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THE AMERICAN ORTHOPAEDIC ASSOCIATION

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AOA Symposium

Orthopaedists Partnering with Other Physicians to Provide Musculoskeletal Care

By Alan S. Hilibrand, MD, Kurt P. Spindler, MD, and Scott D. Boden, MD

Ailments of the musculoskeletal system, including sprains and strains of ligaments and muscles as well as back and neck pain, are among the most common reasons for patient visits to physicians¹. Expertise in the management of these problems extends beyond orthopaedic surgeons to many other physicians. Physical medicine and rehabilitation physicians (physiatrists) are trained to manage patients who have been injured as well as those with spine-related and musculoskeletal complaints. Many physiatrists complete postresidency training in pain management, which provides them with the technical skills to deliver fluoroscopically guided nerve blocks and epidural steroid injections. Some anesthesiologists also complete pain medicine fellowships and possess similar skills. Primary care physicians trained in pediatrics, family practice, internal medicine, and emergency medicine also

have the opportunity to complete postresidency training in sports medicine through fellowships accredited by the Accreditation Council for Graduate Medical Education and to complete a Certificate of Added Qualification examination. Other allied care providers, including podiatrists and chiropractors, also participate in the evaluation and treatment of patients with musculoskeletal complaints.

Modern medicine is complex, and orthopaedic surgeons must maintain a rapidly expanding armamentarium of operative and nonoperative interventions that can be used to successfully treat the spectrum of musculoskeletal symptoms. This rapidly expanding surgical skill set has driven many orthopaedic surgeons to subspecialize in areas such as hand, spine, sports medicine, and foot and ankle surgery. The provision of quality

patient care in all aspects of musculoskeletal disease by the orthopaedist has become increasingly difficult. This problem is exacerbated by the demands placed on orthopaedic surgeons by referring physicians and their patients, who wish to be expeditiously seen and treated for their musculoskeletal complaints. Promptly accommodating these patients in an office schedule leads to a longer delay in the time to be seen for all other patients. We believe that a delay in the time to diagnosis and treatment may have a deleterious effect on the quality of care and may adversely impact patient satisfaction.

In an ideal world, the staff who schedule office appointments would triage referred patients to expedite the delivery of care and improve patient satisfaction. Patients presenting with symptoms of a condition that may require surgery could be quickly seen by

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the surgeon for rapid evaluation and treatment. Patients presenting with the recent onset of symptoms, which are often self-limited, would also receive rapid evaluation and appropriate non-operative management. However, these patients would be triaged to the first available physician who is adept at managing their symptoms and pursuing the most appropriate workup. From the perspective of the orthopaedic surgeon, partnering with other types of physicians who provide musculoskeletal care may be the best way to expeditiously and effectively accommodate patients wishing to be seen at their center. It has been our experience that the patient's level of satisfaction with his or her musculoskeletal care can be improved by reducing the delay in the time from the first contact with a physician's practice to the initiation of treatment and alleviation of the symptoms. In the United States, primary care providers vastly outnumber orthopaedic surgeons, and 20% to 25% of visits to a primary care practice are for orthopaedic or musculoskeletal diagnoses. We believe that there is an opportunity in a partnership with these other physicians to improve the quality of care by promoting common evidence-based medicine guidelines at one musculoskeletal care center.

It is in this context that we address the concept of partnering with other physicians to provide musculoskeletal care. A "busy" orthopaedic surgeon should ask him or herself, "Must I personally provide all of the musculoskeletal care to all of the patients sent to my practice?" By identifying and partnering with other musculoskeletal specialists, the orthopaedic surgeon may improve access to musculoskeletal care within his or her practice.

The *musculoskeletal partnership* may be defined as a cooperative arrangement between orthopaedic surgeons and other physicians who also treat musculoskeletal conditions. Together, the physicians at such a comprehensive center can provide the expertise and the ancillary services to

diagnose and treat all types of musculoskeletal symptoms relating to a particular subspecialty, such as spinal disorders or sports-related injuries. Working together, these physicians of complementary backgrounds could provide the highest quality of musculoskeletal care through the use of guidelines that are based on the highest levels of evidence.

