

Ten Years at JBJS: Lessons Learned

James D. Heckman, MD

It was a privilege to serve as Editor in Chief and Chief Executive Officer of the American Volume of *The Journal of Bone and Joint Surgery (JBJS)* from 2000 to 2010. I worked with a very supportive Board of Trustees, all of whom were committed to advancing the knowledge base in musculoskeletal care, with the goal of improving patient care. I also inherited a talented professional staff at the *JBJS* office. During my tenure, I learned some important lessons about orthopedics and orthopedic surgeons.

THE ORTHOPEDIC INFORMATION BASE IS WEAK

Due primarily to the large number of injuries and diseases we treat, the orthopedic information base is relatively weak. Many of our patient care decisions are based upon our anecdotal experiences or those of thought leaders in orthopedic surgery. Relatively few clinical questions have been addressed rigorously, and there is a paucity of level 1 and level 2 studies in the literature to support an informed decision-making process for our patients. This limited scientific information base opens to criticism many of the treatments we offer to our patients because the effectiveness (and sometimes even the reliability and safety) of these treatments has not been demonstrated.

As we move toward greater government oversight, and as we engage a better informed patient population, we must be able to demonstrate the effectiveness of our interventions and clearly show that our treatments will make a positive difference in the lives of our patients. The best way to accomplish this is to conduct rigorously controlled clinical trials designed and implemented by clinician-scientists with the know-how to run such studies. The important clinical questions need to be identified and studied in a systematic way. This only can happen through the development of more substantial clinical research programs that identify the important questions, investigate them in a prospective fashion, and measure important patient-based clinical outcomes. Thus, it is essential that, as a discipline, we commit ourselves and a substantially greater proportion of our resources to this goal, beginning immediately.

EVERYONE CAN DO FIRST-CLASS CLINICAL RESEARCH

During my time at *JBJS*, we published many high quality clinical research studies which were not conducted at

academic centers, but rather were performed by individual orthopedic surgeons in private practice. For most of these studies, the surgeon identified an important clinical problem and then designed a study suited to their practice to address it. All of these studies had several features in common: a prospective design, a consistent treatment plan for all patients, and measurement of relevant patient-based outcomes. While such studies require years to complete, adopting this approach may provide the best way to tackle the large number of clinical questions that currently exist. With nearly 20,000 orthopedic surgeons in practice in the United States, if only 10% of us took on 1 important clinical question in this manner during our career, we could address 2000 clinical questions over the next 2 decades. While this effort would be of enormous benefit to our knowledge base, it would also add a dimension to the clinical practice of orthopedics that would be very rewarding to the individual practitioner. It is my sincere hope that everyone would consider this opportunity.

PEER REVIEW WORKS

To assure the highest quality of scientific publication, it is essential to screen the studies that are submitted to a medical journal. Screening processes are designed to identify new and useful treatments and, more importantly, identify potentially harmful treatments. Over the last century, the peer review process has been refined and developed to serve this purpose. Despite its subjective nature and its inherent risk of bias, it provides the best screening mechanism currently available to us. *JBJS* uses more than 500 volunteer reviewers who spend countless hours critically evaluating manuscripts. In most cases, the reviewers are the individuals most knowledgeable about the subject matter, and thus, are in the best position to provide useful criticism. Often, the reviews we receive are conflicting, as the experts analyze each study from different perspectives. At this point it becomes the editor's job to weigh the various reviews and to make a final judgment. Because most reviewers try to provide the authors with constructive criticism, the best studies can be identified and made better by this process.

It is essential to have an appeal process so that those authors who feel that their work has not been judged appropriately can have a rejection decision reevaluated. After 10 years of working closely with thousands of authors, I am convinced that the vast majority feel that the peer review process is the best mechanism we have to give their work a "fair shake" in the public forum. I also am convinced that the peer review process is very effective in limiting the exposure of our patients to harmful and untested treatments.

Dr. Heckman is Adjunct Professor of Orthopaedics, Dartmouth Medical School, Hanover, New Hampshire.

Address correspondence to: James D. Heckman, MD, P.O. Box 612, Manchester, VT 05254 (tel, 617-777-3132, e-mail, JamesDHeckman@aol.com).

