Beware wide variations in worker’s comp payments to orthopaedic surgeons

Traditionally, worker’s compensation (WC) patients have been associated with higher costs in orthopaedic practices than non-WC patients. However, reimbursement for WC patients lags that of other insurers, including Medicare, and remains uneven across orthopaedic subspecialties, according to a study by Eric Makhni, a final year MD/MBA student at Harvard Medical School, Charles S. Day, MD, MBA, Rankin Fellow in medical education and assistant professor in orthopedic surgery at Harvard Medical School and a spokesperson for the American Academy of Orthopaedic Surgeons, and colleagues. They investigated the revenues to individual surgeons associated with WC patients. They captured data...
Expectations continued from p. 25

patient’s expected improvement in ability to walk, stand, use stairs, and stand up, as well as improvement in social activities, psychological well-being, pain management, and other dimensions. The TKA survey included 19 questions involving the patient’s expected improvement in ability to walk different distances, use stairs, kneel, squat, and use transportation, as well as improvement in recreational and social activities, psychological well-being, pain management, and other dimensions.

Responses on both questionnaires were rated on a 1 to 5 scale, ranging from the highest expectation to “return to normal” to a minimal expectation of “very little improvement” and, the lowest, “I don’t have this expectation.” Scores ranged from 0 (lowest expectation) to 100 (highest expectation). Investigators found clinically meaningful disagreement between patients and physicians in 68% of cases, with 53% of patient expectations exceeding those of surgeons. The average surgeon’s expectation score was 75 (range of 43 to 93), while the average patient expectation score was 84 (range of 47 to 100).

Patients whose unrealistic expectations are not properly explored prior to surgery — or achieved following surgery — are most likely to report dissatisfaction with some aspect of the outcome, according to Alejandro Gonzalez Della Valle, MD, associate attending orthopaedic surgeon at HHS, who assisted with the study. Conversely, patients with low expectations for function following surgery are less likely to engage fully in postoperative physical therapy — perhaps leading to the self-fulfilling prophesy of a less-than-expected outcome.

“We observed a lot of variability between what the surgeon expected and what the patient expected,” Gonzalez Della Valle said. “In an ideal world, the expectations of the patients and the surgeon should be similar.”

The take-home message for orthopaedic practices is that inexpensive educational interventions, such as a preoperative class, can be used to better align patient and surgeon expectations, he added. Prior to surgery at HSS, patients are required to attend a 90-minute class where a nurse with special training provides education on the surgical procedure, recovery, and rehabilitation. Patients in the class are encouraged to discuss their expectations for pain relief and function with their surgeon to ensure that everyone is on the same page, Gonzalez Della Valle said.

Other factors affect patient expectations

Other factors may affect patient expectations, producing dissatisfaction with the outcomes of TKA, according to Matthew Hepinstall, MD, an orthopaedic surgeon with Park Lenox Orthopaedics in New York City and basic science coordinator in the department of orthopedic surgery at Lenox Hill (NY) Hospital. Overall, demographics, health status, disease severity, and activity levels account for only 9% of observed variability in expectations prior to TKA, according to a study by Hepinstall and colleagues.

In the study, 1,943 patients were administered an expectations survey prior to primary TKA. The surgeons obtained and analyzed demographics and surgical history as well as baseline SF-36, Knee Injury and Osteoarthritis Outcome Score (KOOS), and Lane and Schwartz Levels of Emotional Awareness Scale (LEAS) scores to determine factors associated with expectations.

The median patient expectation score was 80.6. Scores greater than 90 were observed in 30.3% of patients, with male gender and Caucasian race associated with higher expectations, Hepinstall and colleagues reported. Living alone and history of joint replacement were associated with lower expectations. In general, patient expectations correlated with age, SF-36 general health, vitality, KOOS knee-related quality of life, and LEAS scores. However, no rel-

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Expectations continued from p. 26

tionship was found between expectations and ethnic-
ity, level of education, or the remaining SF-36 and
KOOS subscores. Unreasonably high expectations
were not confined to young, active patients, the
physicians concluded, highlighting the need for
orthopaedic surgeons to thoroughly discuss realistic
expectations of TKA with all patients.

Narcotic use is another risk factor for patient dis-
satisfaction following TKA, according to study find-
ings presented by John A. Karbassi, MD, a Worcester,
MA-based orthopaedic surgeon, and colleagues. The
surgeons conducted a retrospective review of demo-
graphic and surgical data on 6,364 primary, unilateral
TKA patients in a registry of patients who underwent
TKA between 2000 and 2005. Two-thirds of the sam-
ples were women, 66% were older than 65, 91% were
Caucasian, 95% had a primary diagnosis of
osteoarthritis, and 56% were obese (BMI>30). At base-
line, patient mean age was 68 years, mean function
(SF-36; physical component summary, or PCS) was 30
and emotional health (SF-36; mental component sum-
mary, or MCS) was 52. The researchers assessed pain
using the Knee Society Score (KSS).