The genesis of a musculoskeletal partnership may differ between the academic and private settings. Within the academic institution, the constituent physicians may already practice in close proximity to one another and share academic conferences and duties. Cooperative arrangements among these physicians should satisfy institutional desires to provide "service line" care. Although cooperative arrangements between different academic departments may be challenging because of institutional politics, equitable distribution of ancillary income generated by such a center can soften the financial impact to the parent departments, especially if a portion of this income accrues to each department.

In the private setting, the orthopaedic surgeon may find that the best partners are other physicians with whom they refer patients and/or already have a close working relationship. The independent nature of private practice usually allows these physicians to partner in one of two ways. They may choose to participate as "independent contractors" who maintain a portion of their practice outside the partnership, although such an arrangement may dilute their role in the group's governance and their share of ancillary income. Alternatively, such physicians may wish to have their practice fully incorporated within the musculoskeletal partnership, although this may complicate the subsequent extrication of their own practice if the venture is unsuccessful.

Musculoskeletal partnerships may also be well-suited to recent initiatives in orthopaedic care for osteoporosis². Although it is considered a

part of orthopaedic management, many orthopaedic surgeons defer osteoporosis management to other musculoskeletal care providers. In a musculoskeletal partnership, this care takes place under the same roof as the evaluation and management of orthopaedic disease. At such centers, the osteoporotic patients seen by surgeons may also be seen by another musculoskeletal care provider for a diagnostic workup. The provision of evaluation and management services for osteoporosis can satisfy two reporting requirements in Medicare's new pay for performance initiative³, providing an additional opportunity for enhancement of practice income to the physicians.

Since the musculoskeletal partnership provides multidisciplinary patient care, many patients will not see an orthopaedic surgeon for their problem. We believe that the quality of patient care may be improved by scheduling each patient with the physician who is going to provide the most attention and best care for the problem. The success of such a center is strongly dependent on the orthopaedic surgeon and other physicians working together to develop triage strategies that allow schedulers to place patients with the most appropriate provider. It has been our experience that the growth of such centers may be balanced by adding surgeons when surgical wait lists grow beyond six to eight weeks and adding nonoperative physicians when office waits grow beyond two to three weeks.

It should be noted that physician extenders such as physician assistants and nurse practitioners may also satisfy the needs of a busy practice by expediting access to care. However, these care providers are typically employees and subordinates of the physicians in an orthopaedic practice. In the musculoskeletal partnership, the orthopaedic surgeon and other physicians should view each other as complementary partners in the provision of musculoskeletal care.

In this article, we explore models of cooperative provision of musculoskeletal care for the service lines of spine

TABLE I Examples of Orthopaedic Subspecialist Partners

Orthopaedic Subspecialist	Overlapping Surgeon	Complementary Physician	Nonphysician Care Providers
Spine surgeon	Neurosurgeon	Physiatrist, anesthesia or pain management specialist	Chiropractors, physical therapists
Sports medicine surgeon, shoulder and elbow surgeon		Primary care sports medicine physician	Athletic trainers, physical therapists, exercise physiologists
Foot and ankle surgeon		Rheumatologist	Podiatrists, orthotists
Hand surgeon	Plastic surgeon	Rheumatologist	Occupational therapists, orthotists
Joint replacement surgeon		Rheumatologist	Dieticians (weight loss)

care and sports medicine. Table I provides a list of opportunities for partnering in several areas of orthopaedic specialty practice. For the subspecialties of spine surgery and sports medicine, we discuss methods of incorporating all physicians into the academic and clinical mission of the partnership. We also explore avenues for providing equitable reimbursement for both operative and nonoperative services. In addition, we share our experiences with patient acceptance of multidisciplinary musculoskeletal care.

The Multidisciplinary Spine Center: Integrating Overlapping and Complementary Specialties

Spine center has become a popular phrase used by large group practices and many health-care systems to connote a specialized unit for handling spine problems. Unfortunately, many spine centers are little more than a marketing vehicle. Ideally, a spine center should be a true comprehensive, multidisciplinary, and fully integrated care delivery unit that actually delivers better care rather than just increasing market share. Developing such a center requires an understanding of the spine disease continuum as well as the complexities of the current health-care environment.

