study. Also arguing against a diagnosis of hemolytic anemia in the case report by Baker et al[1] was the lack of spherocytosis, anisocytosis, and polychromatophilia on the patient's peripheral blood smear.[3]

In this patient's case,[1] even if she was experiencing autoimmune hemolysis, the reticulocyte count was inappropriately low to fully explain her degree of anemia (hemoglobin, 9.6 g/dL after transfusion of 4 units of packed red blood cells). These laboratory results indicate a primary bone marrow or erythropoietin problem. The inappropriately low reticulocytosis may better be appreciated by calculating the absolute reticulocyte count or the corrected reticulocyte count.[4] The absolute reticulocyte count is determined by the product of the red blood cell count and the percent reticulocytosis. The corrected reticulocyte count is equal to the absolute reticulocyte count divided by the reticulocyte maturation time (in days).[4] The basis of this calculation arises from the fact that reticulocytes may spend as long as 2.5 days in the peripheral blood of very anemic patients, resulting in a reticulocyte count that more than doubles without any increase in red blood cell production.

The authors also stated that a Coombs test was not administered because the patient had already received corticosteroids.[1] The Coombs test is an essential diagnostic test in the clinical approach to hemolytic anemia because of its substantial positive predictive value and its ability to differentiate warm from cold autoantibodies.[3] This differentiation is important as the treatments associated with each condition vary. The administration of corticosteroids does not preclude obtaining a Coombs test in this case[1] for two reasons. First and most importantly, several different mechanisms of corticosteroid action in hemolytic anemia have been described in the literature, but only decreased antibody production directly affects the Coombs test.[3] However, several weeks of therapy are usually required before this effect is observed.[3] Second, the patient in this case[1] received only 40 mg/d of prednisone—below the current weight-dependent guidelines of 1 mg/kg prednisone (usually administered in dosages of 60-100 mg/d) for patients with hemolytic anemia.[3] Most patients with hemolytic anemia will require this dosage for 1 to 3 weeks, while 20% to 30% of patients will be refractory to steroids and will require other treatment modalities, such as rituximab, cyclophosphamide, intravenous immunoglobulin, or a splenectomy.[3]

One final point of concern is that the authors[1] state that the suspected presence of hemolytic anemia also supported a diagnosis of seronegative rheumatoid arthritis. Interestingly, however, both the incidence and prevalence of hemolytic anemia in patients with seronegative rheumatoid arthritis do not exceed that of the general population, and only a few cases have been reported of the coexistence of these two diseases.[5]

In conclusion, the anemia of the patient in the case report by Baker et al[1] was most likely not caused by hemolysis. Rather, it was probably a multifactorial normocytic anemia with inappropriate erythropoietin response, which is one mechanism seen in the anemia of chronic disease.[6] This diagnosis is supported by the patient's elevated erythrocyte sedimentation rate (106 mm/h) in the presence of rheumatoid arthritis.[1] Normocytic anemia with inappropriate erythropoietin response is also seen in cases of reduced erythropoietin levels stemming from chronic kidney disease[5]—a condition that matches the patient's reported creatinine value of 1.8 mg/dL and her 24-hour urine protein loss of more than 2 g.[1] These two types of normocytic anemia can be easily diagnosed by obtaining results of iron studies (eg, total serum iron-binding capacity, serum ferritin levels, percent transferrin saturation), as well as soluble transferrin receptor and serum erythropoietin levels.[7]

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Tophaceous Gout and Rheumatoid Arthritis Awareness

To the Editor:

With respect to the case report by Damon L. Baker, DO, and colleagues[1] in the December 2007 issue of *JAOA—The Journal of the American Osteopathic Association* about tophaceous gout in a patient with rheumatoid arthritis, the authors eloquently discuss the salient radiographic findings of rheumatoid arthritis. They also correctly assert that the radiographic findings of tophaceous gout are generally in contradistinction to rheumatoid arthritis.[2]

The hallmark radiographic findings of tophaceous gout are tophi, normal mineralization, late joint space destruction, erosions of adjacent bone, an overhanging edge of cortex, and asymmetric polyarticular distribution—most commonly affecting the first metatarsophalangeal joint.[3] The concomitant radiographic finding of both gout and rheumatoid arthritis is indeed rare, though its incidence is increasing.[4]

Typically, men are affected more than women, with gout being the initial disease and rheumatoid arthritis developing years later.[4] Interestingly, in 1976, Rappoport et al[5] described 16 patients with rheumatoid arthritis who exhibited goutlike changes of well-defined marginal erosions, diaphyseal erosions, and hypertrophic bone formation.