Prior to surgery, 18% of patients in the study
were taking at least one form of narcotic medication.
Of these, 15% still reported taking narcotics at 12
months post-op. Conversely, only 2.5% of those who
used no narcotics prior to surgery still reported tak-
ing narcotics 12 months after surgery. Narcotic users
also reported more pain pre-op (KSS 34.8) compared
to non-users (KSS 38.3), and narcotic users reported
more pain at 12 months post-op (KSS 74.1) compared
to non-users (KSS 79.8), Karbassi and colleagues
reported.

Moreover, patients taking narcotics at 12 months
post-TKA were significantly more likely to be dissat-
sified with their operation than non-users. These find-
ings have implications not only for patient counseling
but also for pharmacologic management of
osteoarthritis and even for pre-op patient selection,
the researchers concluded.

Assess for mental health carefully

Similarly, orthopaedic surgeons should strongly
consider the use of preoperative mental health scores
in predicting patient satisfaction with surgical out-
comes, according to Rajiv Gandhi, MD, MSc, FRCSC,
an orthopaedic surgeon in the Division of
Orthopaedic Surgery at the Musculoskeletal Health &
Arthritis Program at Toronto (Ontario) Western
Hospital. Gandhi and colleagues surveyed 1,720
patients undergoing primary THA or TKA, recording
variables such as demographic data, body mass index,
sex, comorbidities, and education. Joint functional sta-
tus and patient quality of life were assessed at base-
line and at one-year follow-up using the Western
Ontario McMaster University Osteoarthritis Index
(WOMAC) and SF-36 scales, respectively. The physi-
cians used a four-question survey to determine patient
satisfaction with surgery at one-year follow-up.

Although there were no significant differences in
demographic data between patients who were satis-
fied (n = 1,290) and dissatisfied (n = 430) with surgical
outcomes, a lower preoperative SF-36 mental health
score independently predicted patient dissatisfaction
with surgery. “We found no correlation between
patient satisfaction and WOMAC change scores at
one-year follow-up,” Gandhi added. The physicians
concluded that orthopaedic surgeons should consider
interventions to reduce psychological distress prior to
joint replacement surgery to determine if they may
improve the subjective outcomes of patients.

Fortunately, most patients who undergo TKA are
satisfied with the surgical outcome, according to find-
ings of a study presented by David Christopher
Ayers, MD, professor in the department of orthope-
dics at the University of Massachusetts Medical
School in Worcester, and colleagues. The researchers
prospectively evaluated patient satisfaction after TKA
in a national cohort of 7,715 patients enrolled in an
institutional review board-approved protocol. Two-
thirds of the patients were female and older than 65.
Ninety-five percent of patients had a diagnosis of
osteoarthritis, and 56% had a body mass index
greater than 30. At pre-op baseline, mean age was 68,
mean PCS was 30, and mean MCS was 52.

At one year, 95.5% of patients were satisfied with
the outcome of their TKA, according to the researchers.
Factors that increased the risk of dissatisfaction includ-
ed younger age, female gender, high pre-TKR PCS,
pre-op valgus, and post-traumatic arthritis. At one year
post-op TKA, dissatisfied patients had lower PCS
scores and more persistent knee pain. These findings
can help surgeons to identify specific pre-op risk fac-
tors and develop targeted strategies to counsel patients
who are at risk for greater dissatisfaction following
TKA, Ayers and colleagues suggested.

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Consider adding staff to reduce delays

When considering variations, it’s important to examine both revenue yield and time-to-payment, Day tells OPM. Revenue yield provides insight into a group’s effectiveness in negotiating rates. By comparing yield across different subgroups -- by subspecialty, individual surgeon, and insurance carrier, for example -- practices can identify areas with lower yields and address those areas directly. During their study, the researchers discovered that revenue yields to spine surgeons were lower than those to other subspecialties. With this data in hand, the group could drill down into the characteristics of spine practice that were causing lower yields.

In terms of time-to-payment, the researchers found that “Time 1” -- time required to successfully post the charges -- was significantly higher than “Time 2” -- time required to collect payment following posting -- indicating that the true bottleneck in the billing process occurred when surgeons submitted CPT codes for reimbursement. Time-to-payment increases when practices use a complicated algorithm to transmit CPT codes, Day points out.

