5 Points on Orthopedics in US Health Care

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In the United States, the landscape of health care is changing. Health care reform and fluctuating political and economic climates have affected and will continue to affect the practice of orthopedic surgery. Demand for musculoskeletal care and the costs of providing this care are exceeding available resources—which has led to an evolution in how we practice as individuals and in the institutions where we provide care. Patient safety, quality, and value have become the outcomes of importance. Orthopedic surgeons, as experts in musculoskeletal care, must be a part of these changes. In this review, we offer perspective on the changing face of orthopedic surgery in the modern US health care system.

1 Meeting the demand

Musculoskeletal conditions represent one of the most common and costly health issues in the United States, affecting individuals medically and economically and compromising their quality of life.[1,2] In 2008, more than 110 million US adults (1 in 2) reported having a musculoskeletal condition for more than 3 months, and almost 7% reported that a chronic musculoskeletal condition made routine activities of daily living significantly difficult.[1] Overall, in the United States, some of the most common chronic conditions are musculoskeletal in origin. These conditions include osteoarthritis and back pain.

Osteoarthritis is the leading cause of chronic pain and disability. Physician-diagnosed arthritis is expected to affect 25% of US adults by 2030,[3] and in more than one-third of these patients arthritis limits work or other activity.[4] Back pain is another of the most common debilitating conditions in the United States.[3,5] St Sauver and colleagues[6] found that back pain is the third most common condition (23.9%) that prompts patients to seek health care—following skin-related problems (42.7%) and osteoarthritis/joint pain (33.6%).

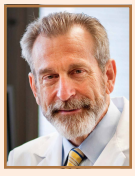
As life expectancy increases, so do expectations of enjoying higher levels of activity into the later years. Patients expect to be as active in their geriatric years as they were in middle age, and many are able to do so. Amid the growing obesity epidemic and increased incidence of chronic comorbidities, however, the aging population not only is at substantial risk for developing a chronic musculoskeletal disorder but may face new challenges in accessing care.

Although orthopedic surgeons specialize in treating musculoskeletal conditions, up to 90% of common nonsurgical musculoskeletal complaints are thought to be manageable in the primary care setting.[7] With a disproportionate increase in musculoskeletal demand against a relatively constant number of orthopedic providers,[8] it is becoming increasingly important for nonorthopedists to adequately manage musculoskeletal conditions. Physiatrists, rheumatologists, internists, family practitioners, and the expanding field of sports medicine specialists provide primary care of musculoskeletal conditions. To meet the growing demand and to ensure that patients receive quality, sustainable, effective, and efficient care, orthopedic surgeons should be actively involved in training these providers. As high as the cost of managing musculoskeletal conditions can be, it is far less than the cost resulting from inadequate or improper management. There is already justification for formal development of a specialization in nonoperative management of musculoskeletal care. Establishing this specialization requires a multidisciplinary approach, with orthopedic surgery taking a lead role.

2 The cost equation

As the prevalence of orthopedic conditions increases, so does the cost of delivering musculoskeletal care. The economic implications of meeting this growing demand are an important area of concern for our health care system. Steadily increasing hospital expenses for personnel and services, rising costs of pharmaceuticals and laboratory tests, constant evolution of costly technology, and insurance/reimbursement rates that do not keep pace with rising costs all contribute to the rapid escalation of the "cost of care."

Health care expenditures accounted for 17.2% of the US



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gross domestic product (GDP) in 2012 and are expected to represent 19.3% by 2023.[9] For musculoskeletal disease, direct costs alone are expected to approach $510 billion, equaling 5% of GDP and representing almost 30% of all health care expenditures. In Medicare patients, osteoarthritis is the most expensive condition to treat overall, and 3 other musculoskeletal problems rank highly as well: femoral neck fractures (3rd), back pain (10th), and fractures of all types (16th).[10] Clearly, musculoskeletal care is one of the most prevalent and expensive health conditions in the United States.