Unfortunately, the radiographic images published in the case report by Baker et al[1] demonstrate an inverted grayscale, such that the findings of rheumatoid arthritis described in the case report and figure captions are obscured. Furthermore, the radiographic images of the patient's left hand and right foot, supporting the discussion of symmetric bilateral findings, have been excluded from the case report. Thus, it is difficult for the readers to fully appreciate the radiographic change as described—underscoring the importance of correlating laboratory and histologic findings to arrive at the proper diagnosis. It is interesting to note that, on the radiographic image of the right hand, in *Figure 2*,[1] and on the mislabeled oblique and lateral radiographic images of the left foot, in *Figure 3*,[1] the patient does not exhibit gouty tophi and is without evidence of joint destruction.

We encourage readers to visit the Uniformed Services University of the Health Sciences' MedPix database for a radiographic education exhibit of two patients, one with tophaceous gout[3] and the other with rheumatoid arthritis.[6]

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Editor's Note: The views expressed in this letter are those of the authors and do not reflect the official policy or position of the Department of the Army, the Uniformed Services University of the Health Sciences, the Department of the US Air Force, the US Department of Defense, the US government, or any of the institutional affiliations listed.

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Response

In his letter, Bradley D. Confer, OMS IV, states that the lactate dehydrogenase level and reticulocyte count should be used only as screening tests for hemolytic anemia, and that other laboratory tests should have been used to further develop the diagnosis of hemolytic anemia for the patient in our case report in *JAOA—The Journal of the American Osteopathic Association* (2007; 107:554-556). We agree with Mr Confer's statements, and we acknowledge that further testing should have been used to strengthen the diagnosis given.

The confusing part of this case for the admitting physician was that the patient's medical record showed that she was given high doses (125 mg every 6 hr) of intravenous methylprednisolone and 4 units of packed red blood cells at the outlying hospital as treatment for her anemia—with no hemolytic analysis conducted at that time. Forty-eight hours posttreatment, the patient was transferred to our institution. The rheumatologist who was consulted believed that, considering the patient's history and clinical presentation of rheumatoid arthritis, the diagnosis of hemolytic anemia was probable.

In their letter, Paul J. Shogan, DO,

and Les R. Folio, DO, commented that the inverted grayscale images featured in our case report did not adequately show the findings described in the captions. Unfortunately, the images as viewed by the radiologists at our institution could not be converted into electronic files that were of publishable quality for the *JAOA*.

We appreciate the Web links provided by Drs Shogan and Folio through the Uniformed Services University of the Health Sciences' MedPix database. These links allow the reader to view clinically useful images of both rheumatoid arthritis and tophaceous gout.

Drs Shogan and Folio also commented on certain images that were excluded from our case report. Additional images of the patient's hands were included with our submitted manuscript, but they were removed during the editing process because of image quality and space constraints.

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Culture Drives Research Funding

To the Editor:

I am writing to comment on the medical education article by Michael B. Clearfield, DO, and colleagues[1] in the November 2007 issue of *JAOA—The Journal of the American Osteopathic Association*. In that article, the authors analyzed research funding trends at colleges of osteopathic medicine (COMs) between 1999 and 2004. I commend the authors for their timely and thoughtful analysis. In addition, I fully agree with the authors' primary conclusion—that faculty at the larger, state-supported COMs are better able to attract extramural research support than are faculty at the smaller, private COMs. However, I believe that the authors may have understated the importance of the research culture at individual COMs in determining the ability of faculty to attract extramural funding. This belief is based on my 27 years of experience as a basic science teacher and researcher in the osteopathic medical profession and on my own statistical analysis of some of the data presented in the article by Clearfield et al.[1]

When I used a linear regression model to reanalyze the data in the authors' *Table 6*,[1] I found a strong correlation (r^2 [coefficient of determination] = 0.6343, $P<.001$) between the number of full-time faculty and the total extramural grant dollars at the various COMs—a finding that was consistent with the authors' primary conclusion. However, when I conducted separate analyses on the private COMs and the public COMs, I found no significant correlation within either subgroup.