Orthopaedic practices can plug in an interest rate to determine the precise level of losses due to time-to-payment delays, and they also should account for time that the surgeons and administrative staff devote to WC arbitration.

“You can actually calculate the value of an extra person whose job would be to decrease time-to-payment,” Day suggests. For example, if delayed payments cause a 3% loss in value -- as in the study -- multiply 3% plus the net department revenue from WC to calculate the value of an additional staff member who might help eliminate this delay. “Such assistance would not only reduce time-to-payment, and therefore minimize value loss, but would also free up time from surgeons so they could more effectively use their time to provide patient care,” Day says.

“Our study can be viewed as a rudimentary system for any orthopaedic practice to take an in-depth look at their WC revenue situation, focusing on the metrics mentioned above,” he adds. “The main utility in such an analysis is a benchmarking of these metrics among various subgroups, such as subspecialty, surgeon, and insurance carrier.”

For example, the researchers went on to examine revenue yields and time-to-payment according to various insurance carriers and discovered numerous variations. Although such data can be used to improve negotiations with lower performing payers, the exercise also may reveal process inefficiencies that the practice can address directly.

“In our situation, we found that Time 1 was significantly higher than Time 2, and steps have been taken to address that discrepancy,” Day says. “In other practices, the reverse may be true, and efforts can then be focused on improving collection times through more aggressive negotiations and collections requirements or closer follow-up.

“The bottom line, however, remains the same,” he adds. “Until practices scrutinize the financial health of their system, inefficiencies in collection and reimbursements will continue to exist. No two practices are identical, but if we apply a standardized algorithm to investigate finances, we can uncover ways to make them more fiscally efficient.”

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**AAOS annual meeting highlights:**

**Study identifies strategies for reducing adverse events among Medicare patients**

Not surprisingly, increased age and obesity were risk factors for the development of adverse events (AE) among Medicare beneficiaries following total hip arthroplasty (THA) performed between 2002 and 2007, but the annual rate of AEs trended downward during the study period, according to a report by James I. Huddleston, III, MD, assistant professor of orthopaedic surgery at the Stanford Medicine Outpatient Center in Redwood City, CA, and colleagues.

The need to reduce adverse events following orthopaedic surgery is critical not only to improve patient outcomes but also to prevent reductions in reimbursement by the Centers for Medicare & Medicaid Services (CMS) for so-called “never events.” Beginning with discharges on October 1, 2008, CMS stopped paying hospitals for additional care resulting from certain “reasonably preventable” adverse events unless the conditions were preexisting and properly documented as present on admission. Among these hospital-acquired conditions (HAC) are surgical site infection (SSI) following certain orthopaedic procedures and deep vein thrombosis (DVT) or pulmonary embolism (PE) following total THA or total knee arthroplasty (TKA).

Although CMS has not reduced surgical payments to orthopaedic surgeons when patients acquire these conditions following surgery, Medicare is no longer paying for physician and other services required to treat HACs, including costs of post-acute care prompted by one of these events. *(For more on CMS never events, see Nov. 2008 OPM, p. 116.)*

In light of Medicare’s rule, some orthopaedic surgeons are selecting patients for hip and knee replacements more cautiously, since patients with certain genetic factors, a history of prior blood clots, obesity, and comorbidities such as diabetes or tobacco use are at heightened risk for DVT or PE. But most HACs and never events result from a combination of system and human errors, including changing technologies, poor communications, inadequate staffing, and insufficient documentation. There’s no quick and easy fix to these problems. And sometimes, even with the best preventive and clinical care, an orthopaedic patient still can develop an infection, PE, or DVT in the hospital, experts say.

**Patient safety focus reduces AEs**

The good news is that “increasing public awareness of medical errors and the need to control health care costs has led to a renewed interest in improving patient safety and quality of care,” Huddleston said. “The aim of our study was to identify risk factors for adverse events while hospitalized after total hip arthroplasty and trends in the rates of AEs.”

The physicians extracted data from the medical records of 1,809 THA patients from 2002 to 2007, representing all patients in the Hospital Payment Monitoring Program sample that underwent THA nationwide. The sample is selected randomly each month by CMS from a pool of approximately one million Medicare beneficiary hospital discharges. Huddleston and colleagues adjusted comorbidity based on the diagnoses of congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), cancer, cerebrovascular disease, diabetes, corticosteroid exposure, obesity, and smoking.

The overall rate of AEs was 5.8% (105/1,809), they found. Increased age and obesity were risk factors for experiencing any AE while hospitalized. Nevertheless, the annual rates of AEs during the study period fell steadily and dramatically, from 9.1% in 2002 to 3.0% in 2007. Thirty-day readmission rates were 12.4% and 6.4% for patients with and without AEs, respectively. Experiencing any AE was associated with an increased length of stay but not with an increased chance of mortality within 30 days of the procedure, the physicians reported.