In our opinion, there are four environmental realities that must be realized prior to constructing a real spine center. First, most musculoskeletal spine problems can be successfully treated with nonoperative approaches and are increasingly managed by other

physicians such as physiatrists and family practitioners who specialize in the treatment of musculoskeletal disease. Second, although all physicians at a multidisciplinary spine center should be a potential access point for care, it may be more cost-effective for the spine center to triage patients with pathological conditions that might eventually require surgery to the surgeons at the center. Third, spine fellowship training has increased the overlap of capabilities between orthopaedic and neurological spine surgeons, leading to competition and confusion in the marketplace. Finally, new treatments are trending toward less invasive approaches, and the advent of biologic and genetic solutions could decrease the number of operative spine procedures in the future. This should drive the orthopaedic surgeon, neurosurgeon, physiatrist, and family practitioner to partner within the multidisciplinary spine center to provide the highest quality and most cost-effective care of spinal disorders.

Although the argument given above is “physician centered,” often we have found that the best way to construct a spine center is by addressing issues that are “patient centered.” In fact, most patients have such a poor understanding of the various specialties that potentially treat spine problems that their choice of type of specialist is often arbitrary and not optimal for their problem. The days of “who you see determines what you get” should be replaced by a generation of spine care professionals who are data and out-

comes driven and who work together to offer each patient the full spectrum of treatments at their disposal.

One potential vehicle to achieve this higher level of patient care would be a true multidisciplinary spine center. Patients would experience seamless continuity of care between subspecialties and more convenient packaging of services (e.g., one-stop shopping). Doctors would benefit from less competition between overlapping subspecialties, more efficient delivery of a greater spectrum of services with less duplication, and greater intellectual stimulation by working with providers of several alternative perspectives. Such a center would achieve a more patient-focused care delivery model in contrast to multiple competing practices focusing on gaining market share or protecting “turf.”

Such a design would also enhance research opportunities by allowing analysis of disease management strategies across disciplines within the same practice. The care of spinal disorders is predominantly nonoperative, and much of this care is provided by physiatrists and pain management specialists. To study the outcomes of care for spinal disorders comprehensively, the outcomes of all spine specialists must be included. This is easily accomplished at a multidisciplinary spine center. The SPORT (Spine Patient Outcomes Research Trial) study, a clinical trial funded by the National Institutes of Health comparing the outcomes of operative and nonoperative treatment of lumbar disc herniation, lumbar spinal

stenosis, and degenerative spondylolisthesis^{4,5}, is a contemporary example of such an effort. In SPORT, surgeons and nonsurgeons from twelve multidisciplinary spine centers around the United States contributed outcomes data from nonoperative and operative treatment of patients with these conditions. A total of 2500 patients were enrolled, and they continue to be followed by a variety of spine specialists at these centers.

Nirvana cannot be achieved without overcoming serious obstacles both external and internal to the center. We have found that the major external obstacle is usually institutional and/or health system politics, which usually relate to power and money. The other external issue is patient acceptance of treatment by a variety of spine care providers. This latter issue can be managed with decisions that address patient scheduling and a triage strategy to match patients with providers. The internal issues include (1) the need to decide who participates in the center and who does not, (2) the need for a strong physician leader, (3) bridging cultural differences between subspecialties, (4) bridging political differences between subspecialties, and (5) equitably addressing financial differences between subspecialties.

In our opinion, the key to managing institutional politics is to address concerns related to power and money. Organizational leadership and all who participate in a spine center must understand that health-care delivery organized around traditional specialty-based silos is not in the best interest of the institution or the patient. All of the involved parties, including department chairs when an academic institution is involved, must agree to the vision outlined above. This includes the appointment of a single spine center director who is empowered to make decisions regarding the clinical delivery of care and the business issues related to that care. The center's director can report to someone centrally in the organization but cannot have four department chairs as his or her boss or risk paralysis of

decision making. For example, a dean or senior hospital administrator responsible for the provision of clinical care across an entire institution may be best able to measure the impact of a multidisciplinary spine center on its constituent departments. In an academic institution, hiring of new faculty must be done cooperatively with the parent academic department (orthopaedics, neurosurgery, or physiatry) on the basis of a balance of spine center needs and departmental research and/or teaching requirements. The parent academic department should have jurisdiction over promotion and/or tenure, teaching, and research. For business affairs such as salary and work schedule, the center's director should have jurisdiction. In practice, this may require close communication between the department chair and the spine center director.