My observations indicate that factors other than COM size or number of faculty members may be important in obtaining extramural funding. I suggest that it is the research culture (or lack thereof) within an institution that is the primary factor in driving grant-seeking activity by faculty. Quite simply, when the culture and environment of a COM values and rewards research activities, faculty are much more likely to pursue and obtain extramural grant support.

In discussing their results, Clearfield et al[1] noted that institutional culture and mission were among the determinants of funding capability. They further suggested that faculty at some of the older COMs may have been successful in obtaining funding because those institutions have had more time to establish cultures of research. However, when I conducted a linear regression analysis to try to correlate the age of the schools with research grant dollars, I found no significant correlation. Indeed, data in the authors' *Table 6*[1] indicate that some of the newer COMs—most notably Edward Via Virginia College of Osteopathic Medicine in Blacksburg (established in 2001) and the University of New England College of Osteopathic Medicine in Biddeford, Me (established in 1978)—appear to have developed fairly substantial research programs in their relatively short histories. Again, these observations suggest that it is the culture of research within an institution that drives faculty research activities.

The issue of research culture is a critically important factor that needs to be considered as the osteopathic medical profession continues to expand. Many of the newer COMs and those currently under development are private institutions with limited resources and with missions that are heavily geared toward the training of osteopathic physicians for underserved populations.[2] In this context, there is growing pressure on COM faculty to focus on teaching activities at the expense of research. Growing the osteopathic research enterprise in such an environment will represent a major challenge.

The leaders and faculty of all COMs—whether public or private, new or old—need to be fully engaged in fostering institutional cultures that promote and reward research activities.

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The Osteopathic Research Center Will Remain Key to Osteopathic Medical Profession

To the Editor:

We commend Michael B. Clearfield, DO, and colleagues on their medical edu-

cation article[1] and accompanying editorial[2] in the November 2007 issue of *JAOA—The Journal of the American Osteopathic Association*. In their medical education article, the authors[1] concluded that accruing a "critical mass" for teaching, service, and administration within a college of osteopathic medicine (COM) was necessary for realizing a productive research program, and that future growth of research was essential for expanding the evidence base relating to the unique aspects of osteopathic medical practice. Specifically, they cited The Osteopathic Research Center (ORC), which resides at the University of North Texas Health Science Center—Texas College of Osteopathic Medicine in Fort Worth, as a successful research funding initiative in osteopathic manipulative medicine (OMM) with regard to the profession's return on investment.[1]

In the accompanying editorial,[2] the authors addressed the difficult issue of research growth at the COMs, suggesting that the American Osteopathic Association, the American Osteopathic Foundation, and the American Association of Colleges of Osteopathic Medicine fund additional, regionally based osteopathic research centers (RBORCs). According to their proposed model, each RBORC would be affiliated with a COM and encouraged to focus on its own unique aspect of OMM research.[2] We agree with the authors on this approach to integrating other RBORCs into the osteopathic medical profession during the next 2 decades. However, we wish to emphasize that funding for The ORC will remain critically important in maintaining and expanding the osteopathic medical profession's research portfolio as these fledgling RBORCs grow.

The rationale for continued profession-wide support of The ORC is provided by the Expert Panel Review of the National Institutes of Health National Center for Complementary and Alternative Medicine (NCCAM) Research Centers Program.[3] Therein, the following two lines of reasoning pertain to osteopathic medical research:

- Substantial funding is needed to maintain research infrastructure within an established research center, such as The ORC.
- There are formidable lag times before research centers, such as RBORCs, emerge as viable research enterprises in their own right.

The NCCAM Expert Panel Review[3] indicated that research centers need to have adequate infrastructure support, typically at the level of $1 million to $1.5 million annually—an amount that is considerably greater than has heretofore been provided from osteopathic professional organizations to The ORC. Furthermore, unlike research centers at prestigious universities that can quickly focus existing financial resources on new areas of research, emerging RBORCs will likely have to develop and maintain research resources that did not previously exist to any substantial degree. A deceleration in osteopathic research productivity would almost surely ensue for years to come with any curtailment of funding to The ORC because other RBORCs would not yet be positioned for a compensatory contribution to the osteopathic research enterprise. Worse yet, such a loss in momentum for osteopathic research would come at a critical juncture—when calls for evidence-based support of all clinical practices are being increasingly voiced internationally.[4]

Research activities conducted at The ORC, including six major projects funded by the National Institutes of Health, are being increasingly cited and recognized within the international scientific community.[5,6] In addition, The ORC has taken on coordination responsibilities for the Osteopathic Collaborative Clinical Trials Initiatives Conference series to support other researchers in the osteopathic medical profession and to foster development of an "osteopathic research consciousness."