Huddleston and colleagues also examined the epidemiology of AEs following TKAs performed on Medicare beneficiaries between 2002 and 2007. They abstracted data from the medical records of 4,063 TKA patients in a nationwide sample from 2002 to 2007 and adjusted for comorbidity. The overall rate of AEs was 4.8% (196/4,063), with the comorbidities cancer, CHF, and COPD representing the most significant risk factors for experiencing any AE during hospitalization. Similar to THA, annual rates of AEs in TKAs for Medicare beneficiaries fell steadily from 8.1% in 2002 to 2.1% in 2007. The overall 30-day readmission rate was 5.6% (228/4,063) and the 30-day mortality rate was 0.42% (17/4063). Experiencing any AE was associated with an increased chance of 30-day mortality, 30-day readmission, and extended length of stay, the physicians reported.

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Volume, adherence to process measures influence patient outcomes in TJR

In recent years, the relationship between surgeon and hospital procedure volumes and clinical outcomes in total joint replacement (TJR) has become the focus of numerous payer-driven proposals to regionalize care. Kevin John Bozic, MD, MBA, associate professor in residence in the department of orthopaedic surgery and the Institute for Health Policy Studies at the University of California, San Francisco, and colleagues reported the findings of their study to evaluate the independent contributions of surgeon and hospital procedure volume as well as standardization of care on patient outcomes in TJR.

They analyzed data from 182,146 consecutive primary TJR patients from 3,421 physicians at 312 hospitals. Adherence to evidence-based processes of care was defined by whether or not patients received appropriate perioperative beta-blockade, prophylactic antibiotics, and venous thromboembolism (VTE) prophylaxis. Patient outcomes included mortality, hospital length of stay (LOS), discharge disposition, surgical complications, readmissions, and reoperations within first 30 days. Hierarchical models were used to estimate effects of hospital and surgeon procedure volume and process standardization on individual and combined surgical outcomes and LOS.

After adjustment in multivariable models, higher surgeon volume was associated with lower risk of complications, readmission, or reoperation; shorter LOS; and higher likelihood of being discharged home. Higher hospital volume was associated with lower risk of mortality and readmission and higher likelihood of being discharged home. Maximizing adherence to evidence-based processes of care resulted in improved clinical outcomes and shorter LOS, independent of hospital or surgeon procedure volume.

Create team to improve evidence-based care

The effectiveness of clinical process standardization was demonstrated in another study by physicians at Mission Hospital Regional Medical Center in Mission Viejo, CA. Orthopaedic surgeon Eli Swanson, MD, and colleagues reported improved clinical outcomes and efficiency following the introduction of a multidisciplinary TJR team in the community hospital in early 2006. Permanent members on the team included a nurse program coordinator, orthopaedic surgeon, physical therapist, quality improvement nurse, nursing administrator, orthopaedic OR nurse coordinator, and social worker/case manager, according to Guy Paiement, MD, MBA, an orthopaedic surgeon and associate director of education at Cedars-Sinai Orthopaedic Center in Los Angeles and an early member of the TJR team. Individuals invited to join the team included the chief of anesthesia, inpatient pharmacist, community liaison representative, volunteers, hospitalists, physiatrists, and “any able and willing orthopaedic surgeon,” Paiement says.

The team first reviewed best practices in the literature. Evidence-based protocols -- including preadmission assessment, discharge planning, multi-modal pain management, joint replacement classes, continuous real-time problem solving, and standardized physician orders -- then were progressively developed and implemented. “It took 16 months for full implementation to include all surgeons doing hip and knee replacements at the hospital, although we were 90% implemented at 12 months,” Paiement tells OPM.

Patient satisfaction was measured through a nationally recognized standardized survey (Avatar). Quality of care benchmarks were evaluated continuously, while efficiency parameters such as hospital length of stay (LOS) and discharge disposition also were monitored.

Eleven of 22 items on Avatar showed significant improvement after the program’s implementation. Hospital LOS dropped by nearly half, from 4.5 days to 2.6 days. Compliance with evidence-based antibiotic prophylaxis soared from 23% to 93%. Primary TJR patients who were referred to acute rehabilitation units following discharge decreased from 38% in 2005 to 3% in 2008, with some 83% of patients discharged directly to home in 2008.