With politics and power addressed, the second major concern is money. On the basis of our experience at the Emory Spine Center over fifteen years, we remain convinced that there must be a separate cost-revenue center for the spine center. This enables the organization of the business of health care in parallel with the delivery of health care within an integrated center that crosses traditional structural organizations. This fiscal accountability is also necessary so that those providers who deliver care in the spine center view it as their home base geographically, clinically, and financially, with total alignment.

Readers familiar with the traditional academic environment may be skeptical that any department chairs would be willing to give up the revenues associated with spine care to facilitate growth, development, and reinvestment in a product line that is financially no longer under their control. However, declining health-care reimbursements have led many organizations to use the revenues from spine care to subsidize other activities rather than reengineering the delivery of care in those other areas. While cross-subsidization of activities is a reasonable concept, when

taken to the extreme it drives spine care providers out of traditional departments (orthopaedics, neurosurgery, and rehabilitation medicine) and into spine-specific practices. If department chairs and large institutions cannot create an environment for spine care professionals to thrive clinically and financially by limiting cross-subsidization, they will find it hard to attract and maintain spine care physicians. The transition to a "spine center" may be facilitated in an academic environment if some money does flow back to parent departments. At Emory, these funds are used for research that is accessible to all faculty; the funds that are returned to the parent department are derived from ancillary rather than professional revenues.

The motivation of multiple specialists from different backgrounds to venture into a new collaborative care delivery and financial model usually requires the opportunity to improve their own situation in addition to that of their patients. Many private practices generate ancillary revenue from physical therapy, magnetic resonance imaging scanners, and ambulatory surgery centers. These opportunities have widened the financial gap between private practice and academic spine specialists, adding to the recruitment and retention challenges of academic departments. Given these external environmental realities, it is wise for the institution to share ancillary revenues from ambulatory surgery centers, imaging, and physical therapy with specialties that have these opportunities outside academia. This can level the playing field with outside competition and provide capital for the growth of the spine center and for the payback to parent departments. Examples of such revenue sharing have included a 50:50 split in ancillary revenues between the academic department and the spine center, direction of all such funds to departmental and spine center research funds, and "lease-back" arrangements with the hospital or university for the provision of such ancillary services. Academic departments should also benefit in the

spine center model by receiving some funding back while maintaining a stable spine faculty, satisfying the requirements of residency review committees. In exchange, the departments must cede some direct control over the spine clinicians. The institution benefits by maintaining a seasoned high-value faculty with a large market share, which should justify its sharing of ancillary revenues.

We believe patient acceptance of a variety of musculoskeletal specialists at the spine center is largely dependent on appropriate scheduling policies and practices. One of the keys to growth is providing optimal access to care by means of a central access point for scheduling appointments with any of the physicians in the center. The scheduling system should be capable of rapidly determining the first available physician appointment. Patients may request a specific provider, but the option to be seen sooner by an alternative physician can be voluntary or mandatory depending on patient characteristics. Triage questions may include: Was the patient referred by a physician? Is the appointment for a second surgical opinion? Has the patient had recent spine imaging and injections? Is the patient willing to consider surgery? A recent survey of 138 patients in the waiting room at the Emory Spine Center revealed that 43% were willing to see any type of specialist (surgeon or nonsurgeon) if they could be seen sooner. Of those patients needing a surgeon, 41% were willing to see either a neurosurgeon or an orthopaedic spine surgeon. This informal survey suggests a willingness to trust the center's judgment as to what type of specialist might be best for the initial appointment.

