Session 17: Efficiency and Economics in Joint Arthroplasty

Learning Objectives
Upon completion of this activity, participants should be able to:

1. Discuss and understand ways in which to build efficient and economic surgical practice teams to effectively deliver high-quality care in an ever-demanding environment.

2. Understand the economic barriers to providing high-quality care in a financially constrained health care environment and ways in which to balance cost with implant utilization while meeting hospital, surgeon, and patient interests.

3. Discuss the utility of outcomes measurements in knee arthroplasty and ways in which current scoring systems to assess patient performance and satisfaction may be changing to reflect newer surgical approaches and outcomes at various stages in the recovery process.

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Pearls in Practice Efficiency
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Surgical skills and the principles of efficient behavior are often formed very early in a clinical career. They are rarely consciously analyzed or critically evaluated thereafter. Indeed, it is fair to say that more surgeons have videotaped their golf swing than their surgical technique. Operative efficiency is a critical ingredient to surgical success.
Efficiency creates speed and speed begets volume. Complication rates are directly related to shortened surgical times and highly efficient operative procedures. The concept of creating “muscle memory” through repetitive tasks, of eliminating costly gaps in surgical flow, and the willingness to analyze and alter even the most successful practices are the essences of personal improvement. While patterns of behavior in surgical experience vary enormously, the principles of expeditious surgeries include such mundane considerations as consistent staff, a simplified surgical system, extensive preoperative preparation, instruments that suit the surgeon more than the patient, and the innate desire to improve the result with every procedure. While rarely discussed, the concepts of appropriate volumes, outcomes oversight, and cost accountability will undoubtedly define the success of joint centers in the 21st century.

Team-Building Basics

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*Background:* We are all aware of the coming increase in the demand for hip and knee arthroplasty in the near future. The combination of the increase in volume and the specter of a further decrease in reimbursement mean that orthopaedic surgeons are going to have to increase their efficiencies in the care of the adult reconstruction patient. A successful practice depends on a team that will allow the surgeon to continue to provide excellent-quality care in a more efficient manner. The team is composed of important members at every step of the process: the office, the operating room and the hospital, and after discharge. Secretaries, nurses, consultants, and therapists are all integral members of this team. This talk will outline the makeup of the team concept and identify key components and personnel needed to be more effective in the future.
Economics of Total Joint Arthroplasty

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Total joint arthroplasty is a remarkably successful surgical treatment for painful arthritic hips and knees which have been associated with increasing prevalence, and it is consuming an increasing proportion of health care dollars. Payers, especially the Center for Medicare and Medicaid Services (CMS), have targeted total joint arthroplasty for cost control.

Professional cost for joint replacement has been controlled by reducing the physician fee schedule through the Medicare Part B Program. From 1991 though 2008, Medicare physician reimbursement for joint replacement was reduced 20% to 30%.1

- Hemiarthroplasty Hip (CPT 27125) - 20%
- Total Hip Arthroplasty (CPT 27130) - 39%
- Revision Total Hip Arthroplasty (CPT 27134) - 34%
- Total Knee Arthroplasty (CPT 27447) - 36%
- Revision Total Knee Arthroplasty (CPT 27487) - 39%

Medicare physician payment for joint replacement has been reduced significantly, and this erosion of professional reimbursement may be associated with fewer orthopaedic surgery residents choosing to specialize in adult reconstruction.2

Hospital cost for joint replacement has been controlled with the Diagnosis Related Group (DRG) Payment System through the Medicare Part A Program. DRG hospital reimbursement provides a fixed-case payment to cover all expenses for total joint arthroplasty—the operation, hospital care, and the joint replacement implant. From 1993 to 2008, Medicare reimbursement to hospitals for joint replacement operations increased 14.9%. During this interval, the consumer price index increased 49.5%. Hospital payment did not keep up with inflation. Furthermore, from 1991 to 2008, the average list price for a joint replacement implant increased 204% while the average selling price for joint implants increased 132%. The hospital margin for delivering joint replacement operations decreased considerably during the last 15 years.

Hospitals are concerned about the economics of arthroplasty because hospital payment lags inflation, joint implant costs are increasing and consuming a greater portion of hospital payment dollars each year, and implant selection can determine whether a hospital admission for joint replacement is an economic profit or loss. Hospitals want surgeons to reduce the cost of their preferred implants and/or use less expensive implants.
This creates conflict between the hospital and the surgeon as surgeons do not want restrictions on implant selection.

The economics of arthroplasty are a secondary concern for orthopaedic surgeons. Surgeons want to select the best implants possible to get the best patient outcome regardless of cost and without implant restrictions. This perspective creates a conflict between the surgeon and the hospital.

Management of joint replacement utilization must reconcile patient interests, surgeon interests, hospital interests, and economics. This process requires a consensus team approach and evidence-based information. During the last 15 years, the orthopaedic literature has demonstrated that 70% of hospital cost for joint replacement is generated in the operating room, the recovery room, and the medical-surgical floor, and 82% of hospital cost is generated in the first 2 days of hospitalization. Furthermore, the largest single expense for hip and knee replacement operations is implant cost. Methods of controlling the cost of joint replacement implants include cost-awareness programs, vendor discounts, price caps, implant standardization, and competitive-bid purchasing. All methods of implant cost reduction require hospital-surgeon cooperation. One of the biggest hurdles in controlling the cost of joint replacement implants is creating incentive for surgeons to cooperate with hospitals. Gainsharing programs may help align the incentives of hospitals and surgeons relative to selection and cost of implants.

Lahey Clinic implemented a Single Price/Case Price purchasing program with considerable savings on the cost of implants without adversely affecting the patient outcome of total joint arthroplasty. This program reduced the cost of hip implants 31.8% with a change of implant vendor and reduced the cost of knee implants 23% without a change of implant vendor.

The economics of arthroplasty is a critical issue for orthopaedic surgeons and hospitals. Professional payment for joint replacement has decreased to the point that the adult reconstruction workforce is dwindling, and soon there will not be enough joint replacement surgeons to meet the rising demand for joint replacement. Hospital payment for joint replacement lags inflation, joint implant costs are rising, and implant costs can determine the profitability of a joint replacement hospital admission. In order to enlist surgeon cooperation to reduce the cost of joint implants, hospitals must give physicians incentives to reduced implant costs. Concurrently, surgeons should use evidence-based medicine to select joint replacement implants that will give patients successful long-term outcomes. When implants with similar clinical performance have been identified, competitive bid purchasing can be used to reduce the cost of the implants. Surgeons can and should help hospitals control implant costs. Surgeons and hospitals are partners in delivering joint replacement operations to patients, and as always in health care, patients come first.
References

Outcomes Measure in Joint Arthroplasty

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Measuring outcomes after knee arthroplasty is complex. There is overwhelming success with total and partial knee arthroplasty, in terms of quality of life and functional improvement. But our enthusiasm is often based on unscientific anecdotal experience (albeit sometimes quite extensive), small published series, and even registries, many of which have flaws in methods of data collection and analysis. Many commonly used scoring systems that evaluate outcomes are not validated and use data points that are irrelevant for some patients in different regions. Newer approaches, partial resurfacing, and emphases on accelerated recovery are redirecting our methods of assessing and measuring outcomes at different stages of the recovery process. Recognition that the patient’s perception of outcome may differ from the surgeon’s is also spurring a reevaluation of how we measure performance and satisfaction. Currently the Knee Society Scoring System is being validated and updated to reflect current trends in knee arthroplasty and contemporary expectations and activity levels that were not well addressed in earlier assessment models.

Case Presentations and Discussion Panel
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