“Our program shows that an integrated team approach to TJR in a community hospital improves efficiency, cost, and patient satisfaction on par with specialized and large academic centers,” Swanson said. “More and more patients will undergo TJR at community hospitals as demand for the surgery accelerate over the coming decades. Implementation continued on page 31
Hospitalists help manage high-risk patients

A third study presented by Michael S. Pinzur, MD, professor in the department of orthopedic surgery and rehabilitation at Loyola University Medical Center in Maywood, IL, and colleagues examined the effectiveness of hospitalist-orthopaedic co-management of high-risk patients undergoing lower extremity surgery. The model, described last year in Orthopedics,1 produced inconsistent results in terms of efficiency and quality of care, according to the researchers. They hypothesized that applying a hospitalist-orthopaedic co-management model proactively to a small group of high-risk patients would have the greatest potential to improve care, especially if hospitalists were involved prior to admission by conducting a structured risk assessment.

Eighty-six patients with at least one significant medical comorbidity or critical social issue were selectively enrolled in the hospitalist-orthopaedic co-management care program for patients who were undergoing lower limb extremity salvage or reconstructive surgery for diabetes, trauma, or congenital or developmental disease. Examples of medical conditions prompting co-management include stable coronary artery disease with no new angina or procedures during the past six months, compensated congestive heart failure, controlled diabetes, controlled hypertension, and normal renal function.

As part of the pilot program, introduced at Loyola University Medical Center in September 2007, these patients were evaluated by an attending internal medicine hospitalist prior to admission to ensure that their medical risks had been identified and appropriately managed -- a process designed to minimize surgical delays and cancellations. The surgeries were performed by a single senior orthopaedic surgeon. A hospitalist on the team also coordinated each patient’s medical care following surgery.

The orthopaedic patients were stratified by 3M Health Information Systems APR-DRG grouper severity of illness (SOI) and risk of mortality (ROM) scores. The study compared hospital length of stay (LOS), cost of care (COC), in-hospital mortality, complications, and ICU admissions with a retrospectively constructed control group of 54 patients undergoing similar surgery during the period immediately preceding initiation of the program.

During the study, the University Healthcare Consortium (UHC) observed-to-expected (OE) ratio for hospital LOS decreased from 0.862 to 0.693, even though the SOI and ROM scores represented a relatively higher-risk stratification in the study group, according to Pinzur. While the overall OE cost of care remained virtually unchanged, the study model revealed an increased positive effect on the more severely affected SOI and ROM groups.

Patient satisfaction surveys were mailed to patients upon discharge from the hospital. Scores on the attributes “communication with doctors” and “doctors treated you with courtesy and respect” improved by 5% and 14%, respectively. However, hospital-specific patient questionnaire scores did not change upon implementation of the co-management model.

“The results of this pilot investigation would suggest that a proactive, cooperative, co-management model for the perioperative management of high-risk patients undergoing complex surgery can improve the quality and efficiency metrics associated with the delivery of that service to patients,” Pinzur said. The program was relatively inexpensive to implement, since the model is based on process changes more than additional resources. However, the model requires the incorporation of a hospitalist onto the orthopaedic surgical team to conduct pre-op assessments and ensure continuity of care during hospitalization for surgical patients with significant medical needs. For organizations that adopt such a change, the hospitalist-orthopaedic co-management model has demonstrated the capacity to improve patient safety, enhance patient and staff satisfaction, and reduce unnecessary resource utilization.

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Reference

AAOS annual meeting highlights:

**X-rays, patient-reported outcome may suffice as follow-up for TKA**

Demand for total knee arthroplasty (TKA) in the U.S. has skyrocketed, with the procedure being performed more often across a broader patient population that includes younger -- and older -- patients than ever before. In fact, TKA rates are expected to soar by more than 650% over the next 20 years. How will orthopaedic surgeons increase their efficiency to better handle this burgeoning number of surgeries? The answer may lie in a change in the way physicians follow patients after TKA, according to Patrick M. Morgan, MD, assistant professor in the department of orthopaedic surgery at the University of Minnesota in Minneapolis.

“Though current practice involves office follow-up, it is unclear if the asymptomatic patient with normal X-rays benefits from a physician exam,” Morgan told AAOS attendees. “Considering patient cost, physician time, and use of clinical resources, these visits may become difficult to justify. If the goal of physician visits is to identify patients requiring surgery, we hypothesized that patient-reported outcome scores and routine X-rays could perform that function.”

Morgan and colleagues examined American Knee Society (AKS) scores and X-rays of 64 consecutive revision TKAs from a prospective cohort of 1,012 TKAs. Failures were categorized as either acute (fracture, traumatic component failure, infection) or latent (implant loosening, progressive osteolysis, pain). Serial radiographs were screened for radiolucent lines or osteolysis, malalignment, fracture, or component failure.