Another important decision for a spine center is the question of "who is in" and "who is not." At the very least, an integrated spine center should include orthopaedic spine surgeons, neurosurgery spine surgeons, and spine physiatrists capable of nonoperative treatments and injection procedures. These three types of specialists can

handle the vast majority of patients who are likely to be referred to a spine center. One specialist who can be helpful either as a full-time member or adjunct member depending on the practice size is a psychologist who can be helpful for preoperative evaluation and for administering a functional restoration program in physical therapy. Some centers may also include physicians who specialize in anesthesia or pain management, occupational medicine, family practice, nonoperative orthopaedics, and rheumatology. Such physicians can be an effective part of the spine center, but only if they can deliver the full spectrum of patient assessment and nonoperative care. Two years ago, the Emory Spine Center added an acupuncturist who has been very well received, and we are currently considering the addition of a chiropractor. This has been very successful at the Texas Back Institute, but there are few other examples of such integration. A recent waiting-room survey at the Emory Spine Center revealed that 5% to 10% of patients would be less likely to come to a spine center if they knew there were physiatrists, orthopaedic surgeons, or neurosurgeons on staff, whereas 28% indicated they would be less likely to attend if there was a chiropractor on staff.

Regardless of the type of specialists who participate in the spine center, everyone must share a common philosophy with respect to outcomes data-driven and patient-centered care. There should be an understanding that nonoperative treatments will be exhausted before surgical treatment is considered, and, when surgery is recommended, that it will be of appropriate size and scope. There are likely to be cultural differences in the approach to spine problems by specialists of different training and background. A strong physician leader must ensure an environment that respects such differences as an asset that leads to better patient care.

Governance among a group of talented and often strong-minded physicians also requires a strong physician

leader. In our experience, weekly business meetings with time for a preset agenda and an ad hoc agenda have proven instrumental in managing a practice with such diverse members as well as ensuring regular "bonding time" to resolve small differences before they grow into larger differences that can fragment a group. It is often helpful to identify a physician leader within each of the three major specialties of the center (orthopaedics, neurosurgery, and physiatry). This enables the development of leadership throughout the group and affords more efficient handling of issues that relate to only one of the specialties. A consensus autocratic democracy seems well suited for this environment, whereby the physician leader has the obligation to build consensus prior to making major decisions. If major concerns are voiced and addressed, very few actual votes need ever be taken.

The financial model should be individualized to the local environment and the philosophy of the personnel, and it should be amenable to modification over time. A model that has worked well within the Emory Spine Center will be briefly summarized. Emory Healthcare is a not-for-profit organization. There are over 800 physicians who are part of the faculty of the Emory University School of Medicine and support an academic enrichment fund (i.e., a Dean's tax). In the Spine Center, an individual physician's income is largely based on his or her personal productivity. The base salary is set at 75% to 80% of his or her total compensation in the prior year, and professional incentives are distributed every six months, if earned. There are centrally charged administrative services (approximately 15% of revenue), which cover billings and collections, managed-care contracting, marketing, legal, human resources, and information technology. All other services are decided within the group and are charged directly; they include costs for administrative assistants, physicians, nurses, medical assistants, receptionists, and medical records.

The internal allocation of costs among physicians must reflect the philosophy of the group and the ultimate balance between socialism and the reality that some specialties are compensated more highly than others. The internal environment must vaguely reflect the reality of outside practices or it will be difficult to retain all specialists. The central and local costs can be allocated to individual physicians on the basis of a percentage of their collections or as a percentage of their clinical full-time practice equivalents, or a blend of both. At Emory, allocation of costs in line with a physician's actual generation of revenue is preferred. Also, employees who work exclusively for one physician or one definable subgroup of physicians are directly allocated along with malpractice costs, which vary by specialty and claims records.

Departmental paybacks should come from the physicians of that particular department, rather than from the group as a whole. Physical therapy and imaging technical component revenues may be distributed as a percentage of clinical full-time equivalents, or they may be distributed equally or on the basis of the initial capital investment if one was required. At Emory, 25% of ambulatory surgery revenues are directed to the surgeon, and 75% to all physicians on the basis of clinical full-time equivalents.