Part of the direct costs of care that consistently increase each year are the steadily increasing costs of technology, which is often considered synonymous with orthopedic care. Promotion of new and more costly implants is common in the absence of evidence supporting their use. However, use of new implants and technology is being scrutinized in an effort to strike the proper cost–benefit balance.

To change the slope of the cost curve, orthopedic surgeons should utilize technological advances that are proven to be clinically significant and economically feasible and should avoid modest improvements with limited clinical benefit and higher price tags. Unfortunately, this approach is not being taken. Minor modifications of implant designs are often marketed as "new and improved" to justify increased costs, and these implants often gain widespread use. A few may prove to be clinically better, but most will be only comparable to older, less expensive designs, and some may end up being clinical failures, discovered at great cost to patients and the health care system.[11,12]

Orthopedic surgeons have an important role in this decision-making. We should strive for the best, most cost-effective outcomes for our patients. We should reject new technology that does not clearly improve outcomes. At the least, we should use the technology in a manufacturer-supported clinical trial to determine its superiority. Whether the improvement is in technique, implant design, or workflow efficiency, orthopedic surgeons must be actively involved in researching and developing the latest innovations and must help determine their prospective value by considering not only their potential clinical benefits but also their economic implications.

As the political and economic environment becomes more directed at the cost-containment and sustainability of care, there has been a clear shift in focus to quality and value rather than volume, giving rise to the "value-based care" approach. The "value equation," in which value equals quality divided by cost, requires a clear measure of outcomes and an equally clear understanding of costs. Delivering high-quality care in a cost-conscious environment is an approach that every orthopedic surgeon should adopt. Widespread adoption of the value-based strategy by hospital systems and insurance companies is resulting in a paradigm shift away from more traditional volume-based metrics and in favor of value-based metrics, including quality measures, patient-reported outcomes, Hospital Consumer Assessment of Healthcare Providers and Systems, and physician-specific outcome measures.

The new paradigm has brought the bundled payment initiative (BPI), a strategy included in the Patient Protection and Affordable Care Act. The philosophy behind the BPI model is for hospital systems and physicians to control costs while maintaining and improving the quality of care. Measured by patient metrics (eg, clinical outcomes, patient satisfaction) and hospital metrics (eg, readmission rates, cost of care), bundled payments reimburse hospitals on the basis of cost of an entire episode of care rather than on the basis of individual procedures and services. This approach provides incentives for both physicians and hospitals to promote value-based care while emphasizing coordination of care among all members of the health care team.

Providing the best possible care for our patients while holding our practice to the highest standards is a central tenet of the practice of orthopedic surgery and should be independent of reimbursement strategies. Thus, to increase the value of care, we must establish practice models and strategies to optimize cost-efficiency while improving outcomes. As explained by Porter and Teisberg,[13] it is important to be conscientious about cost, but above all we must not allow quality of health care delivery to be compromised when trying to improve the "value" of care. Through evidence-based management and a clear understanding of costs, we must develop cost-efficient practice models that sustainably deliver the highest value of care.

3 Evolving practice models

As the health care landscape continues to change, physician practice models evolve accordingly. Although the private practice model once dominated the physician workforce, this is no longer true, as there has been a significant shift to employer-based practice models. The multiple factors at work relate to changing patterns of reimbursement, increasing government regulations, and a general change in recent residency graduates' expectations regarding work–life balance. Other catalysts are the shift from volume- to value-based care and the recognition that cost-effective health care is more easily achieved when physicians and their institutions are in alignment. Ultimately, physician–institution alignment is crucial in improving care and outcomes.

Physician–institution alignment requires further discussion. Ideally, it should strike the proper balance between physician autonomy and institutional priorities to ensure the highest quality care. Physicians and their institutions should align their interests in terms of patient safety, quality, and economics to create a work environment conducive to both patient/physician satisfaction and institutional success.[14] As identified by Page and colleagues,[15] the primary drivers of physician–institution alignment, specific to orthopedic surgery, are economic, regulatory, and cultural. In economics, implant selection and ancillary services are the important issues; in the regulatory area, cooperative efforts to address expanding state and federal requirements are needed; last, the primary cultural driver is delivery of care to an expanding, diverse patient population.