Unrevised TKAs showed no decrease in patient-reported AKS scores, the physicians reported. Knees revised for an acute reason likewise showed no decrease. In the latent group, patient-reported outcome scores decreased significantly, with a 45% decrease in the pain score and a 33% reduction in the function score. When trauma and infection were excluded, no knee was revised without a decrease in patient-reported AKS scales, troubling radiographs, or both.

These findings call into question the practice of office visits for the well-functioning TKA patient, Morgan and colleagues suggested. Instead of face-to-face visits, remote patient monitoring via a patient-reported outcome score and telemedicine radiographs may be sufficient to alert surgeons to impending failures. Such a change could enable orthopaedic practices to schedule more surgical time and new patient visits for busy surgeons.

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**AAOS annual meeting highlights:**

**Improve communication to reduce incidence of inappropriate ED transfers**

Overcrowded emergency departments have become a flashpoint in the debate over the future of the U.S. health care system. For orthopaedic surgeons, inappropriate transfer of patients from level III/IV trauma centers to level I trauma centers only exacerbates the overcrowding, resulting in increased health care costs and excessive delays in delivering appropriate care. However, that scenario is playing out in EDs around the country, according to Nikhil A. Thakur, MD, an orthopaedic surgeon and associate instructor in orthopaedics at Brown University in Providence, RI.

“The establishment of trauma centers was aimed at providing an optimal environment for the care of seriously injured patients,” Thakur said. The American College of Surgeons has established specific criteria for appropriate transfer of patients to trauma centers. These include orthopaedic emergencies such as amputations, limb paralysis, pelvic fractures, and two or more proximal long-bone fractures. However, most hospital criteria for transferring patients appear unrelated to the bulk of orthopaedic injuries, according to a study conducted by Thakur and colleagues. In fact, more than half of the patients transferred from surrounding hospitals to a level I trauma center could have been treated locally, the researchers concluded.

They conducted a prospective study over a five-month period by collecting data on all orthopaedic patients transferred to Rhode Island Hospital, the teaching hospital affiliated with Brown. They designated all transfer diagnoses as legitimate or illegitimate and calculated demographics for all transferred patients. Twenty-three level III-IV hospitals transferred patients to the level I trauma center.

The researchers documented the diagnosis of patients with orthopaedic injuries who were transferred, along with patient demographics, insurance criteria for appropriate transfer of patients to trauma centers. These include orthopaedic emergencies such as amputations, limb paralysis, pelvic fractures, and two or more proximal long-bone fractures. However, most hospital criteria for transferring patients appear unrelated to the bulk of orthopaedic injuries, according to a study conducted by Thakur and colleagues. In fact, more than half of the patients transferred from surrounding hospitals to a level I trauma center could have been treated locally, the researchers concluded.

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The researchers documented the diagnosis of patients with orthopaedic injuries who were transferred, along with patient demographics, insurance

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status, time of arrival, day of transfer, transferring and accepting physicians, previous imaging studies, and patient disposition. Orthopaedic surgeons characterized the transfers as appropriate or inappropriate based only on the diagnosis in the transfer information. (See criteria at http://www.aaos.org/news/acadnews/2010/AAOS2_3_11_t1.pdf.)

More than half of transfer inappropriate

The surgeons determined that 52% of the 216 orthopaedic patients were transferred inappropriately. Of these, 68% of transfers occurred between 6PM and 6AM, and 60% of all transfers occurred on weekends. Insurance was an independent factor affecting legitimacy of transfer, with a larger percentage of inappropriate transfers occurring when patients were uninsured, the researchers reported. In fact, inappropriate transfers were twice as likely to be uninsured as appropriate transfers, they found. Moreover, Thakur and colleagues found a significant difference in inappropriate transfers of uninsured patients after hours and on weekends compared to insured patients.

Problems occurred on the receiving end, as well. “More than 97% of inappropriate transfers were accepted by the ED physician without communicating with the on-call orthopaedist at our facility,” Thakur reported. The researchers found that patient gender, arrival time into the ED, and day of transfer were not associated with appropriateness of transfer.

Although 54% of the transfers were admitted, 69% of inappropriately transferred patients were discharged from the ED following evaluation compared to just 17% of legitimate transfers who were discharged. Still, transferred patients used significant hospital resources. Advanced imaging studies were obtained in 30% of inappropriate transfers and 42% of legitimate transfers.

The researchers also observed troubling transfer patterns. Of the 23 local hospitals, four hospitals accounted for half of the transfers and 65% of the inappropriate transfers. “This was twice the number of legitimate transfers from the same hospitals,” Thakur said.