At the Emory Spine Center, adherence to these principles and progressive thinking by the institution and department chairs has resulted in unprecedented growth and success. An initial version of the Emory Spine Center was opened in 1991 with multiple cost centers rather than a single unified model, and it failed by early 1993. The Emory Spine Center was then reengineered with orthopaedic and physiatry participation in 1994 as a single cost-revenue center, and it grew throughout the 1990s until space and the lack of access to ancillary revenues threatened its survival. In 2003, the Emory Spine Center was reborn as a component of a comprehensive musculoskeletal center in a dedicated

100,000-square-foot facility located on one of Atlanta's major axis routes. In 2005, three neurosurgery spine surgeons became fully integrated into the Spine Center, joining the five orthopaedic spine surgeons, six physiatrists, one occupational medicine physician, and one psychologist. Since 2003, professional revenues have grown 15% per year and ancillary revenues are projected to reach 25% to 50% of professional revenues, which will help to fund parent departments, research, expansion, and investment in infrastructure. These changes have resulted in increased patient, physician, and staff satisfaction, and in improved patient care because of an efficient, convenient, and comprehensive spine center model.

The Sports Medicine Center: A Culture of Collaboration

Within the subspecialty of sports medicine, there is a natural collaboration between fellowship-trained orthopaedic surgeons and primary care sports medicine physicians. This collaboration arises from (1) coverage of teams at the collegiate or the professional level, which requires treatment of musculoskeletal problems as well as medically related problems involving athletes; (2) the education of residents and fellows in orthopaedic and primary care sports medicine, which is best accomplished by collaboratively teaching all providers; and (3) the reality of clinical practice in a competitive market, which requires expeditious evaluation and treatment of all sports injuries by a musculoskeletal care provider.

Sports medicine coverage of a Division-I university with several hundred athletes on sixteen teams requires tremendous manpower. These teams usually require physician accessibility twenty-four hours per day, seven days a week, and 365 days a year for triage of any medical problems or injuries by primary care physicians and orthopaedic surgeons. With this need in mind, the Vanderbilt Sports Medicine Center was established in 1990 as a collabora-

tive effort among the Vanderbilt University Medical Center, the Vanderbilt University Department of Orthopaedics and Rehabilitation, and Vanderbilt University Athletics. Its missions included the integration of orthopaedic and primary care sports medicine subspecialty education and training and the practice of common guidelines for treatment based on evidence-based medicine.

Today, most medical care of Division-I and professional athletes is provided by fellowship-trained primary care physicians and orthopaedic surgeons. Representatives from both specialties often provide on-site backup for athletic trainers, coordinate surgical consultations for hand and spine injuries, and arrange medical consultations, most commonly in cardiology, pulmonology, and dermatology. In addition, the successful sports medicine center must provide "one-stop care" for sports injuries for all patients. It must coordinate care of the injured athlete at all levels, and it should provide patient access to care within twenty-four hours of initial contact. This last point is most important in increasing patient satisfaction, since active middle-aged patients desire both an understanding of their condition as well as rapid evaluation, treatment, and resumption of their active lifestyles. At Vanderbilt, we have found that providing rapid access to care requires approximately a 1:1 ratio of primary care providers to orthopaedic surgeons.

Part of our mission at Vanderbilt is to provide high-quality community sports medicine care by managing the entire spectrum of care for the entire spectrum of athletes. The adoption of a core value of integrating the highest level of evidence into our diagnosis and treatment guidelines not only improves the quality of care but also, we believe, makes the most efficient use of resources. Currently, we care for amateur athletes at two Division-I universities, over thirty regional high schools, and at major athletic events including the Music City Triathlon, the Iroquois Steeplechase, and the Ladies Profes-

sional Golf Association tournament. Typically, the certified athletic trainers are the first line of treatment for the high schools and the college teams. Physical therapists are also critical in the early stages of an injury to provide expertise in rehabilitation. If further care is needed, orthopaedic and primary care sports medicine physicians coordinate care together and include other surgical and medical subspecialists as necessary. All of these providers are following the same guidelines, which they have mutually agreed to and are based on the best evidence. Thus, a patient with a common injury is given a brochure developed by the entire team (surgeons, primary care physicians, therapists, and trainers), which outlines the diagnosis and the treatment plan followed by the team. These education brochures are based on the highest form of evidence in the literature.