The ORC remains committed to the key aspects of research recommended in the NCCAM Expert Panel Review,[3] including:

- ☐ maintenance of a basic science research agenda
- ☐ performance of exploratory and pilot research studies
- ☐ provision of necessary research support and infrastructure to investigators and collaborators
- ☐ development of osteopathic manipulative treatment approaches for large-scale studies
- ☐ provision of career development opportunities for clinicians, junior faculty, and osteopathic medical students
- ☐ conduct of health services research in osteopathic medicine

We look forward to the continued support of the osteopathic professional organizations as we move forward with these research initiatives.

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Living in Fast Forward

To the Editor:

Our profession owes Michael B. Clearfield, DO, and his co-authors a debt of gratitude for two very important and informative articles about research at colleges of osteopathic medicine in the November 2007 issue of *JAOA—The Journal of the American Osteopathic Association* (2007;107:463-465;469-478). Furthermore, our gratefulness to this team should extend beyond these two well-written articles to the superior leadership that Dr Clearfield and his colleagues have shown in moving the osteopathic medical profession to "fast forward" at a speed that few in the field had thought possible.

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Response

We appreciate the comments from Dr Prozialeck, Dr Licciardone and colleagues, and Dr Harper regarding our medical education article[1] and editorial[2] that appeared in the November 2007 issue of *JAOA—The Journal of the American Osteopathic Association*. We agree with Dr Prozialeck's analysis of the data indicating a strong correlation between number of full-time faculty and amount of extramural funding at the colleges of osteopathic medicine (COMs). As noted in our medical education article,[1] the four highest totals in extramural funding in 2004 were from publicly supported COMs with an average faculty size of 140.

Dr Prozialeck also points out that the privately funded University of New England College of Osteopathic Medicine (UNECOM) in Biddeford, Me, had a high ranking (fifth) among COMs in total extramural funds received in 2004. It should be noted that the average faculty size of 140 for the top four state-funded COMs was 23% greater than the average faculty size of 114 noted for all the state-funded COMs.[1] Although UNECOM had 87 faculty members—which was 61% more than the average of 54 faculty members at the other private COMs—UNECOM still fell 24% short of the average faculty numbers at the state-supported COMs.[1]

In addition, Dr Prozialeck indicates that Edward Via Virginia College of Osteopathic Medicine (VCOM) in Blacksburg has established a fairly substantial research program—even though that institution is also privately funded and less than 10 years old. It should be pointed out, however, that VCOM's total funding in 2004 was exceeded by all but one of the state-supported COMs and by three of the private COMs.[1] Of these three private COMs, only UNECOM was less than 100 years old.

Another potential confounding variable that may directly affect the research success at both UNECOM and VCOM is their proximity to large undergraduate institutions with campus research resources that may enhance those of the smaller, private COMs. Nevertheless, we agree with Dr Prozialeck that the success of a COM's research program includes the culture and environment relative to rewards for research efforts—factors that may not specifically be tied to the age of the institution.

In their commentary, Dr Licciardone and colleagues emphasize the need to continue osteopathic professional funding to maintain the success generated by The Osteopathic Research Center (ORC), as well as to support additional regionally based osteopathic research centers (RBORCs). In our medical education article[1] and associated editorial,[2] we suggested that new RBORCs should be funded to increase both the breadth and depth of osteopathic medical research across the United States.

Dr Licciardone and colleagues mention that the National Center for Complimentary and Alternative Medicine (NCCAM) Expert Panel typically recommends an annual budget of $1 million to $1.5 million to maintain the infrastructure of a research center.[3] Although this recommendation is a generality, one must consider that the original investment for The ORC was $1.1 million over 4 years ($275,000 per year), followed by an additional $900,000 for the next 4 years ($225,000 per year). It is clear that, despite an initial investment that was far below the amount recommended by NCCAM, The ORC has been able to sustain and increase its infrastructure. The second cycle of funding was less than the initial cycle—even without adjusting for inflation—suggesting that either the infrastructure cost of The ORC diminished or other income sources were filling the funding void. The former explanation is unlikely because The ORC staff, faculty, and space have increased during the past 7 years. Thus, the latter explanation is clearly the more appropriate answer.

