Clin Orthop Relat Res (2011) 469:1805–1808
DOI 10.1007/s11999-011-1884-0

AAOS/ORS/ABJS Musculoskeletal Healthcare Disparities Research Symposium

Editorial Comment

A Call to Arms: Eliminating Musculoskeletal Healthcare Disparities

Mary I. O'Connor MD, Carlos J. Lavernia MD,
Charles L. Nelson MD

"I swear to fulfill, to the best of my ability and judgment, this covenant: …I will apply, for the benefit of the sick, all measures [that] are required…I will remember that there is art to medicine as well as science, and that warmth, sympathy, and understanding may outweigh the surgeon's knife or the chemist's drug…I will remember that I do not treat a fever chart, a cancerous growth, but a sick human being, whose illness may affect the person's family and economic stability. My responsibility includes these related problems, if I am to care adequately for the sick."—The Hippocratic Oath: Modern Version [7]

Providing disparate care to patients violates the very oath we have taken as physicians. Unknowingly some of us provide such care. We are not always cognizant of the complex issues that impact our ability to provide optimal care to every patient. We may have insufficient education and knowledge regarding the influence of patient characteristics on risk of disease and treatment outcomes, yet our patients need us to understand them as individuals and it is our privilege to care for them. We must constantly look for ways to improve the care we provide and the context in which we provide it.

Disparities in musculoskeletal health care are far-reaching and impact the lives of many of our patients today. These disparities are multifaceted and range from inadequate information in both the clinical and basic sciences to unconscious practitioner bias. Some of these gaps in knowledge lead to differential treatment by providers. Differential utilization of specific elective surgical interventions has been well documented, although it is not clear an appropriate utilization rate is known upon which assessment of true under- or overutilization can be determined. As we move forward, delineation of the indications for our elective orthopaedic procedures and development of evidence-based criteria for when to perform surgery are needed. Such efforts will help us answer the question of whether specific patient groups under- or overutilize a given orthopaedic procedure. An understanding of the appropriate use of procedures is critical, not just in orthopaedics but for all of medicine. However, unlike determining usage, determining "appropriate use" is not as straightforward as it might seem.

In May 2010, the American Academy of Orthopaedic Surgery (AAOS), the Orthopaedic Research Society (ORS), and the Association of Bone and Joint Surgeons (ABJS) sponsored a research symposium to better understand musculoskeletal healthcare disparities. The symposium addressed both general musculoskeletal topics and some specific focused areas, namely osteoporosis, lower extremity arthroplasty, diabetes, amputations, and pain management. Papers from these presentations are published in this proceedings with the goal of publicizing our knowledge of these disparities and, ultimately, eliminating such inequities. During the symposium, we held breakout sessions to synthesize the material and reach

M. I. O'Connor (✉)
Department of Orthopaedic Surgery, Mayo Clinic,
4500 San Pablo Road South, Jacksonville, FL 32224, USA
e-mail: oconnor.mary@mayo.edu

C. J. Lavernia
Orthopaedic Institute at Mercy Hospital, Miami, FL, USA

C. L. Nelson
Geisinger Medical Center, Danville, PA, USA

Fig. 1 Dr. Mary I. O'Connor is shown.

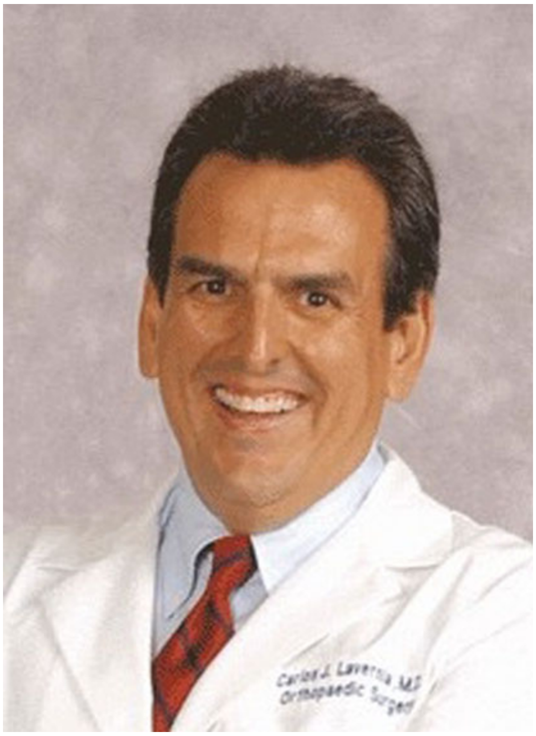

Fig. 2 Dr. Carlos J. Lavernia is shown.

consensus when possible on these complex topics. We have included the summaries of those breakout sessions addressing the three questions, "Where we are now?," "Where do we need to go?," and "How do we get there?"