Another common bond between orthopaedic and primary care sports medicine providers is the education of their fellows and residents. Since many of these residents will serve in some capacity in the future as team physicians, we believe it is critical to train orthopaedic and primary care residents in all aspects of team coverage. We have established an educational program that includes fifty-two one-hour teaching sessions per year for the fellows, faculty, and key staff members including trainers and therapists. The lectures also provide an opportunity to discuss relevant clinical practice issues. In addition, primary care physicians and orthopaedists practice side by side in the clinic, and the primary care fellows work directly with the orthopaedists, which facilitates prompt consultations and coordinated decision-making in the clinic, in the training room, and on the field. The focus of our education is to teach the skills required to practice and, more importantly, the use of evidence-based medicine for clinical decision-making.

To ensure quality of care, Vanderbilt Sports Medicine adheres to four principles. (1) All physicians are fellowship-trained, and primary care

physicians carry a Certificate of Added Qualification. (2) Faculty, rehabilitation staff, and trainers provide care based on the best available evidence through established evidence-based medicine guidelines rather than their prior training. (3) Relevant research is integrated into our clinical practice through a coordinated multidisciplinary curriculum of lectures, regional conferences, and journal clubs. (4) All sports medicine care providers adhere to the core values articulated in our mission statement. This mission statement commits us to improve the lives of others by:

1. Treating each athlete and patient as we would ourselves.
2. Working with the highest honor and integrity.
3. Putting "team" before "I."
4. Striving to improve everything we do in the athlete's or patient's experience.
5. Leading in our understanding and education of others in the field of sports medicine.
6. Pursuing research that is innovative, clinically relevant, and scientifically valid.
7. Evaluating and applying new technology only if it has been proven with use of evidence-based principles.

The financial success of the orthopaedic and primary care model is an indirect result of the educational and practice model. The financial success from the perspective of a primary care sports medicine physician has been achieved through appropriate coding, rapidly filling office schedule templates, and driving patient visits from the overflow of demand for musculoskeletal care. The orthopaedic surgeons benefit from an improved efficiency, which allows them to minimize wait times and to evaluate a greater number of patients within the multidisciplinary sports medicine center than they could see within an orthopaedic surgery practice. In this model, the orthopaedic surgeon may ultimately increase his or her surgical volume because of the higher overall

volume of patients that can flow through such a center.

At Vanderbilt, all physicians are incentivized by being paid on the basis of their productivity. For the primary care physicians, an appropriate overhead that excludes orthopaedic resident educational expenses is established. The orthopaedists benefit from managing an outpatient surgery center and sharing a percentage of its profit. In this model, the sports medicine center has operated on a positive margin, both from the clinical and the departmental perspective, for over a decade. Although we maintain a profitable financial model, we believe it is the culture of collaboration that serves as the driving force of success.

In summary, our clinical practice model is based on five concepts: mutual respect of each subspecialty's strengths; clinical decision-making based on skills, education, and evidence-based medicine; an environment of continuing medical education including monthly journal reviews and collaboration between the specialties in the clinic; and educational community outreach, including conferences for high-school and college athletes and coaches. At present, our orthopaedic faculty includes three full-time surgeons, one of whom specializes primarily in the knee, one who specializes primarily in the shoulder, and one who covers both. Our five primary care sports medicine physicians include one trained in family practice, two trained in pediatrics, one trained in internal medicine, and one trained in emergency medicine. In addition, two research faculty support our Multicenter Orthopaedic Outcomes Network for clinical research studies.