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FRAUD AND DECEPTION CAN AND DO OCCUR

Despite a rigorous peer review process, journals occasionally do publish fraudulent works. Medical editors accept submitted works as being the product of an honest investigation. Rarely, this has not been the case; fraudulent works have been submitted, passed peer review and editing, and been published. The deception can occur in several forms, ranging from plagiarism of the work of others to the fabrication of data and reporting the results of studies that never occurred.

Medical journals do not have the resources to investigate the scientific integrity of all submitted studies; editors must rely upon the integrity of the investigators who submit their work. There is a great risk to the authors of a deceptive manuscript that is published. Once discovered, the paper may be retracted by the journal, although doing so may not have much of an impact. More importantly, severe sanctions can be imposed upon the authors by their institution, local licensing boards, and even by the courts.

In large part because of an apparent increase in the frequency of misconduct in the scientific literature in recent years, the Committee on Publication Ethics (COPE) has been established by a representative group of journal editors and publishers to provide guidance on how to address these issues.¹ The use of COPE guidelines and algorithms for evaluating and responding to alleged misconduct by all journals can create a uniform approach for these rare but troubling cases.

THE ORTHOPEDIC MANUFACTURING INDUSTRY IS NOT EVIL

Over the last half century, a very positive and productive relationship has emerged between orthopedic industry and the orthopedic surgeon. The achievements we have seen in patient care over the last couple of decades, ranging from joint replacement to arthroscopy to fracture care, have largely been the result of a close collaboration between the surgeon-inventor and an orthopedic implant manufacturer. Industry has appropriately rewarded these surgeon-inventors (and, on occasion, their institutions) with royalty payments for their contribution of intellectual property. Unfortunately, over the last decade, some surgeons took advantage of their close ties to manufacturers and expected to be compensated simply for agreeing to use and endorse the company's products. The companies then went along with these expectations much too readily. As a result, the earlier (and often still ongoing) collaborations to enhance patient care between surgeon and industry became tainted, and subsequently, trust in the system has been lost.

Strict conflict of interest policies now established by most orthopedic manufacturers will govern future interactions with surgeons and, in this context, it is essential that interactions between surgeon-inventors and industry be allowed to continue because they provide the best means we have to enhance surgical care. In the conduct, presentation, and publication of clinical studies supported in whole, or in part, by industry, all conflicts of those involved

must be completely and fully disclosed. Those who hear a presentation or read an article about a new device or new technique must then evaluate the reported results in the context of the conflicts disclosed. This approach is perhaps best expressed by a Latin phrase, *caveat lector*, or "reader beware." As long as the reader is fully aware of the author's financial relationship with the industry sponsor, he or she should be able to make an informed decision regarding the value of the study being presented.

ORTHOPEDIC SURGEONS LEARN IN A VARIETY OF WAYS

With the explosion of new media over the last couple of decades, the ways in which information can be delivered have increased dramatically. As a corollary, it has become clear that orthopedic surgeons learn most effectively in a variety of ways: reading, attending lectures and hands-on skills courses, listening to audio recordings, viewing videos, and interacting electronically with experts and colleagues, just to list a few. As journals have developed the capacity to offer new information to readers, we have endeavored to provide it in as many different formats as we can. While there is an inexorable march toward electronic transmission and storage of information, the transition away from the print medium has occurred much more slowly than many predicted 10 years ago, and we have found that many *JBJS* subscribers still prefer to access new information in the print format, at least initially. Thus, it is likely that print journals will remain in existence and be an important information source for several more years, if not longer.

Regardless of the means of information delivery, surgeons in practice continue to seek high quality information that can be of benefit to their patients and to their practices. In the vast sea of new information becoming available every day, there continues to be the need for an evaluation of the quality of that information. It is here where journals with a high quality peer review process and that are supported by rigorous editorial oversight can help sort out and identify the quality information that is most likely to endure and to be of greatest benefit to our patients. That high quality information can then be delivered in a variety of ways depending upon subscriber preference, and I believe that this will continue to be a very important role for medical journals in the years to come.

In closing, I wish to thank all of those who gave me the extraordinary opportunity and supported my efforts at *JBJS*. I extend my best wishes to Dr. Tolo and our successors to sustain the legacy of this journal for decades to come.

AUTHORS' DISCLOSURE STATEMENT

The author reports no actual or potential conflict of interest in relation to this article.

REFERENCE

1. Committee on Public Ethics. COPE Web site. <http://www.publicationethics.org>. Accessed October 14, 2011.