“There is a trend among community orthopaedists and hospitals to transfer uninsured patients with benign orthopaedic injuries inappropriately to a level I trauma center,” he concluded. “This effect is magnified on weekends and at night. Strict regulation of the Emergency Labor Act and better communication between level III/IV hospitals and level I orthopaedic surgeons can decrease the inappropriate transfer of patients and reduce the burden on health care.”

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AAOS annual meeting highlights:

Exercise caution when using administrative data to track clinical outcomes

Orthopaedic practices face growing pressure to provide quality data to a number of entities, including the Centers for Medicare & Medicaid Services (CMS) and private payers. Such data often include rates of complications—including infection—following orthopaedic surgery. However, the reliability of such reporting is suspect, as these data generally come from administrative databases that are used as surrogates to assess clinical outcomes.

Mark I. Froimson, MD, MBA, an orthopaedic surgeon and the quality review officer for the Orthopaedic and Rheumatologic Institute at The Cleveland Clinic, and colleagues reported on their efforts to validate administratively generated data for clinical reporting. Their findings raise concerns about the accuracy of using claims data for clinical reporting.

Staff in the quality department were asked to use their most comprehensive search methods to pull all infections related to primary and revision hip and knee arthroplasty over a one-year period. They used DRG 544 and 545, MS-DRG 466-470, and ICD-9 81.54, 81.55, 81.51, and 81.52 with modifiers to identify cases. In all, the staff pulled 1,407 cases, including 1,006 primary and 401 revision cases. These cases were further reviewed for complication codes 998.51, 998.59, 686.9 or 996.66.

Following the second database analysis, 58 cases were identified that met the criteria for surgical site infection following total joint surgery, including 11 primary and 47 revision infections. When these cases were reviewed for accuracy, however, none of the 11 primary cases identified were actual infections, and only two of the 47 revisions identified were valid. A separate clinical infection registry revealed that six additional primary cases and four revisions were not included in the quality report, since they had occurred more than 30 days post-surgery.

The findings have enormous implications for continued on page 34
orthopaedic practices whose payments are linked to quality-based measures but whose performance is tracked through administrative claims.

“The quality-based analysis was a poor tool to accurately report infections after hip and knee replacement,” Froimson reported. “Using such data has the potential to report data that does not reflect true outcomes.” This analysis discovered severe over-reporting as well as under-reporting of missed cases.

“Better methods of reporting clinically relevant outcomes are necessary,” Froimson added. “Until these are developed, data generated from administrative sources should be viewed with suspicion.”

**Educate to improve documentation**

A poster presentation by Kevin John Bozic, MD, MBA, associate professor in residence in the department of orthopaedic surgery and the Institute for Health Policy Studies at the University of California, San Francisco, seemed to confirm these concerns. Bozic and colleagues explored the level of concordance when using administrative, clinical diagnosis, and procedure codes in total joint arthroplasty (TJA) outcomes research.

The researchers obtained administrative diagnosis and procedure codes from hospital billing records from 282 consecutive revision total hip arthroplasty (THA) and 274 consecutive revision total knee arthroplasty (TKA) procedures performed at three institutions and compared these with operative notes and discharge summaries. They determined concordance between administrative and clinical records for each revision TJA-related ICD-9 code.

For revision THA, concordance rates ranged from 98% for mechanical loosening to just 27% for prosthetic failure/breakage. For revision TKA, concordance ranged from 100% for the diagnoses of bearing surface wear, osteolysis, and prosthetic joint infection to just 22% for prosthetic failure/breakage. Concordance for revision THA procedure codes ranged from 85% for acetabular component revisions to 50% for both component revisions, and concordance for revision TKA procedure codes varied from 95% for all component revisions to 22% for tibial component revisions.

New, more descriptive ICD-9-CM diagnosis and procedure codes offer the opportunity to use large, nationally representative administrative databases to evaluate TJA outcomes, according to Bozic and colleagues. With the exception of prosthetic implant failure/breakage, TJA-specific ICD-9 diagnosis codes appear to accurately reflect the clinical record, they reported. However, TJA-specific ICD-9 procedure codes are less accurate, they cautioned.

**Editor’s note:** Contact Froimson at 216-444-8784 or froimsm@ccf.org and Bozic at 415-476-3900 or kevin.bozic@ucsf.edu.

**AAOS annual meeting highlights:**

**Prevent toe-tapping in the waiting room to improve patient satisfaction**

Outpatient waiting time is a huge predictor of patient satisfaction. Unfortunately, wait times in most orthopaedic practices exceed those of other specialties. **Jordan N. Greenbaum**, MD, MBA, a New York City orthopaedic surgeon, and colleagues conducted a study to determine independent predictors of patient satisfaction associated with outpatient orthopaedic visits to assess the importance of wait time.