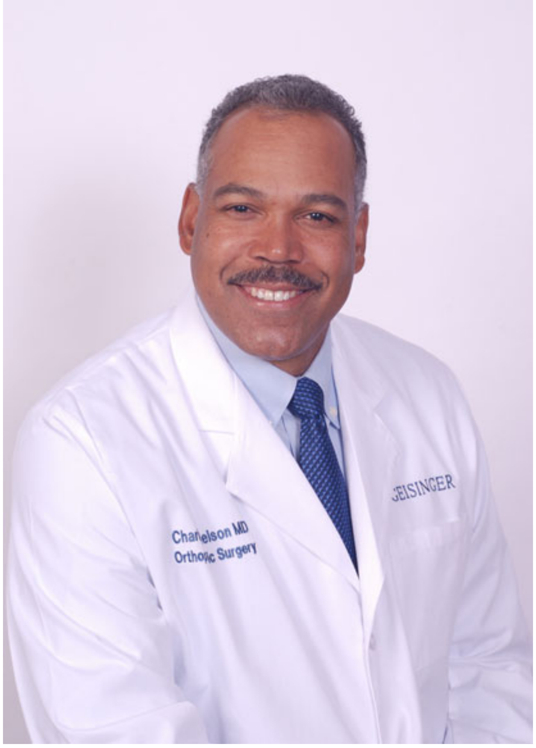

Fig. 3 Dr. Charles L. Nelson is shown.

"Where we are now?" can be highlighted by categorically stating these disparities are real and they are relevant. Musculoskeletal disorders are among the most disabling conditions affecting Americans; they constitute a major public health problem. While we may have difficulty seeing such disparities in our individual practices, most orthopaedic surgeons care for patients with conditions such as hip fractures, knee arthritis, and dysvascular limbs. Our symposium included many important highlights of disparities such as lower functional outcomes in women undergoing TKA as compared to men [6] and higher rates of amputation for dysvascular limbs in African Americans as compared to white Americans [3]. Moreover, even at an institution with a structured, evidence-based program to address disparities in patients with hip fracture, men were treated less than women for bone health [5], raising the question of unconscious bias on the part of the healthcare providers. As you read these manuscripts, it is sobering to acknowledge the current state of disparities in delivering musculoskeletal care to individuals regardless of gender and ethnicity.

"Where do we need to go?" is a healthcare system in which patients receive appropriate and optimal care specific to their needs as individuals. Such care would account for the individual sex, gender, ethnic, racial, and socioeconomic characteristics of patients, understand how these characteristics impact treatment outcomes, and develop strategies to mitigate against negative factors. Certainly we are not close to this idealized system, yet we can work toward it.

"How do we get there?" is complex, but there are specific actions the orthopaedic community can take to effect positive change. This is not to imply that efforts have been absent; we applaud the many groups currently working toward lessoning the burden of musculoskeletal disparities, but we need further impact and can do so with a focus on research, education, and diversity of the orthopaedic workforce.

Research is critical to advancing our understanding of the basic science behind healthcare disparities. Knowledge related to the influence of the biology of sex, race, and ethnicity on musculoskeletal treatment outcomes is in its infancy. Clinical trials must include diverse populations and results analyzed with covariate methods to account for sex, gender, race, and ethnicity. A glaring example of past omissions is the exclusion of men from all large pharmaceutical interventions for primary prevention of fragility fractures. In addition, current data sets exist that could be mined by young orthopaedic scientists to better clarify the present state of disparate care. While not as sophisticated as we would like, such data sets include those owned by private insurance companies (eg, Blue Cross Blue Shield, United Healthcare), not-for-profit groups (eg, Kaiser Permanente), and the government (Centers for Medicare and Medicaid Services). Ultimately, prospective large clinical databases need to be developed to allow longitudinal study of how musculoskeletal conditions and their treatments are impacted by sex, gender, race, and ethnicity. Ultimately, such findings may translate into sex/gender/ethnic/race-specific treatment guidelines and allow us to rise to the level of the American Heart Association's "Evidence-based Guidelines for Cardiovascular Disease Prevention in Women: 2007 Update" [4]. An increased focus by researchers and funding agencies to support these types of research activities is required.