Our Sports Medicine Center has strived to maintain a culture of collaboration that minimizes cultural and political differences. The quality of care is improved by immediate access to providers whose clinical skills have been improved through continuing education and adherence to evidence-based medicine. Interestingly, the primary care physicians see the greatest number

of patients on short notice, while also usually receiving high patient satisfaction scores. To maintain equitable reimbursement for all providers, we have minimized subsidization of parent departments and have shared ancillary income among all physicians in the Sports Medicine Center. Nevertheless, the Sports Medicine Center has been a financial success for the Department of Orthopaedics and Rehabilitation as well as for the Medical Center. We believe that further sustained growth and expansion will require the continuation of the strong bonds between specialists that arise from our core values and principles, especially our use of evidence-based medicine in guidelines and decision making and satisfactory financial remuneration for all parties to the enterprise.

The Current Status of Musculoskeletal Partnerships Nationwide

At the present time, orthopaedic surgeons around the country are beginning to partner with other musculoskeletal care providers. In a recent symposium on this topic at the Annual Meeting of the American Orthopaedic Association in June 2006, of the approximately 100 attendees who responded, 63% reported "partnering" with at least one nonorthopaedist in their practice and 85% of the attendees who practiced in a university setting reported that non-surgeon musculoskeletal care providers at their institution see patients in the Department of Orthopaedic Surgery. In addition, 72% of the respondents reported being either "very comfortable" or "somewhat comfortable" with a nonsurgeon partner, such as a physiatrist or family medicine sports specialist, serving as the first contact for patients coming to their practice. The greatest barrier to partnering with other physicians, reported by over half of the attendees, was "the culture of my practice." It is unclear whether these physicians themselves feel uncomfortable with other physicians seeing patients coming to their practice, or whether they perceive that their orthopaedic partners might be resistant to this ar-

rangement. Such concerns might be alleviated by the administration of patient satisfaction surveys before and after the initiation of such a triage process.

The survey results also highlighted the potential for other musculoskeletal physicians to assist in the evaluation and treatment of patients sent to their practice. Nearly all (94%) of the survey respondents were comfortable with having some of the patients sent to their practice who might not require surgery triaged to a musculoskeletal care "partner." Interestingly, 43% reported that the wait for a new patient to be seen by them in the office was more than three weeks. These physicians could benefit from adding other musculoskeletal care providers who could reduce the wait for a new patient appointment and provide triage and/or treatment of the practice's patients more expeditiously. The only limitation to this arrangement appears to reside in the scheduling office, where decisions need to be made by office staff regarding the acuity of a potential patient's complaints and the possible need for urgent surgical intervention. In this regard, 63% of the respondents did not believe that their own office staff was capable of correctly triaging patients between orthopaedic surgeons and their nonsurgeon partners.

Overview

The movement toward "service lines" or "product lines" of care by hospitals and health-care organizations is likely to increase the level of collaboration between orthopaedic surgeons and other physicians who provide care for musculoskeletal symptoms. Although most orthopaedic surgeons tend to favor the management of pathological conditions that need operative rather than nonoperative intervention, we firmly believe that orthopaedic surgeons should manage the entire musculoskeletal disease process, whether it is low-back pain caused by symptomatic disc degeneration or anterior knee pain caused by overtraining and overuse. Indeed, it would be unrea-

sonable to expect all patients to be "screened" and have treatment initiated with other musculoskeletal care providers, and such an arrangement would be likely to offend many referral sources. The point of the musculoskeletal partnership is to progress beyond the traditional model of the orthopaedic surgeon as the initiation point for all musculoskeletal care. Orthopaedists and other musculoskeletal specialists must understand the entire spectrum of disease, and all physicians at such centers should be a potential point of access for the initiation of care. In addition, both groups should be adept at providing appropriate nonoperative care and have an understanding of the indications for operative intervention. Ultimately, the partnership should benefit the patient by expediting the evaluation and management of his or her musculoskeletal complaints, providing appropriate and consistent treatment based on evidence-based medicine guidelines, and rapidly triaging and treating problems requiring surgical management. The patient may also benefit from the simplicity of "one-stop shopping" for the physician visit (operative or nonoperative), imaging studies, and nonoperative treatment regimen (orthotics and physical therapy). By partnering, orthopaedists and other musculoskeletal specialists can benefit from the teamwork approach, which should lead to a higher quality of care delivered at a multidisciplinary musculoskeletal practice.

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