The purpose of the initial funding for The ORC was to support the infrastructure of a start-up national research center that would drive scientific investigation for the osteopathic medical profession. The ORC should be commended for accomplishing that goal. The rationale for The ORC's second funding cycle was to further support the infrastructure so that more substantive funding from federal sources, such as NCCAM, could be obtained. Again, The ORC should be commended for accomplishing that goal. In order to maintain a research infrastructure through the long term, funding streams need to come from a variety of sources. The ORC has accomplished this objective with local, federal, and foundation funding.

Given the success of The ORC, one might question whether the American Osteopathic Association, American Osteopathic Foundation, and American Association of Colleges of Osteopathic Medicine should continue to fund The ORC as a unique national research

center; continue to fund The ORC while initiating additional start-up funds for a second RBORC; stop funding The ORC and transfer this support to a new RBORC; or decline funding any national research center.

Considering the volatility of the financial markets and fluctuating funding sources today, the osteopathic medical profession needs to carefully prioritize where it expends its financial resources. To resolve this dilemma, it may help to understand this issue from a national perspective.

In a recent review of funding of the US biomedical research community, Heinig et al[4] reported that allopathic medical schools projected average annual debt incurred by the total costs of research per institution to increase from $3.5 million in 2003 to nearly $7 million in 2008. Research is expensive, but the following quote from the review by Heinig et al[4] underscores the necessity of not only continuing our current research efforts, but expanding them:

> The percentage increases (actual and projected) in research space and faculty in most research-intensive schools were similar to those in all other medical schools, reflecting the shared conviction in all corners of the community that an enhanced research mission not only would benefit human health and well-being but also would contribute to local and regional prosperity.

Thus, the osteopathic medical profession may have no option but to continue to financially support The ORC *and* to institute financial support for other RBORCs. Not only is this the right thing to do for our profession, it is the right thing to do to fulfill the implied social contract between our profession and the public. We need to continue to use scientific rigor to prove that distinct osteopathic principles and practice (OPP) make a substantive difference for our patients and for society.

Although it could be said that the combined National Institutes of Health research funding at all of our COMs would rank only 163rd among the top 500 research institutions,[5] it could just as easily be argued that our combined funding ranks first in dollars from the National Institutes of Health allocated toward unique OPP. To date, the pilot studies focusing on aspects of medicine specific to OPP have been funded only by entities affiliated with our profession. It is essential that we keep this funding line viable and robust; without it, the osteopathic medical profession will not produce the research data that are necessary to contend for the larger competitive grants from government agencies and private foundations.

The osteopathic medical profession's continued support for The ORC demonstrates to other funding organizations that we believe in our research center and its mission, and this, in turn, opens the door for other potential sources of funding. Research is expensive, but—as shown by The ORC—it can produce a sizeable return on investment. This return includes not only financial dividends, but also a sharpening of the definition of our professional image and improvement in the public awareness of osteopathic medicine. Most importantly, continued research in osteopathic medicine helps us better treat our patients with the unique therapeutic modalities first envisioned by Andrew Taylor Still, MD, DO.

Lastly, we wish to thank Dr Harper for his kind remarks. We agree with the sentiments of Dr Prozialeck, Dr Licciardone and his ORC colleagues, and Dr Harper that research in the osteopathic medical profession needs the continued support of all of our national professional organizations, and this support must include all of the COMs—both public and private. We are a relatively small profession, and our research component makes up a sliver of the whole body of medical research conducted in the United States. Nevertheless, we should never underestimate its potential impact. To quote the late anthropologist Margaret Mead:

> Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.[6]

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Editor's Note: Drs Clearfield and Cavalieri are members of the *JAOA*'s Editorial Advisory Board. Dr Guillory is the chairman of the External Advisory Committee for The Osteopathic Research Center, which resides at the University of North Texas Health Science Center—Texas College of Osteopathic Medicine in Fort Worth. In addition, Dr Clearfield previously served as associate dean of clinical research at the Texas College of Osteopathic Medicine and had a supervisory role with The Osteopathic Research Center.

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