Physician–institution alignment brings opportunities for "gainsharing," which can directly benefit individual physicians, physician groups, and departments. Gainsharing is classically

defined as "arrangements in which a hospital gives physicians a percentage share of any reduction in the hospital's costs for patient care attributable in part to the physicians' efforts."[16] Modern gainsharing programs can be used by institutions to align the economic interests of physicians and hospitals, with the ultimate goal being to achieve a sustainable increase in the value and quality of care delivered to patients.[13] Examples include efforts to reduce the cost of orthopedic implants, which is a major cost driver in orthopedic surgery. Our institution realized significant savings when surgeons were directly involved in the implant contracting process with strategic sourcing personnel. These savings were shared with the department to enhance research and education programs. BPI, a risk-sharing program in which Medicare and hospitals participate, incorporates gainsharing opportunities in which each participating physician can receive up to 50% of his or her previous Medicare billings when specific targets are achieved. BPI included 27 musculoskeletal diagnosis–related groups that could be developed into a bundled payment proposal. Our institution participated in a 90-day episode, for primary hip and knee arthroplasty and non–cervical spine fusion, that had very promising results.

Gainsharing offers physicians incentives to meet institution goals of improved outcomes and increased patient satisfaction while increasing oversight and accountability. When physician-specific outcomes do not meet the established goals in key areas (readmissions, thromboembolic complications, infections), it is only logical that steps will be taken to improve outcomes. Although physicians may not be used to this increased scrutiny, the goal of improving outcomes, even if it necessitates a change in an established approach to care, should be welcomed.

Physicians should be rewarded for good outcomes but not suboptimal outcomes. When outcomes are suboptimal, physicians should take a constructive approach to improve them. On the other hand, not being rewarded for unachieved goals can be perceived as being penalized. Additional monitoring may paradoxically lead physicians to avoid more "complex" cases, such as those of patients at higher risk for complications and poorer outcomes. An example is found in patient selection for surgery, in which issues like obesity, diabetes, and heart disease are known to negatively affect outcomes. In these models, "cherry-picking" is a well-recognized risk[17,18] that can compromise our ethical obligation to provide equal access for all patients. To offset this tendency, we should use a risk-stratification model in which all patients are not considered equal in the risks they present. A risk-adjustment approach benefits both patients and providers by identifying modifiable risk factors that can be addressed to positively affect outcomes. This risk-stratification approach further incentivizes the orthopedist to closely work with other health care providers to address the medical comorbidities that may negatively affect surgical outcomes.

4 Patient and physician expectations

Living in a technology-driven society in the age of information has had a major impact on patients' attitudes and expectations about their care—and therefore on physicians' practice methods. It is uncommon to evaluate a patient who has not already consulted the Internet about a problem. Patients now have much more information they can use to make decisions about their treatment, and, though many question the accuracy of Internet information, there is no argument that being more informed is beneficial. In this time of shared decision-making, it is absolutely essential that patients keep themselves informed.

It is crucial to align the expectations of both physicians and patients in order to achieve the best outcomes. Gaining a clear understanding of treatment goals, management, and potential complications consistently leads to improved patient satisfaction, more favorable clinical outcomes, and reduced risk of litigation.[19-22] Addressing patient concerns and expectations is significantly enhanced by a strong patient–physician relationship through clinical models focused on patient-centered care.