Education of healthcare providers and patients about issues related to disparities must continue and improve in effectiveness. Medical training requires education related to culturally competent care, yet current assessment tools cannot identify measures that are effective and those that are not [2]. Data suggest efforts to date to increase the culture competence of healthcare providers have increased awareness of disparities but not improved patient outcomes [2]. More effective training needs to be developed for healthcare providers. Patients also need to be educated and be active partners in their own care. Enlarging the pool of stakeholders who are responsible for the development and effective delivery of culturally competent care to encompass local community religious and social groups may prove beneficial. Such training should include the roles of conscious and unconscious bias in healthcare disparities.

Diversification of the orthopaedic workforce must occur. To date, this workforce is overwhelmingly male and predominantly white [1]. The Sullivan Commission [8] concluded the diversity of the nation's healthcare professions "have not kept pace with changing demographics [and] may be an even greater cause of disparities in health access and outcomes than the persistent lack of health insurance for tens of millions of Americans." Racial concordance between providers and patients enhances effective communication and improves patient satisfaction [9]. Women and minorities have not been effectively recruited to the profession. While approximately 50% of medical students are women, the percentage of women in orthopaedic residency programs remains one of the lowest of surgical specialties. While some individuals and groups have worked diligently to address this issue, a more aggressive global strategy to expose medical students to the rewarding practice of orthopaedic surgery is warranted. The profession will lose the best and the brightest to specialties where a female or minority medical student will feel more welcome.

In closing, it has been our pleasure to chair this symposium and edit these associated manuscripts. We appreciate the assistance of Ms. Erin Ransford of the AAOS in organizing the symposium; the financial support from the AAOS, ORS, and ABJS; and the editorial assistance of Dr. Richard Brand, Editor-in-Chief of *Clinical Orthopaedics and Related Research.* We call on each of us to take disparities to heart and work toward making the care we provide appropriate to all our patients.

References

1. Dy CJ, Nelson CL. Breakout session: diversity, cultural competence, and patient trust. *Clin Orthop Relat Res.* 2011 January 25 [Epub ahead of print].
2. Dykes DC, White AA 3rd. Culturally competent care pedagogy: what works? *Clin Orthop Relat Res.* 2011. DOI 10.1007/s11999-011-1862-6.
3. Lefebvre KM, Lavery LA. Disparities in amputations in minorities. *Clin Orthop Relat Res.* 2011 March 8 [Epub ahead of print].
4. Mosca L, Banka CL, Benjamin EJ, Berra K, Bushnell C, Dolor RJ, Ganiats TG, Gomes AS, Gornik HL, Gracia C, Gulati M, Haan CK, Judelson DR, Keenan N, Kelepouris E, Michos ED, Newby LK, Oparil S, Ouyang P, Oz MC, Petitti D, Pinn VW, Redberg RF, Scott R, Sherif K, Smith SC Jr, Sopko G, Steinhorn RH, Stone NJ, Taubert KA, Todd BA, Urbina E, Wenger NK; Expert Panel/Writing Group; American Heart Association; American Academy of Family Physicians; American College of Obstetricians and Gynecologists; American College of Cardiology Foundation; Society of Thoracic Surgeons; American Medical Women's Association; Centers for Disease Control and Prevention; Office of Research on Women's Health; Association of Black Cardiologists; American College of Physicians; World Heart Federation; National Heart, Lung, and Blood Institute; American College of Nurse Practitioners. Evidence-based guidelines for cardiovascular

disease prevention in women: 2007 update. *Circulation*. 2007;115: 1481–1501.

5. Navarro RA, Greene DF, Burchette R, Funahashi T, Dell R. Minimizing disparities in osteoporosis care of minorities with an electronic medical record care plan. *Clin Orthop Relat Res.* 2011. DOI 10.1007/s11999-011-1852-8.
6. O'Connor MI. Implant survival, knee function, and pain relief after TKA: are there differences between men and women? *Clin Orthop Relat Res.* 2011 January 26 [Epub ahead of print].
7. Public Broadcasting Service. Nova. The Hippocratic Oath: Modern Version. Available at: http://www.pbs.org/wgbh/nova/doctors/oath_modern.html. Accessed March 15, 2011.
8. Sullivan Commission on Diversity in the Health Workforce. *Missing Persons: Minorities in the Health Professions*. Washington, DC; Sullivan Commission on Diversity in the Health Workforce; 2004.
9. Sullivan LW, Mittman IS. Keynote address: the need for greater racial and ethnic diversity in orthopaedic surgery. *Clin Orthop Relat Res.* 2011 January 8 [Epub ahead of print].