The physicians performed a prospective study of 376 patients at a multispecialty orthopaedic clinic. They measured time spent in the waiting room, the exam room, and with the physician. Patients also completed a survey, which included a validated instrument to measure satisfaction.

More than 60% (n=231) of patients completed the survey. There were no demographic differences between non-responders and responders. Nearly nine in 10 (87%) of patients reported they were satisfied, according to Greenbaum and colleagues. Age, perceived waiting room quality, patient type, and estimated waiting time were strong predictors of satisfaction.

Treating satisfaction as a discrete variable, the physicians concluded that satisfied patients had a lower average waiting time than dissatisfied patients (19±22 vs. 40±20 minutes). In fact, controlling for age and waiting room quality, every 10-minute decrease in estimated wait time increased the odds of satisfaction by 17%. This finding is important for orthopaedic surgery practices, because the survey also found that satisfied patients are more likely to recommend the practice.

“Improving waiting room quality and decreasing wait time are likely to improve satisfaction,” Greenbaum said. “Decreasing waiting time may have a greater impact on preventing dissatisfaction than on increasing satisfaction at the margins.”

**Editor’s note:** Contact Greenbaum at 212-606-1000.
Surveys: Most patients trust surgeon involvement with orthopaedic industry

Few studies have examined the perceptions of patients regarding the relationships between surgeons and the orthopaedic industry – a factor of growing importance in the wake of highly publicized government investigations into a handful of improper relationships. To shed light on the topic, Scott C. McGovern, MD, an orthopaedic surgeon at Peninsula Orthopaedic Associates in Salisbury, MD, and colleagues Robert T. Trousdale, MD, and Bradford L. Currier, MD, from the Mayo Clinic surveyed two groups of surgical patients representing primary total joint arthroplasty (TJA) and instrumented spinal surgery. Patients were randomly selected from all primary total hip arthroplasties (THA) and total knee arthroplasties (TKA) or from instrumented spinal fusions performed at the Mayo Clinic between 2003 and 2007.

The researchers matched these surgical groups with cohorts of nonsurgical patients during the same time period who had correlating diagnoses. They mailed both groups a comprehensive survey, which produced a response rate of 43%, providing 404 usable survey responses for matched cohorts.

More than nine in 10 (93%) respondents agreed or strongly agreed that it is beneficial for doctors to advise medical device manufacturers. Nearly the same percentage (92%) of patients reported that they trust their doctor to do what is best for patients.

The numbers shifted slightly when the focus turned to the level of a physician’s involvement with medical device makers. Although 82% of respondents agreed that doctors should receive payment for designing implants, only 40% indicated that doctors should receive financial reimbursement for an advisory role alone. Surprisingly, 80% of patients without prior surgery responded that physicians should disclose their relationships with industry while only 68% of surgical patients stated that doctors should reveal these relationships to patients.

Only 6% of patients with prior surgery believed their physician chooses a medical device based upon personal financial gain compared to 9% of patients without prior surgery. Nearly all (96%) patients agreed that their physician would choose the implant that is best suited for them, while only 7% want hospitals or insurers to make that choice.

In short, “the vast majority of orthopaedic patients surveyed believe that surgeon-industry relations are beneficial and appropriate,” McGovern concluded.

A second study explored a different dimension of physician-industry relationships. Kanu M. Okike, MD, clinical fellow in orthopaedic surgery

Examine cost, reimbursement of orthopaedic procedures

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<td>Estimated change in revision TKA per-patient cost, 2003-2006: +19%</td>
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<td>Average direct orthopaedic costs for revision TKA, per patient, 2003-2006: $50,987</td>
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COI continued from p. 35

at Harvard Medical School, and colleagues assessed the accuracy of self-reported conflict of interest (COI) disclosure by orthopaedic surgeons. They analyzed the reports of payments made to orthopaedic surgeons during the 2007 calendar year by five total hip and knee joint prosthesis manufacturers to determine payment recipients and amounts. For each payment recipient who served as a presenter, committee member, or board member at the 2008 AAOS annual meeting, the researchers reviewed the mandatory disclosure statement to determine if the payment had been disclosed.

The overall disclosure rate was 71.2%, including 79.3% for directly related payments, but just 50.0% for indirectly related payments and 49.2% for unrelated payments. The researchers found that payments were more likely to be disclosed if they exceeded $10,000, were directed toward an individual, included an in-kind component, were made to a symposium presenter or instructional course lecturer, or were made to an annual meeting board member or committee member. The reasons for nondisclosure most often cited by survey respondents were that payment was not related to the topic of presentation (38.9%) and disclosure requirements were confusing (13.9%).

Editor’s note: Contact McGovern at 410-749-4154 and Okike at 617-493-6103.

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