Now considered a standard of care, the patient-centered model has changed the way we practice. The foundation of the patient-centered approach is to strengthen the patient–physician relationship by empowering patients to become active decision-makers in the management of their own health. The role of orthopedists in this model is to provide patients with information and insight into their conditions in order to facilitate shared decision-making. Our role should be to guide patients to make educated and informed decisions. Doing so enhances communication, thereby strengthening the patient–physician relationship, and places both patient and physician expectations in perspective. Patient-reported outcomes, satisfaction rates, symptomatic burdens, and costs of care are all positively correlated with strong communication and realistic expectations achieved through a patient-centered approach.[21,23]

The evolution of clinical practice has been influenced by factors ranging from external forces (eg, changing political and economic climates) to social trends (use of social media and the Internet). Technology has been a driving force in our rapidly changing clinical environment, significantly altering the way we practice. Although we must be careful in how we use it, new technology can certainly work to our advantage. We have a plethora of medical information at our fingertips, and, with physician-directed guidance, our patients can become more informed than ever before. This is the principle of patient-centered medicine and shared decision-making, and its utility will only increase in importance.

5 The role of advocacy

The central tenet of orthopedic practice has always been a focus on patients. We continually strive to improve patient outcomes, reduce costs, and work efficiently in our practices and facilities. Although we can focus on our individual practices, we cannot ignore the influence and impact of the political system on our performance. Federal and state regulations give physicians and insurance companies an uneven playing field. This imbalance requires that physicians be more active in health care policymaking and advocacy. Although we are more involved than ever before, our influence is far less than what we would like it to be, perhaps partly because

of the nature of the political process but perhaps also because of physicians' resistance to becoming involved.

As experts in the treatment of musculoskeletal conditions, we should be at the forefront of health care policy development—a position we have not been able to attain. Although many factors contribute to our lack of a "seat at the table," we must recognize our reluctance as a group to support advocacy, either financially or through personal time commitment. The American Association of Orthopaedic Surgeons (AAOS) Orthopaedic Political Action Committee has never been able to obtain donations from more than 30% of AAOS members. Although this committee historically has been successful, we could be much more so if we had financial support from 90% of members. There are many ways to be actively involved in advocacy. One way is to join local and state orthopedic societies and support their advocacy efforts. State orthopedic societies work closely with the AAOS Office of Government Relations to coordinate advocacy and direct efforts and resources to areas of greatest need. Knowing local congressional representatives and communicating with them about issues we face in our practices make our issues "real." Some of our colleagues have even successfully run for office in Congress, and they certainly deserve our support. Advocacy will absolutely play an increasingly important role as federal and state governments expand their involvement in health care. Our role should be to get involved, at least to some degree. We need to recognize that our strength is in our numbers, as the few cannot accomplish nearly as much as the many.

Summary

Orthopedic surgeons are practicing in the midst of almost constant change—evolving patient care, shifts in employment models, advances in technology, modern patient expectations, and an increasingly complex regulatory environment. Even in this context, however, our goal remains unchanged: to give our patients the highest-quality care possible. Our core values as orthopedic surgeons and physicians are dedication, commitment, and service to patients and to our profession. As US health care continues to evolve, we must evolve as well, with an emphasis on expanding our role in the health care policy debate.

References

1. US Bone and Joint Initiative. *Burden of Musculoskeletal Diseases in the United States: Prevalence, Societal, and Economic Cost*. Rosemont, IL: US Bone and Joint Initiative; 2008. http://www.boneandjointburden.org. Accessed October 26, 2015.
2. US Bone and Joint Initiative. *Burden of Musculoskeletal Diseases in the United States: Prevalence, Societal, and Economic Cost*. 2nd ed. Rosemont, IL: US Bone and Joint Initiative; 2011. http://www.boneandjointburden.org. Accessed October 26, 2015.
3. Ma VY, Chan L, Carruthers KJ. Incidence, prevalence, costs, and impact on disability of common conditions requiring rehabilitation in the United States: stroke, spinal cord injury, traumatic brain injury, multiple sclerosis, osteoarthritis, rheumatoid arthritis, limb loss, and back pain. *Arch Phys Med Rehabil*. 2014;95(5):986-995.e1.
4. Hootman JM, Helmick CG. Projections of US prevalence of arthritis and associated activity limitations. *Arthritis Rheum*. 2006;54(1):226-229.
5. Freburger JK, Holmes GM, Agans RP, et al. The rising prevalence of chronic low back pain. *Arch Intern Med*. 2009;169(3):251-258.
6. St Sauver JL, Warner DO, Yawn BP, et al. Why patients visit their doctors: assessing the most prevalent conditions in a defined American population. *Mayo Clin Proc*. 2013;88(1):56-67.
7. Anderson BC. *Office Orthopedics for Primary Care: Diagnosis and Treatment*. 2nd ed. Philadelphia, PA: Saunders; 1999.
8. American Academy of Orthopaedic Surgeons, Department of Research and Scientific Affairs. *Orthopaedic Practice in the U.S. 2012* [2012 Orthopaedic Surgeon Census Report]. Rosemont, IL: American Academy of Orthopaedic Surgeons; January 2013.
9. US Department of Health and Human Services, Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group. NHE [National Health Expenditure] Fact Sheet, 2014. Centers for Medicare & Medicaid Services website. http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet.html. Updated July 28, 2015. Accessed October 26, 2015.
10. Cutler DM, Ghosh K. The potential for cost savings through bundled episode payments. *N Engl J Med*. 2012;366(12):1075-1077.
11. Langton DJ, Jameson SS, Joyce TJ, Hallab NJ, Natu S, Nargol AV. Early failure of metal-on-metal bearings in hip resurfacing and large-diameter total hip replacement: a consequence of excess wear. *J Bone Joint Surg Br*. 2010;92(1):38-46.
12. Dahlstrand H, Stark A, Anissian L, Hailer NP. Elevated serum concentrations of cobalt, chromium, nickel, and manganese after metal-on-metal alloarthroplasty of the hip: a prospective randomized study. *J Arthroplasty*. 2009;24(6):837-845.
13. Porter ME, Teisberg EO. *Redefining Health Care: Creating Value-Based Competition on Results*. Boston, MA: Harvard Business School Press; 2006.
14. American Association of Orthopaedic Surgeons. Alignment of physician and facility payment and incentives. Position statement 1171. American Association of Orthopaedic Surgeons website. http://www.aaos.org/about/papers/position/1171.asp. Published September 2006. Revised February 2009. Accessed October 26, 2015.
15. Page AE, Butler CA, Bozic KJ. Factors driving physician–hospital alignment in orthopaedic surgery. *Clin Orthop Relat Res*. 2013;471(6):1809-1817.
16. US Department of Health and Human Services, Office of Inspector General. Gainsharing arrangements and CMPs for hospital payments to physicians to reduce or limit services to beneficiaries [special advisory bulletin]. Office of Inspector General website. http://oig.hhs.gov/fraud/docs/alertsandbulletins/gainsh.htm. Published July 1999. Accessed October 26, 2015.
17. Bronson WH, Fewer M, Godlewski K, et al. The ethics of patient risk modification prior to elective joint replacement surgery. *J Bone Joint Surg Am*. 2014;96(13):e113.
18. Bosco J. To cherry pick or not: the unintended ethical consequences of pay for performance. Presented at: New York University Colloquium on Medical Ethics; New York, NY; November 2014.
19. Hageman MG, Briët JP, Bossen JK, Blok RD, Ring DC, Vranceanu AM. Do previsit expectations correlate with satisfaction of new patients presenting for evaluation with an orthopaedic surgical practice? *Clin Orthop Relat Res*. 2015;473(2):716-721.
20. Jourdan C, Poiraudeau S, Descamps S, et al. Comparison of patient and surgeon expectations of total hip arthroplasty. *PLoS One*. 2012;7(1):e30195.
21. McMillan S, Kendall E, Sav A, et al. Patient-centered approaches to health care: a systematic review of randomized controlled trials. *Med Care Res Rev*. 2013;70(6):567-596.
22. Forster HP, Schwartz J, DeRenzo E. Reducing legal risk by practicing patient-centered medicine. *Arch Intern Med*. 2002;162(11):1217-1219.
23. Van Citters AD, Fahlman C, Goldmann DA, et al. Developing a pathway for high-value, patient-centered total joint arthroplasty. *Clin Orthop Relat Res*. 2014;472(5):1619-1635.